

Digital Switchover Strategy DSS

*Objectives, instruments and conditions for the period
2007 to 2012 finalized on the basis of consultation
recommendations*

February, 2007

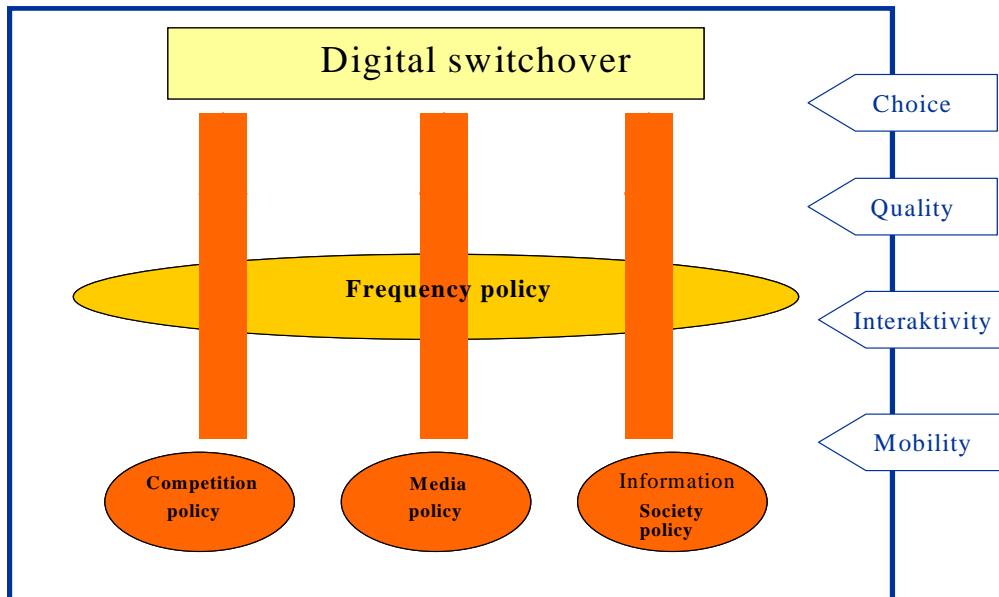
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I. Introduction

1. This document was created to provide a basis for the strategic orientation of the Government in respect of the switchover to digital broadcasting. The need to create such a document justified by the fact that digitalizing television and radio programming is a complicated process with far-reaching economic and social consequences equally affecting residential, services and governmental sectors, because
 - essentially it targets all Hungarian households,
 - it expands audio-visual services selections,
 - it may promote the use of information society services,
 - creates significant need for service provider (transmitters, network) and consumer (decoders, digital receivers) investments
 - it may result in a rearrangement of analogue market positions and revenue processes in the communications and media sector,
 - it speeds up institutional and regulatory convergence processes.
2. The need for creating a strategic basis is also underscored by the fact that introducing digital television programming points far beyond the television market. It is not a coincidence that preparing for digital switchover is a lengthy process sparking political as well as professional debates in any country. This can be explained by the fact that, due to the additional services offered by it and the effect it has on analogue market conditions, digital television programming cannot be separated from the broader information society strategy, or competition and media policy.

1. chart Digital switchover in a value based approach

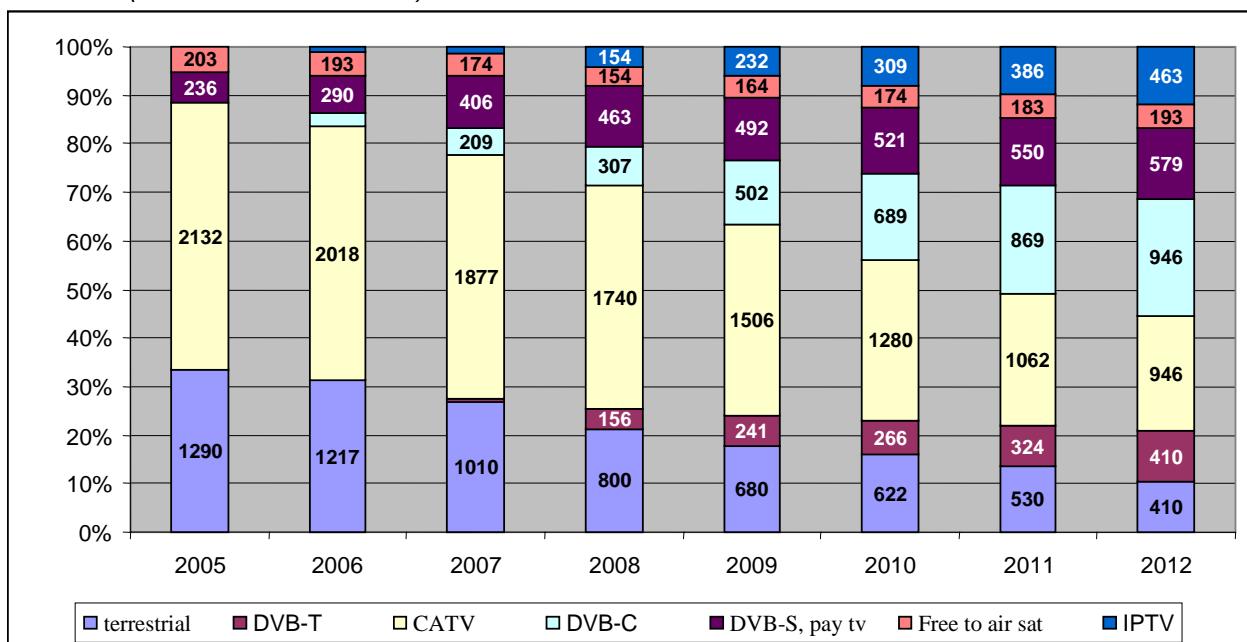


Source: DSS consultation material

3. In order to speed up the dissemination of sophisticated audio-visual services, to ensure better use of network capacities and to increase competition intensity, digital switchover does not only specify national tasks, but it also sets out tasks at the European level such as:

- efficient and coordinated spectrum management by the member states,
- modernization of regulations on audiovisual media and electronic communications services,
- creating an efficient and comprehensive arrangement to manage copyright laws in a digital environment
- etc.

2. chart Platform structure and projected development of the number of households with digital reception in Hungary in the period 2005 to 2012 (thousand households)

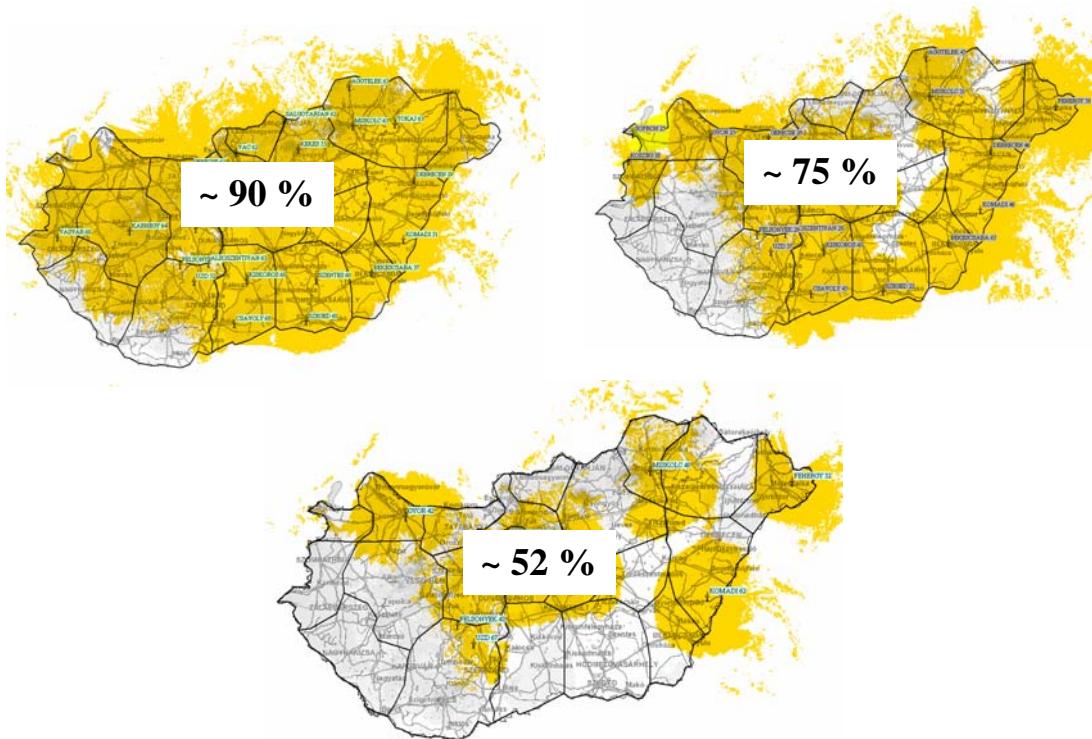


Source: DSS consultation material

4. The most prominent EU initiative regarding digital switchover concerns the Commission's wish to coordinate the switch-off of analogue terrestrial television programming at community level, in order to validate community level spectrum management aspects: the latest date at which member states are allowed to switch off analogue broadcasting services is December 31, 2011. Considering the fact the majority of the neighbouring countries intends to adhere to this deadline, adopting a later target date would give rise to diplomatic difficulties for Hungary from a frequency coordination point of view, as surrounding countries would be unable to fulfil their objectives without Hungary's switching off of analogue terrestrial services. Based on the most probable television programming market scenarios today Hungary can only fulfil this requirement with effective and strong state involvement:

- Considering the trends experienced in countries where commercial services were launched at a relatively early date (in 1998 or 1999), 20 to 25 percent of terrestrial households could switch over to digital reception in the medium term (2006 to 2009) reaching 50 percent by 2012.
- This assumption is further corroborated by the fact that fewer channels will be available on the DVB-T platform in the simulcast period in Hungary than in the leading countries. This would make digital terrestrial supply significantly less attractive and cast doubt on the viability of a hybrid offer (containing FTA and pay selection) as well.
- We do not think that it is possible for more than fifty percent of terrestrial households to switch over to digital reception without more decisive state involvement. This means that at the time analogue terrestrial broadcasting is switched off in 2012, despite sharply dropping household numbers with terrestrial reception only, hundreds of thousands of households would still only have analogue receivers.

3. chart Currently available digital networks



Source: NHH-FGI consultation answer

5. Out of the digital switchover initiatives undertaken in Hungary so far, allocation and planning of frequencies for digital terrestrial transmission are the most noteworthy. As a result of the RRC-06 meeting, the set of frequencies necessary for launching digital transmission will only

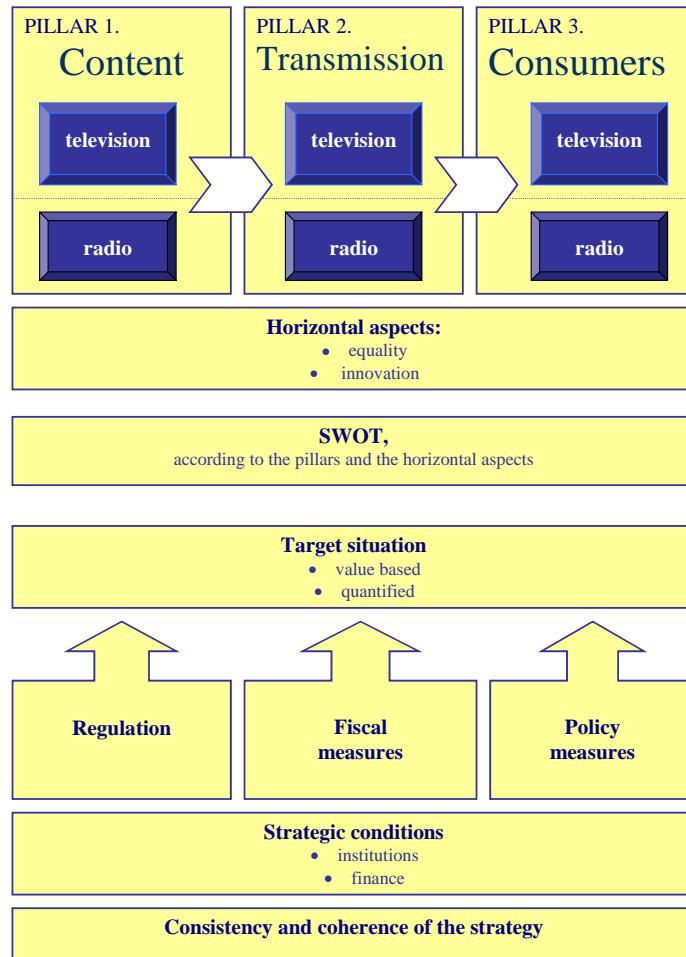
be available after digital switchover has been fully accomplished (after 2012). Until this is achieved, the frequencies negotiated with the neighbouring countries currently offer three nation-wide T-DAB coverages¹ for digital radio programming and three terrestrial digital television networks in the switchover period until 2012 (see Diagram 3)²:

- First network (MUX 1) 90%
 - Second network (MUX 2) 75%
 - Third network (MUX 3) 52%
6. The coverage of all three television networks could gradually increase as a result of further successful international negotiations and the modification of domestic and foreign military use. In addition, to reach the above-cited level of coverage a few low-power (public service and commercial) relay and local transmitters would need to be replaced. The launching of additional television multiplexes will only be possible after the analogue transmission of channels m1 (MUX 4), RTL Klub and tv2 have been switched off (MUX 5, 6, 7, and 8).
 7. In addition to the tasks of frequency coordination the following government initiatives in preparation for digital switchover should also be mentioned:
 - Government Resolution No 1021/2005. (III.10.) Korm. on the primary tasks of the Government concerning the switchover to digital terrestrial television broadcasting, was the first document that stated the main concepts of the Government of Hungary with regard to switching over to digital terrestrial television broadcasting. It also adopted the 2012 switch-off date of analogue terrestrial broadcasting as proposed by the EU, and set out the short term (2005/2006) tasks of the Government.
 - The opinions published by the National Radio and Television Board on the various issues of digital switchover in its board decisions.
 - As per the contents of Government Resolution No 1021/2005 and in order to provide for effective and orderly regulation a Bill on “*digital broadcasting*” (Dtv. – Digital Broadcasting Act) was drawn up. The final voting on the Bill, however, did not take place as – due to the fact that a number of amendment proposals were submitted that were contrary to the spirit and objectives of the Act – the Bill was eventually withdrawn.

¹ National coverage for one VHF and two L bands. The application of the latter for multi-media purposes is currently being reviewed by CEPT.

² The residential coverage cited above can be reached assuming the following system characteristics (it should be noted that earlier values of 70, 50, and 30% were determined based on these parameters as well): Mode of reception: fixed, Modulation 64 QAM, Error correction code ratio: 2/3, Protective interval ratio: GI=1/4, Number of carriers: 8k.

4. chart The structure of the document containing strategic recommendations



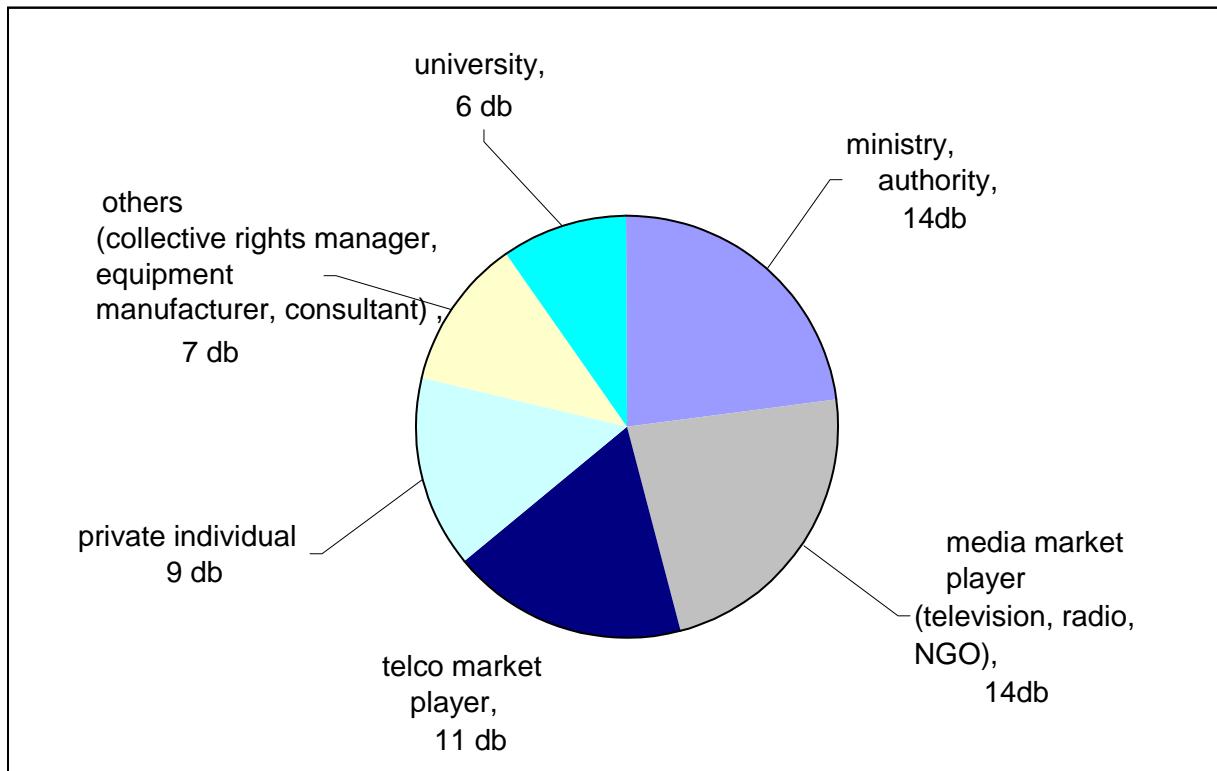
Source: DSS consultation material

8. The Dtv. Bill debate – despite its eventual withdrawal – had a positive effect on the articulation of the various public administration, market and social positions on the major related conceptual issues and it also drew attention to the necessity of creating a strategic basis for the regulatory and other governmental instruments applied in the interest of digital switchover. As a result, the Ministry of Informatics and Communications (IHM) drew up the proposal for the digital switchover of television and radio programming in the first two quarters of 2006 – after participating in a EU public procurement tender – with the participation of the advisory consortium comprised of Telkes Tanácsadó Zrt. and Colosseum Budapest Kft. and in accordance with the main prongs of the broadcasting value chain and the Requirements of Governmental Strategy Creation (RGSc)³.

³ The professional grounding of the single requirement framework of governmental strategy creation and harmonization (Prime Minister's Office, 2004)

9. In the second two quarters of 2006 the legal successor of IHM, the Ministry of Economy and Transport, as per the provisions of Government Decree No 160/2006 (VII.28.) Korm. transferred the strategy proposals to the Prime Minister's Office, the entity responsible for media regulation, which then put the 300-page document up for open public consultation in order to finalize the strategy (www.meh.hu/szolgaltatasok/dtv). This material is hereinafter referred to as the DSS consultation material.
10. The consultation material was greeted with intense and broad professional and social interest. A total of 61 recommendations, spanning 476 pages, were sent to digitalis.atallas@meh.hu or the mailing address of the Prime Minister's Office during the consultation period ending November 29, 2006. The contributions which are published based on the author's consent are available in full on the website of the Prime Minister's Office at (<http://www.meh.hu/szolgaltatasok/dtv/das20061005.html>).
11. It should be noted in connection with the composition of the consultation recommendations that the various ministries and other authorities submitted many recommendations and that the most important players of the markets affected by the switchover participated in the process almost without exception.

5. chart Summary of responses sent for the DSS consultation



Source: Prime Minister's Office

12. Based on the assessed opinions and recommendations submitted in the course of the consultation (http://misc.meh.hu/letoltheto/DAS_konzultacio_osszefoglalo.pdf) the updated and finalized objectives, instruments, and conditions – serving as a basis for the drawing up

of the regulatory measures and the relevant Government Resolution – of the proposal on the digital switchover strategy shall be presented in this document.

13. It is important to note that the digital switchover strategy equally concerns television and radio programming, which requires a different strategic approach due their very different nature. While for television the analogue terrestrial broadcasting must be switched off, requiring the governmental measures, the digital switchover of radio programming only requires an opportunity for switching over.
14. Using the widely accepted, although by no means precise, popular term this document refers to the digital terrestrial radio or television broadcasting network as a “multiplex” as well. Due to the same reasons the tendering conditions and procedure of the right to use and operate radio and television broadcasting networks will be referred to as a “multiplex tender” and “multiplex tendering”, respectively.

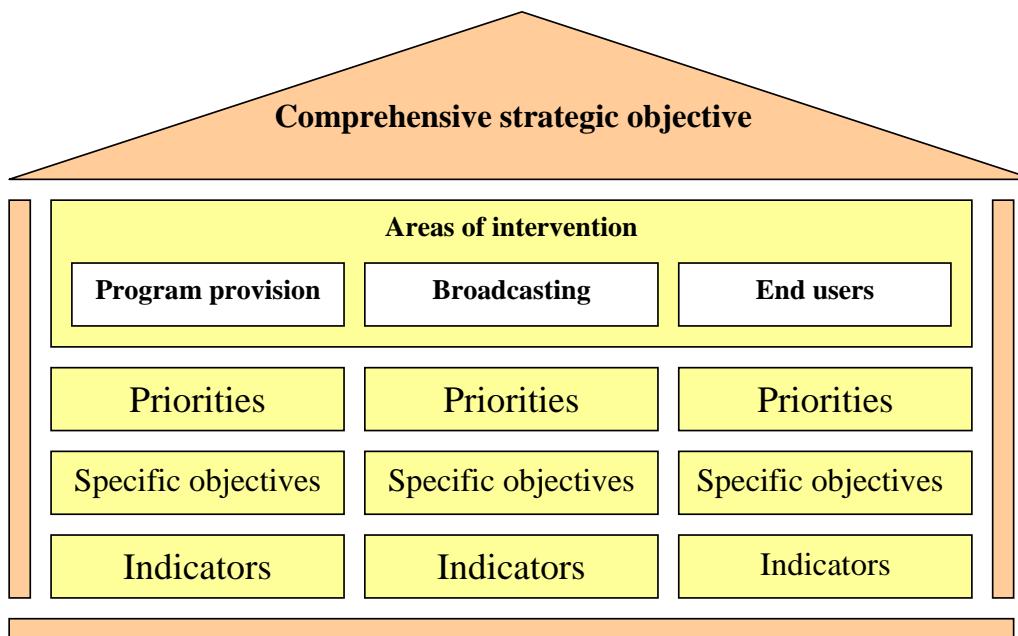
II. Objectives and indicators

15. The participants of the consultations fundamentally agreed with the structure of the system of objectives and the defined specific objectives. Debates in this topic were sparked by the weight accorded to the various objectives: in its response the National Communications Authority laid great emphasis on flexible frequency management as a regulatory objective, while the media authority and other state-run institutions stressed the importance of aspects such as constitutionality and media policy. In this regard the strategy does not share the idea that media policy and competition laws set out *ab ovo* opposing objectives creating a conflict where based on theoretical aspects one group of objectives is fore grounded while the other group is pushed to the background. In reality media policy and competition policy objectives often support the validation of each other's goals. For instance, the fight against market monopolies may indirectly result in positive developments in media pluralism. In a similar vein, it can also be concluded that a media system built on a healthy economic basis may be able to fulfil media policy expectations related to e.g. national culture or the healthy development of children better, than a media sector that is forced onto an economically unfavourable path of development.
16. Therefore, one of the most important tasks of regulation is to continue to strive to find opportunities to take advantage of the synergies between the individual elements of the diverse system of objectives. Instead of creating theoretical – and in some sense artificial – conflicts between regulatory objectives, this can primarily be achieved through practical solutions. Therefore, we do not consider it necessary to modify the strategic orientation specified in the consultation material either in terms of structure or content:

“Philosophy” and instruments of the strategy	The overall objective of the strategy is to aid the priorities listed below during the digital switchover with clear regulatory conditions and practice , in accordance with relevant EU directives; confident public policy involvement and a targeted subsidy policy that upholds the principles of technological neutrality.
Priority 1	The reinforcement of media pluralism Digitalization of television and radio archives Spreading of interactive services with high added value
Priority 2	Expedient use of limited resources Establishment of sustainable and effective market competition in digital broadcasting
Priority 3	Improvement of consumer awareness Making basic digital television services accessible to disadvantaged social groups

17. In accordance with the requirements of the RGSc, the transparency and division of the strategic system of objectives must be accorded special attention. The comprehensive strategic objective is then divided into strategic priorities, specific objectives and explicit indicators assigned to the objectives by the various areas of intervention.

6. chart Structure of the strategic system of objectives



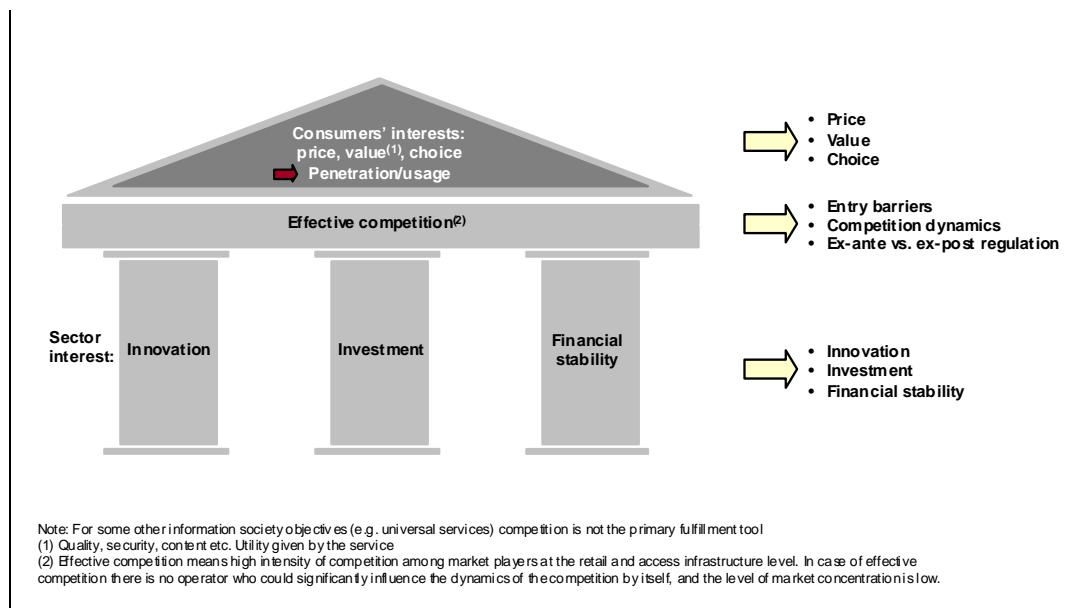
Source: DSS consultation material

18. It was also a requirement for the planning of strategic directions and objectives to have as few vitally important strategic objectives and indicators as possible for measuring whether the desired target state was achieved or not. This, in turn, makes the assessment of the success of strategy more explicit, expressing the results necessary to achieve the state projected for the future in terms of clear parameters, also simplifying the operation of the monitoring system.
19. The specification of the strategic priority in the field of program provision is primarily oriented by the experience that digital content and service selection was a determining factor of the success of the introduction of digital television in all of the countries under review. This is particularly true for the most successful satellite platform, but DTT is also gaining ground in countries where the platform offers a channel package that has considerably increased the number of freely accessible channels. This was the case with Great Britain's Freeview and the platform re-launched in Sweden. The multi-channel system was an important force of attraction in Berlin, Germany as well where instead of the 20 originally planned channels now there are as many as 27.
20. The roles undertaken by public television and commercial channels with the highest ratings were key to drawing up the attractive channel selection everywhere. In most of the countries under review the market was dominated by the few channels of the public service broadcaster (PSB) as well as by the leading commercial broadcasting service provider (CBS). This is why it is important that the contents possessed by these players are present on the DTT platform from the outset.

21. Audiovisual archives form part of cultural collective goods in all countries. Therefore, in respect of specifying the tasks of the digital switchover it is important to lay emphasis on an aspect that expresses the responsibility of the state in digitalizing contents originally recorded in an analogue form. This is also a prerequisite for the protection and potential use of these contents.

22. The option and efforts to realize interactivity have so far not been successful in truly increasing DTV penetration. Their significance, however, is growing for the future spreading of information society services.

7. chart The system of objectives of the regulatory strategy of NHH



Source: DSS consultation material

23. In respect of broadcasting, emphasis is clearly laid on effective and sustainable market competition. In this regard the Digital Switchover Strategy clearly shares the assumption propagated by the regulatory strategy of the NHH that effective competition would most likely result in increasing consumer satisfaction (prices, selection, value), investment and innovation as well as “penetration and use” as being the ultimate measures of the aforesaid development.

24. In addition to effective and sustainable market competition another priority of broadcasting is the efficient management of limited resources, which is of paramount importance for the switchover from terrestrial analogue broadcasting to digital broadcasting.

25. The possibility of setting a target date, the so-called “FM switch-off” date to switch off analogue radio broadcasts was also mentioned during the consultations. The feasibility analysis of this proposal is presented within the strategic partial objectives herein.

26. Considering that the Digital Switchover Strategy anticipates that long term and permanent increase in consumer satisfaction will occur as a result of effective and sustainable market

competition, in terms of the consumer pillar “only” the informedness of consumers and the improvement of the access opportunities of disadvantaged groups are mentioned.

1. table Objectives and indicators of the Digital Switchover Strategy

Areas of intervention	Priorities	Specific objectives	Indicators
Program provision	<i>Strengthening of media pluralism</i>	Switching off analogue terrestrial broadcasting should not mean that popular free channels (m1, RTL Klub, tv2) will be lost	The percentage of households currently accessing analogue supply.
		Availability and use of multi-channel (10+) television services should dynamically increase as a result of digitalization	DTV coverage and penetration
		Public service radio must be granted a broadcasting opportunity on the DVT-T multiplex and an independent DAB multiplex access	Digital coverage of public service radio channels
	<i>Digital content and service development</i>	Promotion of the digitalization of already existing television and radio programming contents	Digitalized content per total content to be digitalized
		Development of interactive DTV services of high added value	Number of interactive services and interactive set-top boxes
Broadcasting	<i>Sustainable and effective competition between the broadcasting networks</i>	The percentage of households using digital broadcasting service should reach the level of the following EU15 benchmark countries: Portugal, Ireland, Norway, Finland, Germany, Denmark and Sweden	DTV coverage and penetration
	<i>Efficient management of limited resource</i>	Frequencies and tendering system ensuring a balanced switchover and favourable long term business opportunities for digital television and radio broadcasting	Number and coverage of frequencies available for digital television (fixed, non-fixed, mobile) and radio
		Promotion of effective compression procedures	Number of MPEG4-compatible end-user devices
		Gradual switch-off of analogue terrestrial services by 2012 in order to free the frequencies currently used for analogue broadcasting	
		Introduction of T-DAB service	
End-users	<i>Improving consumer awareness, providing information on digital television opportunities</i>	Presentation of the advantages of digital television and radio services	Number and percentage of households with analogue terrestrial reception only
	<i>Improving the access opportunities of disadvantaged groups</i>	Preparation of households for the switching off of analogue terrestrial services, and the effective communication of the opportunities, benefits and costs of changing the reception mode	
		Provision of end-user devices providing access to public service contents for those who cannot afford to purchase such a device	Number and percentage of households with subsidized digital access devices

III. Instruments

27. Describing the instruments that accelerate and orient digital switchover is one of the main tenets of the strategy. Therefore, this area was accorded special attention in the consultation recommendations as well.
28. The instruments serving the purpose of implementing strategic objectives will be discussed in the order and grouping specified here below:
- public policy instruments
 - regulatory instruments
 - subsidy instruments

Public policy instruments	<i>Strategic orientation</i>
	<i>The tendering system of digital terrestrial multiplexes</i>
	<i>Providing information to consumers</i>
	<i>The role of public service channels in digital switchover</i>
	<i>Measures associated with the establishment of digital archives</i>

Strategic orientation

29. The finalization and government level adoption of the Digital Switchover Strategy is an important public policy instrument in and of itself. This is also true for the relationship between governmental institutions, market players and the population. By setting the objectives, principles, and deadlines of, and by displaying the system of instruments to be used during digital switchover, the state, in essence, determines the room for manoeuvring and the conditions that provide direction for the expectations and tasks of the various players in relation to digital switchover. This is particularly true
- in respect of the justification, opportunities, and limitations of state intervention
 - in terms of the switch-off schedule of analogue terrestrial broadcasting
 - for the tendering of the service provision entitlements of the digital terrestrial platform
 - with respect to platform and technological neutrality
 - for the orientation of public administration and market coordination activities.
30. At this point it is important to note that the formal power of influence of the strategy would be greatly improved if the objectives and tasks contained therein were reinforced by the adoption – after public professional consultations and negotiations with public administration – of the Digital Switchover Strategy via a government resolution.
31. With regard to the expectations towards the Digital Switchover Strategy it is also important to note that the finalization thereof does not replace, only supplement the National Audiovisual

Strategy (NAMS) prepared by the Prime Minister's Office⁴. The two strategies build on each other and supplement each other in an inherent way. As a consequence, the government will take all necessary steps to ensure that the theses of the NAMS are made just as publicly accessible and known as those of this strategy, and that NAMS is finalized and adopted in 2007.

32. The differences between the Digital Switchover Strategy and NAMS are well illustrated by the main questions surrounding the audiovisual sector that require strategic attention regardless of the switchover. These include

- the social effects of television and audiovisual media
- the role of audiovisual media in maintaining and further developing national culture
- the economic role of audiovisual media
- finding a solution to the financial and value-related crisis of public service broadcasting
- eliminating the distortions of the domestic advertisement market
- role of copyright law⁵
- charge scheme of broadcasting
- etc.

Tendering conditions of digital terrestrial multiplexes

33. The system of conditions of multiplex tendering may be explored along the lines of the following strategic decision-making points⁶:

- Choosing between the “strong or weak multiplex service provider model”
- Tendering conditions affecting supply on DVB-T and DAB platforms
- Contribution of the business model to switching off analogue terrestrial television programming on schedule
- The issue of the platform operator’s market background
- Separation of frequency use and program provision rights during tendering
- The issue of awardable frequencies on the tender and competition within the DVB-T platform
- Separation of platform operation, broadcasting and program provision
- The sum of the rights and obligations to be specified in the course of tendering
- Tendering of radio multiplexes

Choosing between the “strong or weak multiplex service provider model”

34. The primary difference between the strong and the weak multiplex model is that

⁴ Working out of the NAMS – via a European Union public procurement procedure – will most likely commence in March 2007 and end in June 2007. This is followed by the public consultation of the strategy.

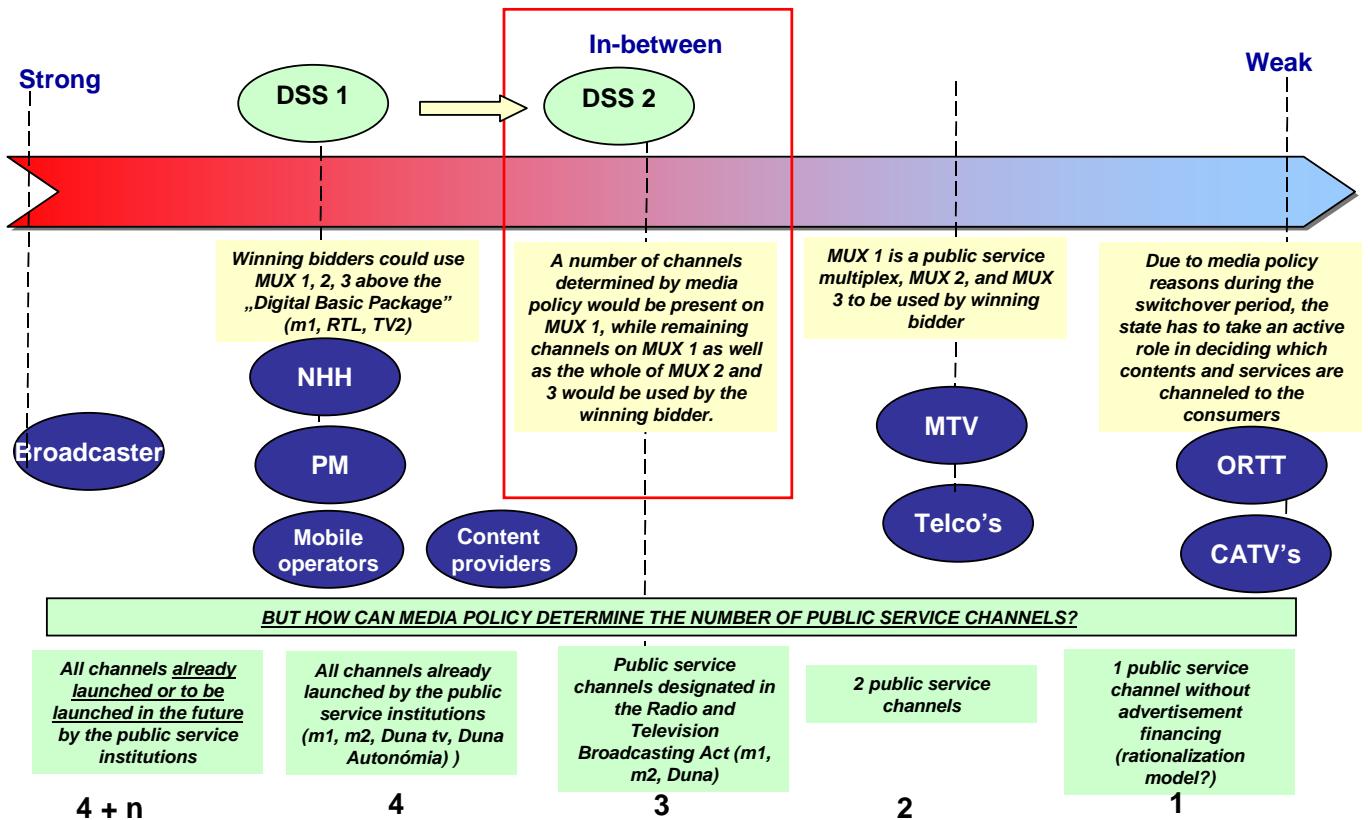
⁵ In terms of copyright laws the Digital Switchover Strategy only focuses on digitalization related aspects, but the significance of this area points far beyond this approach.

⁶ No new theoretical aspects have been added to the finalization of the tendering conditions.

- in terms of the “strong multiplex model” the centre of gravity of regulatory intervention focuses on selecting the multiplex service provider and authorizing it to engage in its activities; while market decisions take over individual programs or services in the multiplex;
 - on the other hand, in the “weak multiplex model” regulatory intervention is effected when individual programs are selected to be transmitted as a result of which the person and activity of the multiplex service provider is no longer an important regulatory issue.
35. Based on the consultations it can be established that both market and public administration players are divided in their views on the “multiplex models”.
36. The views of the market players depend on whether they consider the launching of the digital terrestrial platform
- to be an attractive business opportunity (strong model),
 - to be a business threat (weak model),
 - to have unpredictable business consequences (have not formed a firm opinion).
37. For the public administration players the philosophical difference is rooted in deciding whether under conditions of digital technology, frequency management is essentially a media policy or competition policy instrument. In other words the question is whether the specific media policy status of the analogue terrestrial platform and thus its limited competitiveness – at least during the simulcast period – can or should be passed onto the digital age (weak model), or not (strong model)?
38. It follows from the above that after consultations were concluded it became even more obvious that the regulator must create a sensitive balance in terms of the issue of “strong” versus “weak” multiplexes:
- the extent of state intervention effectively necessary to uphold both the freedom of expression and the diversity of the media must be determined, while at the same time
 - it must also ensure that the platform operator is able to act freely to the extent that makes the role of multiplex operator attractive from a business point of view.
39. If the state uses fewer regulatory instruments than would be required (extremely “strong” model) then that may lead to the diminishing of the public service function which could increase the frequency of dominance-related scenarios, leading to a less diverse media market.
40. On the other hand, if the state were to saddle the platform operator with greater than necessary administrative and regulatory burdens (classical “weak” model) then it would jeopardize the viability and quality of the service and also run the risk of deterring necessary private investment efforts.
41. In an effort to avoid both of these traps the regulator considers the establishment of an “in-between” DVB-T multiplex operator legal status – using the appropriate resources of the different regulatory instruments – an acceptable solution that would serve the establishment of the above described state of balance better. Therefore, with regard to the issue of a “strong” versus a “weak” multiplex, the strategic recommendation is the following: the first

multiplex would host all the public service channels as determined by media policy (weak model), the channel positions remaining on MUX1 as well as MUX2 and MUX3 could be used freely – taking account of any other tendering conditions that may apply – by the winning bidder (strong model).

8. chart Consultation positions and strategic recommendations on “strong and weak DVB-T multiplexes”⁷



Source: Prime Minister's Office

42. The number of obligatorily transmissible public service channels shall be determined on the basis of the National Audiovisual Media Strategy by the announcement of the calls for tender applications for the multiplex tender at the latest.

Tendering conditions affecting supply on the DVB-T platform

43. As it is apparent from the above, based on the results of consultations the most significant change in the tendering conditions affecting initial DVB-T supply is that the so-called "basic digital package" (channels presently accessible via a terrestrial platform: m1, RTL klub, tv2)

⁷ In the diagram DSS 1 refers to the strategy proposal put forth for consultation, whereas DSS 2 refers to the current proposal.

as the recommended supplementary regulatory technical category of switchover was taken off the agenda. As a result, the following consultation opinions were voiced:

- Some of those concerned felt that by defining the “basic digital package” in this manner public service program provision will run the risk of becoming marginalized.
 - Public service broadcasters also objected to the fact that the “basic digital package” was not exclusively based on the public service nature of channels as a category.
 - Commercial program providers with smaller market shares voiced their opinion that already dominant terrestrial television program providers accounting for a considerable market share should not be treated preferentially with the help of additional regulatory instruments.
 - The concept of the “basic digital package” was also criticized by the national program providers concerned, stating that the legal institutions aiming to implement the underlying idea of the package are not appropriate (“must offer”, “must carry” obligations).
44. As in the case of the opposition between strong and weak multiplex models in accordance with the strategic proposal “basic digital package” stems from the category of public service the content of which will only be discernible after the NAMS has been finalized.
45. All this also means that since the “basic digital package” is not a viable option, another solution must be found to ensure that in the course of the digital switchover period consumers are able to find the channels that used to be accessible by them for free.
46. In terms of content-related determinations the strategy still does not consider the determination of the ratio of free and pay channels a key issue for multiplex tendering. Due to the relative scarcity of initially available frequencies the ratio of free and pay contents should be freely determined by the future platform operator. Naturally, free access to public service channels would still be a requirement, and the requirement under the first sub-paragraph of Point 48 is also worth considering.
47. With regard to compression the market players unanimously agreed to use the more up-to-date MPEG 4 standard offering greater selection. That is why the strategy states that the digital terrestrial platform should be launched in MPEG4 format provided there are no justified counterarguments at the time of announcing the call for tender.
48. Other requirements to be considered, or factors that may influence the supply of the DVB-T platform to be launched:
- promoting the launching of a third national commercial channel with general content, broadcast according to the free-to-air model when tendering conditions are drawn up,
 - using the “residual frequencies” of digital networks as planned and coordinated by NHH to ensure that local and regional broadcasts are both present on the digital terrestrial platform,
 - providing an opportunity for radio stations to appear in the digital network with the most extensive coverage (MUX1)
 - promoting the launching of interactive supplementary services in the course of the setting of the tendering conditions.

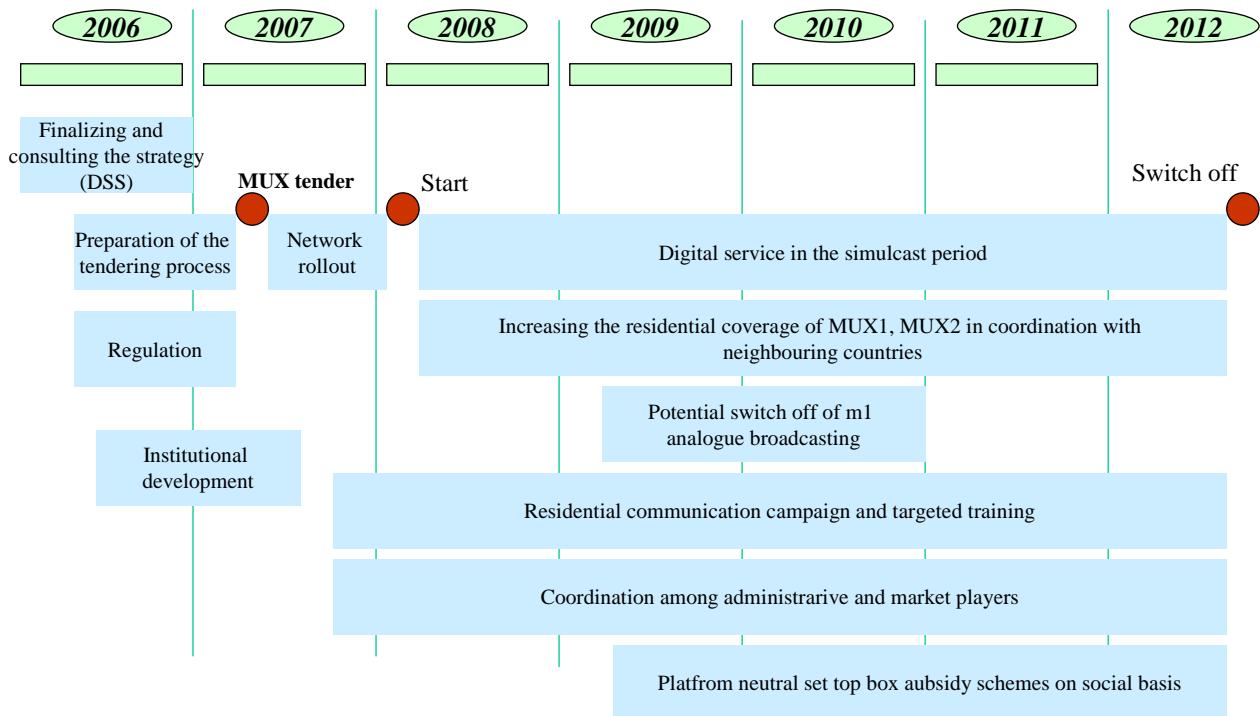
Contribution of the business model to switching off the analogue terrestrial television programming on schedule

49. The greater business manoeuvring opportunity ensured in the course of multiplex tendering should contribute to the speedier implementation of digital switchover. That is why the following aspects are considered as important in judging applications:

- commitment to digital terrestrial coverage,
- planned penetration levels,
- contributing to the advance (before 2012) switch-off of analogue terrestrial television broadcasting,
- participation in consumer communication as well as in creating and operating discount and subsidies set-top boxes,
- and commitments to develop other digital television platforms may also be taken into consideration.

50. Although the exact schedule of digital terrestrial switchover can only be finalized in the process of multiplex tendering, the rough schedule required for the 2012 switch-off of analogue terrestrial television broadcasting can already be determined:

9. chart Possible schedule for terrestrial digital switchover



Source: DSS consultation material

The issue of the platform operator's market background

51. Assessing the platform operator's market background a complicated task in the tendering process. The characteristics of the domestic media system must definitely be taken into account:
 - size of the domestic market;
 - economical operational size of the service,
 - structure of the program provision market;
 - structure of the broadcasting market.
52. While preparing the conditions of multiplex tendering serious thought should be given to the consequences of whether the selection of the winning applicant strengthens horizontal or vertical integration processes.
53. There seemed to have been general consensus during consultations on the fact that the stronger these attainable multiplex service provision "rights" were the greater the risks tended to become. In this case imposing restrictions, excluding or imposing certain conditions on the participation of players that have strong broadcasting and program provision market positions, and showing preference for tenders that have an invigorating effect on competition should be seriously considered for the finalization of the tendering conditions, in order to mitigate the risks associated with media pluralism and trade barriers.

Separation of frequency use and program provision rights during tendering

54. Pursuant to the New Regulatory Framework for Electronic Communications (NRF) of the European Union, regulation of content and transmission must be separated. Therefore, tendering of program provision opportunities and frequency use should be separated accordingly. That is because the former is a service that falls under media law, while the latter is an electronic communications service.
55. Another important aspect is that while in the case of analogue broadcasting one frequency provided only one program provision opportunity, in digital broadcasting it can provide as many as 4-8, depending on the compression technology used, or even more if future technical development is taken into consideration. Therefore, the use of one frequency cannot be, even indirectly, linked to only one particular program provision right. As a result the DVB-T platform tender should make a decision on two distinct functions. This refers to platform operation that uses broadcasting frequencies on the one hand, and program provision obligatorily placed onto the digital terrestrial platform on the other. The former is an example of an electronic communications right, while the latter is a media market right. The former may fall within the competence of the regulatory authority responsible for frequency management, while the latter may fall within the competence of the authority responsible for content regulation. As these functions tend to be merged in the "in-between" multiplex model recommended in this strategy, it would be expedient to involve both authorities in the tendering process.

The issue of awardable frequencies on the tender and competition within the DVB-T platform

56. The number of digital terrestrial networks is limited until the switch-off of analogue frequencies. Since the analogue frequencies of commercial television occupy a large part of the available frequency set in the long-term (until July 2012) even with the termination of public service analogue broadcasting, only 3 national (MUX 1, MUX 2, MUX 4) and one regional (MUX 3) multiplex can be developed. The development of the 7 UHF and 1 VHF digital networks obtained at the RRC-06 conference shall only be possible if the analogue broadcasting of both public service and commercial television channels are switched off. According to this in respect of frequency management, tendering can be split up into two periods:
 - Multiplexes (three, later possibly four) that become available until the switch-off of analogue broadcasting, and
 - Further multiplexes (maximum four) that become available after the digital switchover.
57. The determination of the number of networks awardable through tendering and the restrictions concerning competition on the platform are basically designed to increase platform appeal, but at the same time the unjustified narrowing of the state margin (digital frequencies for new innovative applications, validation of income aspects) concerning the period after analogue switch-off should also be avoided. In accordance with this the strategy supports the joint awarding of the following frequencies to a single winning bidder:
 - three simulcast digital networks (MUX 1, MUX 2, MUX 3)
 - a digital network becoming available through the earlier switch-off of m1 (MUX 4)
 - the use of another digital network in the period following the analogue switch-off (MUX 5)
58. The duration of the rights of frequency use and the possibility for renewal must be specified during the determination of the terms and conditions of the multiplex tender.
59. In the light of technological and market developments, it is advisable to postpone the decision on the utilization of remaining multiplex service provision opportunities after 2012 to a date when the results of digital switchover can be measured, i.e. two or three years after platform start-up.

Separation of platform operation, broadcasting and program provision

60. In the recommended multiplex model winning service providers have the opportunity to fill up the available channel capacities, alongside the channels specified by the media authorities, with channels of their own choice – based on examples of cable and satellite providers. In theory this way the service providers themselves enter into contracts with both program providers and broadcasters.
61. In this case due to the differences between digital and analogue technologies the rights of frequency use, which ensure the rights to decide over channel capacities, must be exercised by the multiplex provider. In this case through the utilization of extra rights related to digital terrestrial program provision, of central roles and of state managed limited resources the establishment of certain requirements become necessary in order to ensure transparency.

62. These requirements would only serve to ensure the supervision of the management of the vertically integrated multiplex provider, and would not be equal to ownership restrictions.

The sum of rights and obligations to be determined during DVB-T tendering

63. The content of platform operation is made up of the sum of rights and obligations. The most important right of the platform operator is to dispose over the channel capacities related to the use of the various frequencies, while the most important obligation is the forwarding of obligatorily transmitted content to subscribers, which implicates the development (by the platform operator itself or by a subcontractor) as well as the operation of the network. Naturally, the rights and obligations can only be finalized in the tendering process, but the most important elements can already be reviewed at a strategic level.

64. Rights:

- The use of frequencies available until the digital switchover, i.e. until 2012 (MUX 1, MUX 2, MUX 3)
- The use of frequencies that are freed in the case of an earlier (before 2012) switch-off of the analogue broadcasting of m1 (MUX 4).
- The filling up of channels according to individual decisions beyond the obligatorily distributed channels.
- The unrestricted utilization of MUX 2 solely for purposes of DVB-T, DVB-H or mixed DVB-T/DVB-H broadcasting.
- The use of another national digital network by utilising the frequencies freed after 2012.
- The utilization of data transmission capacities unused for broadcasting.

65. Obligations:

- Making channels falling under the obligatory category available free of charge as well as making them accessible to the population.
- The broadcasting of public service radio programs besides television signals with unrestricted access.
- Development (by the platform operator itself or by a subcontractor) of the broadcasting network conforming to the schedule and conditions finalized in the tendering process and specified in contract.
- The application of MPEG4 compression.
- The replacement of frequencies used by the broadcasting network, if this is necessary in order to develop further networks or other services.
- Participation in marketing and information provision to customers concerning digital broadcasting and the digital switchover.
- Participation in the management of the switch-off and the switchover, technical and communication management.

Tendering of radio multiplexes

66. The RRC-06 conference adopted a regional agreement and frequency plan with respect to digital radio program provision which along with the existing frequencies allows for the

launch of five T-DAB national coverage multiplexes: 3 national T-DAB networks in Band III (VHF) and 2 national T-DAB networks in the 1.5 GHz band (Band L).

67. Based on the current T-DAB frequency set, we primarily recommend ensuring the start-up of public service radios (including non-profit and local radios as well). The L-band network currently involved in CEPT review proceedings – depending on review results – or the VHF band network with currently limited coverage would be suitable for this purpose. The remaining frequencies could be awarded for purposes of national commercial or other (non-profit, regional) radio services.
68. In the case of the T-DAB frequencies we recommend the tendering of whole multiplexes as one instead of individually tendering different commercial program positions, because
 - this allows for more economical operation,
 - tendering becomes simpler,
 - it ensures optimal frequency utilization for the winners of the tender.
69. Pursuant to the above it is recommended to announce a call for consortium tender applications when tendering commercial T-DAB multiplexes. Interested consortiums would need to submit proposals regarding the “image of the multiplex”, the format composition, and service selection as opposed to simply providing the individual radio locations. The multimedia application possibility depending on the review of L-band T-DAB multiplexes would complement the multiplex image.
70. If allowed by international coordination, it would be advisable to handle the tendering of the T-DAB frequencies and the awarding of public service multiplex rights at the same time as the tendering of digital terrestrial television multiplexes. This way, possible synergies can become utilizable on the applicant side, and market interest in digital radio can clearly be expressed.
71. The issue of tendering of the T-DAB frequencies should be handled together with the re-tendering of commercial radio program provision rights in order to avoid conflicts similar to the renewal of analogue commercial television program provision contracts.

Providing information to consumers

72. The improvement of information provision to consumers within the framework of a technological switchover is a task that necessitates active state action. The primary goal of this is effective communication: the digital switchover can only be smooth, if television viewers and radio listeners are perfectly aware of the advantages of digital switchover as well as the opportunities afforded by it.
73. Based on international (mainly British) experiences, it is evident that digital switchover can only be successful if consumers can make informed decisions.
74. The provision of information to consumers during the digital switchover should primarily cover the following issues:

- the content and presence of digital services available on the various platforms;
 - the advantages of digital switchover for consumers;
 - the technical issues of reception;
 - the exact switchover dates;
 - the cooperation of the players involved in communication
75. During communication that covers these topics it is a significant advantage that it is the providers directly affected by the process themselves who are in possession of the most appropriate tools to reach the population affected by the switchover in the most efficient and aimed manner possible.
76. With respect to the various issues it is necessary to make the following comments:
- The content and presence of digital services*
77. Consumer should have precise information concerning
- the digital broadcasting services available to them;
 - the programs and other content these services exactly offer;
 - the technical requirements for the reception of these digital services, and
 - the price of accessing these services.
78. Such a promotion of digital services is a task that can be most efficiently handled by the service providers themselves, while on this side the state institutional system could primarily play a complementary, motivational, coordinative, and partnership role.
- The advantages of digital switchover for consumers*
79. In general domestic consumers not often purchase television or radio sets and for this reason the average age of reception devices is high (it is not uncommon to have televisions that are older than ten years). Due to this in the initial phases of the process the advantages of digital switchover shall not be significantly perceptible on the consumer side. The enjoyment of CD-quality sound or a particularly clear picture presupposes the existence of such high technological quality reception devices that only a small proportion of the Hungarian population possesses. The expansion of channel selection, however, will be a more widespread advantage even with the existing domestic devices.
80. The quality of available services is also essentially determined by the set-top box stock that develops in the country. Taking this into account the information provision process initiated and coordinated by the institution responsible for the management of digital switchover can only be successful if it is adapted to the actual situation of consumers.

The technical issues of reception

81. Since the issues related to the reception of various services (e.g. reception area, individual device needs, etc) can be most efficiently handled within the framework of the information provision concerning the various services, the primary goal in this field should be to provide

clear information to consumers concerning the technical specifications and potentials of the various reception devices offered.

82. In this respect the European Commission considers it a positive example that reception devices that are capable of or that can be made capable of receiving high-definition broadcasts are distinguished by the generally used “HD-ready” label which is accepted by the EICA industry association as a designation of suitability. With respect to such labels and distinctive designations, however, it is important to mention that official measures related to their obligatory use can be introduced only if the European Commission is notified of the matter by the member state⁸.
83. Taking this into account, information provision concerning reception devices as well as the related use of various labels and designations should primarily be the task of market players (manufacturers and distributors of reception devices).

The exact switchover dates

84. Once analogue services are switched off television reception shall only be possible with digital terminal equipment. For this reason it is particularly important that consumers are made aware of the analogue service switch-off date in time. The definite communication of this information is without question a state task.

The cooperation of the players involved in consumer communication

85. The following key players can be identified in information provision to consumers:
 - the program providers;
 - the public service broadcasters;
 - the platform operator
 - the broadcaster
 - the manufacturers and distributors of reception devices;
 - the state.
86. By reviewing the various communication tasks it is visible that the participation of these players in the various elements of information provision to consumers is necessary to varying extent. However it is also evident that the main trustees of the communication related to the digital switchover are the market players. The primary task of the state institution in charge of the digital switchover can be determined as the appropriate communication of regulatory decisions related to the digital switchover as well as the stimulation and coordination of the information provision activities of the industry players.
87. The establishment of a joint organization by the players involved in the process for the coordination of their actions would significantly contribute to the efficiency of information provision to consumers.

⁸ Directive 98/34/EC

The role of public service broadcasters in the digital switchover

88. It is the constitutional obligation of the state to protect institutions that uphold the freedom of expression and the development of democratic public opinion. The state fulfils this obligation among others by supporting public service contents and operating public service broadcasters. For this reason they also play a major role in digital switchover.
89. Above the fulfilment of their constitutional obligations public service broadcasters can contribute to the success of digital switchover by playing an active and effective role in the process.
90. Above all European Community Law determines the possibilities of public service broadcasting through limiting the state financing of such broadcasters. The activities and financing of domestic public service broadcasters – MTV Zrt, Duna Televízió Zrt. and Magyar Rádió Zrt. – are regulated by Act I of 1996 on Radio and Television Broadcasting (Rtv.). This legal regulation dates back significantly earlier than the relevant European Community sources of law or documents. This mainly contributes to the fact that the financing system of domestic public service broadcasting is in need of modernization. Taking all this into account, in order for public service broadcasters to play an initiating role in the process of the digital switchover in Hungary such conditions must be provided that in part go beyond the challenges of digitalization themselves:
 - The exact catalogue of the tasks of public service broadcasters (at least in relation to the digital switchover) must be prepared. These tasks must be assigned clear forms of financing and then be made available to public service broadcasters under appropriate supervision. This can be specified in a separate law or in a contract drawn up between the state and the public service broadcaster.
 - It must be ensured that public service broadcasters establish their own digital switchover strategies.
 - Based on the above it must be ensured that, within the relationship of the state and the public service broadcasters operating as independent entities, the implementation of the state switchover strategy and institutional switchover strategies are in accordance with each other.
 - The exact amount of surplus resources needed for the digital switchover in the case of public service broadcasters must be examined.
 - In the case of public service television, increasing television licence fees could serve as collateral to ensure the surplus resources related to digital switchover. This would make it clear to end-users that higher quality services require extra expenditures. Taking into account that currently this payment obligation is undertaken by the budget for the population, the solution could be to increase budgetary resources disbursed as such, or restoration of the television licence fee is also worth contemplating.
 - The utilization of monetary assets would happen through tendering, based on separate contracts drawn up with public service broadcasters, assigned to various digital projects under appropriate supervision.
 - In connection with the disbursement of grants it is also very important that television and radio public service broadcasters play pioneering roles in the development and popularization of digital services with high added-value content.
 - In our opinion it would be necessary for the annual budget of public television and radio to contribute to the financing of digital development projects to an extent equal

to the grants aiding digital switchover. This would also signal that digital broadcasting platforms shall become the main transmission media for public service program provision in the long-term.

- Such a system would fully meet the requirements of the competition rules of community law related to the state financing of public service broadcasters, hence it would distance digital switchover from the risk posed by the current financing system of public service broadcasters.

Measures related the establishment of digital archives

91. For consumers, digital switchover will primarily manifest itself in the form of increased channel selection. The increase in transmission capacity imperatively leads to an increase in demand for audiovisual content. New audiovisual works are typically produced in digital format today. Works produced in the period before the switchover to digital technology are, however, in many cases only available on analogue data carriers, which is why digitalization is a technical prerequisite of their utilization. The essence of strategic proposals, therefore, in terms of digital archiving is the following:

- In the case of the archives of public service broadcasters the digitalization of the archives (digital conversion) should be made possible with appropriate support. Its conditions also need to be examined in order for a system of royalties to be established which allows for the economic utilization of the archives of public service broadcasters.
- Regarding private archives, the audio-visual assets in the country in the possession of non-state persons must be surveyed (from a cultural as well as an economic aspect), and with appropriate support favourable conditions must be provided for their digitalization and utilization.
- It is necessary to examine what the role of the National Audiovisual Archive (NAVA) might be in the implementation of these measures.

Regulatory tools	Frequency management
	Competition control
	Media regulation
	Copyright rules
	Conditions of placing receivers on the market
	Standardization
	Legislation on digital switchover

Frequency management

92. First, we shall take a technological approach to investigate frequency management tasks and challenges: DVB-T, DVB-H, T-DMB, DVB-S. Following that, we shall discuss two general issues of frequency management:

- Possibility and conditions of frequency changes
- A system of flexible frequency use

DVB-T

93. Concerning DVB-T, it is a key frequency management issue for the period ending in 2012 to identify the possibilities of extending the civilian service area of the three multiplexes available at the beginning of the simulcast period:
- Acceleration of frequency coordination after the end of RRC-06
 - Use of low-power transmission stations and frequency change of relay transmitters
 - Decommissioning Hungarian military equipment operating in the broadcast band
 - Decommissioning Slovakian and Romanian military equipment operating in the broadcast band (similar equipment in the Ukraine, which is not a NATO member state, will be decommissioned in 2015)
 - Discontinuing the use of the analogue networks in neighbouring countries
 - Discontinuing the analogue broadcast of the two national commercial channels ahead of schedule (prior to 2012); and
 - Discontinuing the analogue terrestrial broadcasting of m1
94. In the period following RRC-06, an agreement will be formed between Western European countries according to which they will undertake a mutual commitment to prevent low-power analogue transmitters remaining in service until the complete termination of analogue transmission from interfering with the DVB-T platform launched. As part of this agreement, signatory states will mutually waive their rights to protect analogue transmitters granted to them by Agreement ST61 and prevent interference by using appropriate technical solutions and frequency changes as appropriate while assigning higher priority to DVB-T. Hungary can make similar agreements primarily in relation to the western part of the country by committing itself – based on discussions with its neighbours affected – to change the frequencies of backbone, relay and local transmitters currently in operation. With a view to this, it is recommended as a regulatory means to facilitate frequency change also in the case of backbone, relay and local transmitters. This requires active diplomatic support as well as a government authorization granted to the National Communications Authority (NHH) to draft international agreements to be entered into with neighbouring countries in the case of mutual waivers of the rights associated with low-power analogue transmitters as granted by Agreement ST61.
95. Not being compatible with NATO standards as well as in line with the most recent weapons development concepts, a large number of military radio communications devices currently operating in the broadcast band will be decommissioned, thus opening up further theoretical possibilities to extend coverage. Such decommissioning, which is also necessary for other reasons, can be accelerated depending on the schedule and planning of the military budget. The acceleration of the decommissioning process and the setting of the exact dates require government decisions. As a regulatory means, a government decision is proposed to be made on the acceleration of decommissioning certain Hungarian military equipment operating in the broadcast band and the definition of the exact schedule thereof.
96. Discontinuing the operation of analogue networks in the neighbouring countries offers a much less certain opportunity to expand the civilian service area in the simulcast period since so far it has been only Austria that has developed a detailed concept for switching over to digital services. Other than that, three more EU member states, Slovakia, Slovenia, and Romania will likely make efforts to meet the target date (31 December, 2011) specified by

the European Union. The situation is much less certain in Croatia, Serbia, and the Ukraine, where the European Union has no power to compel participation in the switchover.

97. In theory, due to a decision made by the National Radio and Television Board (ORTT) in the summer of 2005, the analogue broadcasting of national commercial television services (RTL Klub and tv2) cannot be switched off before July 2012 since the Board has renewed their broadcasting rights without inviting a tender or binding it to participation in the switchover to digital broadcasting, which indirectly allows them using the frequencies defining the reception area. The Radio and Television Broadcasting Act fails to provide a means of replacing analogue broadcasting rights with digital ones and at present such replacement would only be possible upon the voluntary waiver by the commercial television services.
98. One consequence of renewing the analogue broadcasting agreements is that the frequency set fought for at RRC-06 cannot be included in invitations to tender until the frequency sets of these two national networks are utilized. Therefore, until July 2012, the limited number of national frequencies available will only facilitate the use of three multiplexes, which are also available in the simulcast period as well as of MUX 4 becoming available after switching off the analogue broadcasting of m1. Launching the latter one, however, requires that the digital switchover be completed.
99. Switching off the analogue network of m1 will undoubtedly offer benefits regardless of ongoing analogue commercial broadcasting:
 - the availability of a new frequency set covering almost the entire country (MUX 4);
 - the coverage of the existing multiplexes (1 and 2) can also be extended.
100. Digitalization of the transmission network of m1 depends mainly on decisions made by the National Assembly, the Government, and those applying the law, as the public service functions of m1 can also be provided through digital broadcasting. This strategic decision is the most significant potential factor which extends the coverage of existing multiplexes 1 and 2 in the simulcast period, and makes it possible to launch a new national multiplex (MUX 4). For all these reasons, the preparation and timing of digitalizing the public service transmission network is an important issue of digital switchover.
101. For the digitalization of public service broadcasting, it is essential that citizens have sufficient time to acquire the equipment necessary for digital reception and that those in social need are provided with such equipment, since their right for receiving public service broadcasting services may be derived from the Constitution. Assuming that the digital terrestrial broadcasting platform will be launched in 2008, the switching off of the analogue transmission network of m1 will not begin before 2009.
102. The most important issue relating to switching off the analogue network of the m1 television service is the duration of the period between the start date and the end date of the switch-off, because simultaneous analogue/digital broadcasting or, technically speaking, *simulcast* operation must be ensured throughout the period between the beginning of digital broadcasting and completing the switch-off. From the State's perspective, this is the costliest part of the digital switchover, because the two simultaneous broadcasting modes will have to be funded by the State through public television services. Therefore, as it was also confirmed by the responses given at consultancy events, the shortest possible *simulcast* period must be

strived for (6 to 18 months). The duration of the *simulcast* period must be specified in advance so as to leave sufficient time for the planning of budgetary expenditure, the design of the business model of the tender called for the operation of the terrestrial broadcasting network as well as for public service television services to prepare. Therefore, the duration of the *simulcast* period must be specified not later than the date of calling for a tender about the use and operation of the terrestrial broadcasting network.

103. In addition to extending the coverage of existing digital multiplexes as well as preparing and coordinating the switch-off of the m1 service that might take place earlier, another major frequency management task related to the DVB-T platform is to define the stages of switching off the analogue network. Instead of switching off the entire national network simultaneously, a gradual switchover seems to be more practical for the following reasons:

- The broadcasting characteristics of different regions vary
- The income of those living in different regions varies
- Western Transdanubia, a more advanced region of Hungary could be used as a “test region”, thus errors can be fixed in the rest of the regions
- The logistics (import, transport, and supply) related to digital sets and set-top boxes can be optimized within the year
- The operator of the digital broadcasting platform can set up expert groups which would gradually implement the switchover and assist in setting the receivers for the new standard;
- The communication launched in more advanced regions spreads on to less developed regions, thus becoming more efficient.

Besides, it must also be determined what percentage of the population living in a specific area must have sets with digital reception capability.

104. There is a large variance among the regions in the ratio of households capable of receiving only terrestrial broadcasts. Therefore, the switch-off of analogue systems should start in regions where it would affect a relatively small ratio of households. However, any specific proposal related to this idea may only be developed upon taking all frequency management and media policy aspects as well as the initial experience gained in relation to digital broadcasting into consideration.

2. table Hungarian households with only terrestrial reception capability by EU regions (2005 to 2007)

Region	Current ratio of terrestrial reception within the region (2005 Q1)		Ratio of terrestrial reception within the region in 2 years (2007)		GDP per capita	GDP as a percentage of national average	Number of households in the region
	%	'000 households	%	'000 households	'000 HUF	%	'000 households
Central Hungary	28.84	338 942	23.71	278 651	3 210	158	1 175 248
(Budapest)	24.56	172 308	21.02	147 472	4 150	205	701 581
(Pest County)	41.18	166 569	32.44	131 217	1 800	89	404 491
Central Transdanubia	23.66	96 132	19.5	79 230	1 933	95.6	406 307
Western Transdanubia	12.29	38 226	11.64	36 204	2 111	104.4	311 032
Southern Transdanubia	30.57	104 379	25.05	85 531	1 442	71.3	341 443
Northern Hungary	40.06	190 280	36.93	175 413	1 343	66.4	474 988
Northern part of the Great Plain	41.97	252 665	33.35	200 772	1 323	65.6	602 014
Southern part of the Great Plain	49.03	270 485	39.87	219 952	1 395	69	551 672
Total	33.42	1 290 916	27.85	1 075 763	2 021	-	3 862 704

Source: DSS consultation material

DVB-H

105. The service providers' intention and efforts to make digital television applications also available in mobile telephony were also supported by domestic consultancy experience.

106. However, the currently competing two technologies, DVB-H used in Europe and America, and DMBX implemented in South Korea, have different technical characteristics. The major characteristics of the two systems are summarized in the following table:

3. table Comparison of the most promising mobile television technologies

System	DVB-H	DMBX (T-DMB)
Region	Europe / America	South Korea
Audio/video coding	(H.264) MPEG-2 and MPEG4	(H.264) MPEG4
Frequency need per channel	8 MHz	1.5 / 6 MHz
Transmission rate	4-13 Mbps	9.2 Mbps
Type of compatible transmission network	DVB-T	T-DAB

Source: DSS consultation material

107. Most European manufacturers and regulators have opted for DVB-H, therefore, Hungary should also concentrate its efforts on implementing the conditions required for the application of this standard. Besides that, as DBMX-capable sets have already become commercially available, that system may also be implemented if T-DAB transfer rates allow such implementation.
108. Due to device manufacturers' support, the UHF band, particularly the 470-700 MHz sub-band (television channels 21 to 49) is the first choice for the purposes of DVB-H. However, television channel 21 does not allow the planning of national coverage in Hungary. The sub-band above 700 MHz (channels 50 to 69) should be used only if the GSM 900 band is not intended to be used for the purposes of the backward channel. Also taking into account considerations concerning receiving antennas, most countries plan to use channels 39 to 49 for DVB-H. As a consequence, the implementation of the DVB-H service will use part of the frequency set made available for the DVB-T service.
109. From a technological point view, however, DVB-H services can be implemented not only in standalone multiplexes but also in multiplexes shared with DVB-T services. In such a case, a decision must be made about facilitating DVB-H service within DVB-T multiplexes *prior to* calling for a tender, and a specified part of the transmission capacity must be allocated for the purposes of DVB-H services. When setting up "a joint DVB-T–DVB-H network", it must be taken into account that due to the difference in reception conditions, the provision of the DVB-H service will require the use of dual-polarization broadcast antennas, separate network components and auxiliary low-power transmitters. Therefore, 2 of the 7 UHF networks providing national coverage must be so implemented as to contain television channels under 50 (55), which will be available for the purposes of homogeneous DVB-H, homogeneous DVB-T or mixed services, as required. One of the three existing networks providing national coverage must be converted to meet those requirements.
110. In the case of a mixed network, in areas where portable indoor reception of DVB-T broadcast can be provided, the provision of a DVB-H service is also possible. This area is smaller than the DVB-T reception area, however, on the one hand, it would cover larger cities and their environs according to the current network plans, thus, it could still be attractive from a commercial point of view; on the other hand, it could be extended according to market needs using a so-called SFN (Single Frequency Network). Besides that, Hungarian DVB-T network was planned using horizontal polarity, in line with the Central European Region. This means that broadcasts can be received using horizontal antennas. DVB-H sets are usually mobile radio telephones using vertical antennas. Therefore, if a DVB-H service is to

be launched, part of the frequencies used by current switchover networks in Hungary should be re-coordinated.

111. The only realistic means currently available in Hungary to launch a DVB-H service before completing the switchover to digital broadcasting is MUX 2. In order to implement DVB-H as an advance technology as soon as possible, MUX 2 must be made compatible with DVB-T and/or DVB-H services through frequency coordination prior to calling for a tender concerning multiplexes but not later than launching live digital broadcasting. Following that, practically all UHF multiplexes providing national coverage can be planned to be used for mixed or only DVB-H services based on the GE06 Plan.

T-DAB, DMBX

112. According to international plans, the following T-DAB frequencies, theoretically also compatible with DBMX services, are available in Hungary:

- 3 national T-DAB networks in Band III (VHF), in television channels 10, 11, and 12;
- 2 national T-DAB networks in the 1.5 GHz band (Band L) (national coverage comprising of 6 and 21 reception areas, respectively).

113. The nominal bandwidth of these T-DAB frequency bands is 1.5 MHz but they are not adjacent. This frequency set is also available for T-DMB, but the implementation of a service requiring a wider bandwidth requires that the band be rearranged.

Using other frequencies for mobile television

114. In line with international regulations, there are civil and other (dedicated) radio telephone systems operating in the 450 MHz band at an extremely high band division rate. Due to its wave propagation characteristics, this band is valuable and used intensively. Notwithstanding, it is still not fully exploited in Hungary.

115. Theoretically, the international coordination of narrow-band PMR/PAMR applications allows the band to be partially emptied. But that would require the migration of certain not optimally designed applications of non-civil use – primarily to the currently implemented EDR system.

116. User needs for using modern technologies in private networks and for the extension of mobile services have emerged in this band such as the implementation of a single unit PAMR system or the use of CDMA and Flash-OFMD systems.

117. For the applications used in the 400 MHz and the 900 MHz bands, it could also provide a solution if the tenders relating to the bands were called for without the Authority specifying the use of the band but rather leaving that to the bidders under certain limitations.

118. Using a DVB-H service in this band also depends on whether such use is supported by device manufacturers. At present, however, device manufacturers produce only DVB-H devices suitable for use in the 470-700 MHz band.

119. Apart from that, the DVB-H standard is also suitable to broadcast in the so-called L band. Nokia and Crown Castle are running tests in Pittsburgh, USA and the service is expected to be extended to the entire territory of the USA in 2006. The service uses the 1.672 GHz band (1.7 GHz) in the United States. In Europe we can expect the 1452-1479.5 MHz sub-band of Band L to be dedicated for the purposes of mobile television. According to interviews made with manufacturers, the use of the so-called Band L for the purposes of DVB-H is supported on the long run. Therefore, we propose international support and planning for such use of Band L that is based on radio broadcasting, however, serves multimedia purposes.
120. Moreover, upon assessment of the use of the 450-470 MHz band, a tender concerning the open utilization of the 450-470 MHz band can be called for – if that is feasible – which, depending on the decisions of the applicants, could include the implementation of new systems suitable for broadcasting as well.

DVB-S

121. There are two types of satellite-based broadcasting services in use in Hungary. One of them is a genuine satellite broadcasting service, which operates according to international standards and uses frequencies coordinated for this purpose. Thus, frequency management is not an issue for these services. But the only commercial service (Antenna Digital) using a terrestrial microwave band also utilizes digital satellite technology (MMDS) and a digital satellite frequency. Antenna Digital operates as a terrestrial broadcasting service using the 12.3-12.5 GHz band internationally dedicated to satellite broadcasting services. There is total incompatibility between the satellite broadcasting systems legally operating in this band around the world and the Budapest terrestrial system, which remained operational as a European curiosity. It is a major international success of Hungarian telecommunications diplomacy that the system used in Budapest could remain in use – against all interferences it generates.
122. Nevertheless, Hungary should also get adapted to the common telecommunications policy of the European Union in the long run. Therefore, the system used by Antenna Digital cannot be extended, as stated by the frequency management experts of the National Communications Authority (NHH).
123. The 40.5-43.5 GHz frequency band is assigned to terrestrial satellite broadcasting services in Europe, including Hungary. This is a point-to-multipoint system, which constitutes part of a fixed service providing the functions of cable broadcasting but in wireless mode. Despite that, the frequency band is not fully utilized since there must be a clear ‘line of sight’ from the receiving antenna to the transmitter, and the wave propagation characteristics are relatively unfavourable, too (one transmitter can cover only a relatively small area).
124. The full-scale utilization of this technology and frequency band must be further investigated.

Possibility and conditions of frequency replacements

125. As detailed above, the State must have the following rights in relation to the frequencies used by a broadcasting network (master transmitter, relay broadcasting transmitters) utilized by commercial broadcasters and local transmitters:

- Replacing frequencies of analogue transfers with analogue frequencies
- Replacing frequencies of analogue transfers with digital frequencies and
- Replacing broadcasting frequencies to digital frequencies.

126. However, the underlying system of statutory conditions is neither uniform nor free of contradictions as of now. According to Section 102 (2) of the Radio and Television Broadcasting Act, the broadcasting capability – specified by the reception area, the frequency band and other technical characteristics – as developed by the National Communications Authority and published in the official Gazette of the Ministry of Culture and Education, is part of the broadcasting agreement. This wording leaves room for various interpretations and, at the same time, legal uncertainty impedes digital switchover.

127. According to Section 103 of the Radio and Television Broadcasting Act, the assignment of broadcasting frequencies falls within the competence of NHH. Furthermore, the Radio and Television Broadcasting Act does not require that the actual broadcasting frequencies be named either in the course of the tender procedure or in the broadcasting agreements entered into with ORTT.

128. However, in order to eliminate any contradictions from the management of frequency replacements, it is important that content providers should not be granted any right to use individual frequencies but be allowed to use only transfer capacities which relate to a frequency block or a network of such blocks and definitely not to the aggregate of specific frequencies. This must be implemented when specifying the conditions for digital broadcasting and for the tender.

129. In the case of frequency replacements as referred to in Section 110 of the Radio and Television Broadcasting Act, the ‘confusion’ about frequency assignments related to frequency utilization and the radio broadcast license of a specific broadcast transmitter station will increase. According to said section “if the broadcasting activity cannot be continued prior to the expiry of the term of validity of the rights because the radio licence is withdrawn, on the basis of Section 12 (1) of the Frequency Management Act (superseded by the Electronic Communications Act (Eht.)) for reasons not imputable to the beneficiary, and the Board (ORTT) is notified thereof, the Board shall offer the beneficiary other broadcasting rights under similar conditions without inviting a tender”, instead of offering another frequency.

130. Transmission control-related frequency assignment and licensing belong exclusively to frequency management, and is performed basically in line with the provisions set forth in Eht. and the implementing statutory instruments thereof. Based on that, there are two solutions for replacing broadcast frequencies:

- According to Section 17 of Decree No 6/2004 (IV.13.) IHM of the Minister of Informatics and Communications, the Authority may modify a radio broadcast license for frequency management purposes or at the request of the licensee.

- According to Section 84 (8) of the Eht., the right to use a given frequency (radio broadcast license) may also be revoked if taking the necessary measures related to an international commitment announced in a legal regulation so requires. The final record approved at the RRC-06 conference can be seen as such a commitment. License holders are entitled to indemnity from the central budget, however, it does not cover lost profit. Section 3/A (1) (b) of Decree No 11/2001 (VI.24.) MEHVM of the Minister of the Prime Minister's Office on the utilization of the earmarked provision covers such cases; however, any possible damage must be minimal (e.g. retuning of devices).

131. These regulatory instruments, however, must be standardized and those sections of the Radio and Television Broadcasting Act and the Eht. concerning frequency management must be modified based on the following principles:

- In line with the international commitments approved at the RRC-06 conference, the analogue frequencies used in broadcast networks currently utilized by commercial broadcasting services and those used by local broadcasting services (this latter cannot affect more than a couple of broadcasters) must be replaced with analogue frequencies, obviously so that the proposed new analogue frequency must not provide reception conditions or reception areas inferior to those of the previous frequency.
- Frequency replacement of relay transmitters supporting the coverage of public service or even commercial broadcasts shall fall within the exclusive competence of the NHH, as it does not concern the broadcasting capability in any way whatsoever.
- In order to assist the expected coordination negotiations with neighbouring countries, it must be set forth in law that NHH shall have the necessary instruments for the development of coordination agreements with neighbouring countries according to which low-power analogue relay transmitters shall not hinder the implementation of DVB-T services.
- Instead of a specific channel, commercial broadcasting services shall rather be provided with a transmission capacity⁹ required for the transmission of their broadcast on the frequency transmitted over a given area. Thus, frequencies and frequency blocks may be modified, if necessary, leaving transmission and reception conditions unaffected (service area and quality remains unchanged).
- When evaluating the bids for a tender concerning digital broadcasting means (“multiplexes”), instead of the right of using specific frequencies, the winner shall rather be awarded with the right to a frequency required for the implementation of a network having specific technical parameters.

A system of flexible frequency use

132. The European Committee has underlined in a number of its communiqués¹⁰ that switchover to digital broadcasting offers great opportunities to reuse part of the radio frequency range used for broadcasting. Some of these are:

- More advanced services, i.e. a wider selection of programs, program-related developments, improved video quality also including widescreen and HD television

⁹ In a general sense this is not a dedicated capacity.

¹⁰ COM (2005) 204, COM (2005) 400, COM (2005) 411, COM (2005) 461

programs, improved audio quality, provision of information and interactive services, personal and mobile television;

- Convergent services, which integrate the characteristics of mobile telephony and terrestrial broadcasting, such as datacasting;
- New electronic communications networks, such as wireless local area networks (WLANs) and wireless metropolitan area networks (WMANs).

133. Consequently, new digital technologies and digital switchover will create opportunities to provide new services by maintaining the original broadcasting goal.

134. The DVB-T frequency bands are 174-230 MHz and 470-862 MHz. The Radio Regulations bind the use of these bands to “broadcast services” without specifying any given technology, however, the description includes unidirectional transmission from transmitting stations to receiving stations. The above-mentioned wideband access technologies (WLAN, WMAN, UWB) are specified in the Radio Regulations as fixed and mobile service applications. Based on this, however, WMAN (and WiMAX, a special variant of WMAN) cannot be implemented in DVB-T bands. In theory, WLAN as a mobile service can (also) be used in the 790-862 MHz band, but technology manufacturers do not plan to develop WLAN devices for use in broadcast bands in the foreseeable future. The band is mainly to be used by UWB devices but their effective transmission distance is rather short at the moment. Nevertheless, the number of UWB applications may increase in DVB-T bands.

135. With the popularity of IP-based transmission systems increasing, a growing need has emerged for the openness of broadcasting technologies. Even now there is no theoretical barrier to transmitting Internet protocol (IP) signals along with broadcast signals. But IP-based transmissions also require the use of interactive channels, which can also be provided through radio frequencies, however, at present it is typically provided using wired technologies. Because of their higher transmission capacity needs, Internet-based transmission – e.g. “web-casting” for television programs – is currently not a viable alternative for DVB-T broadcast services.

136. Based on the above, it is proposed to allocate frequency blocks in the upper range of the DVB-T band for new applications, which can be used for both broadcasting and wideband data transmission – if frequencies that become available after 2012 as a result of the digital switchover make that feasible. In order to maintain the openness to technological developments, it is already necessary for us to strive to detach frequency management from transmission technology at both the international and the domestic level of frequency management.

Competition control

137. Experience shows that efficient and sustainable competition offers the most benefits and the greatest consumer welfare in both the medium and the long run.

138. According to the approach of this strategy, efficient and sustainable competition cannot be achieved merely through state or regulatory intervention. It also requires that subscribers

have a choice of services offered by competing service providers operating via parallel infrastructures with regard to the given retail service. Based on the above, consumers will achieve the most benefits in the field of digital broadcasting if the regulator ensures that

- as many consumers as possible
 - are able to choose from at least two different broadcasting platforms which offer similar services.
139. Achieving the above goal can be facilitated by the joint use of a complex system of tools:
- “must carry” obligation, which achieves the inclusion in specific platforms of certain, usually public service channels important from a media policy point of view by means of statutory instruments;
 - “must offer” obligation, which – based on market analyses or investigations by the competition office – prevents the most popular channels from rendering the emergence or the ongoing existence of platforms impossible by denying the broadcasting right of their programs; and
 - “ex ante” market control, which can be used against service provider(s) with significant market power (SMP) in a given broadcasting market;
 - “ex post” market control, which means subsequent sanctioning of anti-competition and market-distorting behaviour;
 - other administrative tools (e.g. set-top boxes or other supportive measures);
 - competition control relating to API, EPG, and other conditional access systems.
140. Based on the “must carry” obligation, the State can oblige the operators of individual platforms to forward public service channels to subscribers. This basic obligation may be supplemented by the regulator prescribing that some channels should be offered as part of a specified program package, for example, together with other public service or educational channels, or as part of the most inexpensive package¹¹.
141. The “must carry” requirement may also serve as a further means of promoting digital switchover as the inclusion of channels transmitted through Digital Terrestrial Transmission (DTT) networks in the scope of the “must carry” policy, these market players may reach domestic audience as early as the launching of this specific system, which in turn will allow them to remain unaffected to a certain extent from the unfavourable effects of low-level coverage, which is characteristic for the early stages of introducing new services. There was an example for this type of intervention on the part of the regulator during the digital switchover, which took place in the Province of Berlin-Brandenburg, Germany. However, it is also a requirement for digital networks that a given platform should be the determinant form of television for the population. This cannot be said of the IPTV network, which is still in its early stages of implementation, and of the DVB-C system, which has a small share of the market. However, after achieving a certain penetration level – e.g. 5% or 10% – such an obligation can be rightfully prescribed. The effects of the requirements associated with the obligation must be examined in detail at a later time.

¹¹ Classification of the “must carry” obligation’s position within the legal system brings up rather serious questions. The regulations relating to the obligatory transmission of individual programs were included as part of the Media Act in domestic law, however, related provisions can be considered as contradictory to the Act. One reason for this is that, instead of being subject to media regulations, the “must carry” issue is classified by community law as being subject to communications regulations and is regulated by Directive 2002/22/EC of the European Parliament and of the Council (the Universal Service Directive).

142. Considering all these conditions, the “must carry” policy can play a significant role in promoting the digital switchover even in relation to analogue cable services.
143. Based on the National Audiovisual Media Strategy (NAMS), regulators should consider to prescribe “must carry” obligations for broadcasters also in relation to analogue cable networks concerning new program services intended to be brought to the market as part of DTT offers. Under domestic conditions, specifying “must carry” obligations to promote the digital switchover can only be efficient if appearance on all platforms also generates appropriate income from advertisements for the new channels. It must be noted that the domestic television commercial market is dominated by MTM-SBS Zrt. and M-RTL Zrt., with thematic cable channels having a share of about one tenth of the rate that would correspond to their viewer’s rate. In this relation, the regulator may only expect any result from specifying the “must carry” obligation to benefit channels launched on DTT if that measure is preceded by the regulation of the television commercial market.
144. Under the “must offer” obligation imposed on program providers, a program provider cannot refuse the request of a broadcaster assuming that the latter is ready to transmit its program under reasonable conditions. This solution can be one of the simplest and least taxing regulatory tools that may be applied by the regulator to strengthen the position of digital platforms. Despite that, the strategy – based on opinions expressed during consultancies – proposes to resort to the “must offer” policy only as part of the “ex post” competition control.
145. In relation to the “ex ante” competition control and under the Recommendation¹², which is currently under review, the National Communications Authority must examine as part of a market analysis procedure, whether the conditions prescribed by “ex ante” competition control are met in the wholesale market of “delivery of broadcast content to end users” (abbreviated as Market 18), and whether there is any service provider with significant market power (SMP) in the given market or not. The examination shall encompass all broadcasting platforms, i.e. terrestrial broadcasting and cable television services alike. From an “ex ante” control perspective, digital broadcasting also qualifies as a wholesale broadcasting service, therefore, market analyses and any possible obligations specified as applying to service providers with significant market power will also apply to these services.
146. Recital 10 of the Preamble to the Access Directive¹³ also states that the application of “ex post” competition rules alone may not be sufficient to ensure cultural diversity and media pluralism in the field of digital television. Therefore, as a consequence of the inadequacy of media law and “ex post” competition law provisions, the New Regulatory Framework (NRF) implemented special regulatory provisions with regard to the technological bottlenecks of digital television.

¹² Commission Recommendation of 11 February 2003 on relevant product and service markets within the electronic communications sector susceptible to ex ante regulation in accordance with Directive 2002/21/EC of the European Parliament and the Council on a common regulatory framework for electronic communication networks and services (2003/311/EC, OJ L 114, 8.5.2003, p. 45) (Recommendation)

¹³ Directive 2002/19/EC of the European Parliament and of the Council on access to, and interconnection of, electronic communications networks and associated facilities (Access Directive), OJ L 108, 24.4.2002.

147. Relevant European regulations have so far applied only to conditional access, which has now been extended to such bottlenecks as API and EPG. Another important part of NRF's scope relating to digital broadcasting is the establishment of interoperability. This plays a vital role in the horizontal development of market competition in the field of digital broadcasting, where manufacturers of various software, middleware and hardware tools must cooperate. The applicable regulatory elements were part of the original version of Bill T/1901 on the rules of digital broadcasting. Therefore, it is recommended that the concepts laid down in the original bill be taken over in the course of further legislation.

Media regulation

148. The following considerations constitute important conceptual starting points with regard to the means of media regulation:

- In a broader sense, media regulation is an aggregate of the regulatory measures having a determinant effect on program and content provision services. In this context, media regulation refers to the implementation of media policy objectives by any means of regulation.
- In a narrower sense, as used in the strategy, media regulation is the legislation that a given legal system explicitly defines as relating to radio, television, and content services. In this context, the sources of media law are the "media act" or "media acts", depending on the specific legal order; the instruments of media law are the solutions laid down in these legal regulations.

149. Contrary to communications and competition control having its focus on market competition, essentially a category of neutral value, media regulation sets up a system of rules founded on the diversity of constitutional, social, and cultural values. Such values as the multiplicity of media, national cultures, human dignity or the healthy physical, intellectual and ethical development of minors, which are traditionally protected through media regulation, do not lose their significance even after the digital switchover is over. Consequently, it is a key responsibility of the State to keep providing effective protection for these values under the circumstances of digital switchover as well.

150. Another aspect of digital switchover affecting media regulations is retaining the values of local and regional broadcasting, and those of non-profit oriented and public service broadcasting. Local media play a significant role in the life of the community living in the area of their operation. The significance such programs have in the local public life and in spreading information of local relevance will not decrease because of digital switchover. With regard to this, decisions necessary to be made in the course of switchover must also take into account the various aspects of local and regional broadcasting as well as those of non-profit-oriented and public service broadcasting services.

151. It is also important, however, to accept that local, community, and non-profit-oriented media cannot be expected to play a leading role in digital switchover (and take on burdens accordingly). It is the regulator's responsibility to ensure that such media could retain their positions under the considerably transforming conditions of the media market during the digital switchover. Nevertheless, it should also be noted here that because of their peculiar

nature it is the local and non-profit-oriented media relying on the self-organization of communities that are the most immune to any direct regulatory instrument intended to be implemented by the state using a “top to bottom” approach. These segments of the domestic media system also raise general concerns to be addressed in the course of setting up the NAMS.

152. Parallel to the digital switchover, the review of domestic media regulation must follow the modifications of the “Television Without Frontiers” (TWF) Directive, the main orientation of European media regulation. This task goes beyond the direct tasks related to digital switchover, nevertheless, the EU-conform media regulation background provides clearly favourable general circumstances for making digital switchover-related strategic and business decisions in the media and communications market. This directive defines rules relating exclusively to television program content leaving the solution of transmission-related issues to communications regulation.

- Specification of “country of origin”¹⁴, and the basic principles of the freedom of reception and relay
- The issue of legal authority over broadcasting organizations
- Limitation of exclusive broadcasting rights in order to provide the audience living in the member states of the community free access to events qualified as having great importance to society
- Regulations prescribing obligatory preference of European productions for broadcasters
- Control of television commercials
- Basic norms for on-demand services
- Regulations relating to the protection of minors and the public order, prohibition of animosity, and the “right of reply”¹⁵, which corresponds to the writ of libel applied in our domestic law.

153. One of the essential characteristics of Act I of 1996 on Radio and Television Broadcasting (the RTBA, popularly known as the “Media Act”) is that beyond media regulation according to community law it also contains provisions on:

- the control and operation of public service broadcasters;
- “supplementary broadcasting” and “value-adding services” related to television;
- the Broadcasting Fund;
- the legal status and responsibilities of ORTT;
- special ownership limitations relating to broadcasters;
- program allocation and distribution.

154. The regulatory instruments provided by the Radio and Television Broadcasting Act for the digital switchover are as follows:

- *Invitation for a tender on broadcasting rights:* It is the ORTT’s decision made in the course of a tender procedure that defines which service provider will be authorized to broadcast using a given broadcasting option available through the terrestrial broadcast dissemination network. During the tender procedure it is possible to provide a relatively detailed definition for the program structure (ratio of public service programs, special thematic programs, etc.), which is considered to be

¹⁴ “country of origin”

¹⁵ “right of replay”

desirable for the given broadcasting option. However, it is also important to note that these ORTT licences are insufficient in themselves for implementing the digital switchover while following a concept different from that of the central public administration; therefore, harmonious cooperation between affected institutions is absolutely necessary.

- *Ownership rules:* The Radio and Television Broadcasting Act contains a complex system of ownership limitations. These, however, fail to fully comply with the characteristic features of digital broadcasting. It is a major concern as regards digital switchover that the competition in the market of broadcasts funded with commercials (i.e. the market of programs freely available to consumers) should be much more diverse and dynamic than it is today. In this respect, reviewing the regulations of the Radio and Television Broadcasting Act relating to ownership is a regulatory instrument of decisive significance. We must also note that in order to enhance the diversity of content, the Board has the power to effect considerations relating to the ownership structure as early as in the course of the tender procedure, without any explicit amendments to the Radio and Television Broadcasting Act. However, this should be performed in a transparent way.
- *“Must carry” and “must offer” obligations:* We have already discussed the “must carry” and “must offer” obligations included among the instruments provided by the Radio and Television Broadcasting Act under competition control. Here, we should only note that their close relationship with media regulation is obvious – even if they are classified in Community Law as falling under sector-specific competition law. A practical effect of similarities observed between the objectives of media regulation and those of competition control (e.g. a wide selection of services – media pluralism; promoting the appearance of broadcasters on the market via media law – terminating the obstacles of entering the market in competition law) is that – assuming the existence of appropriate circumstances – “must carry” rules applied in line with competition control aspects may have a positive effect also in media regulation. As a consequence, classification of “must carry” and “must offer” obligations in the system may be handled as a theoretical issue of secondary importance, and regulation must be focused on practical application possibilities instead.

155. In relation to the Radio and Television Broadcasting Act, the following notes must be made during the evaluation of regulatory instruments:

- It must be identified that the regulation or modification of which subjects regulated by the Radio and Television Broadcasting Act require the votes of at least two thirds of the Members of Parliament present.
- The whole financing system of public service broadcasters must be reformed, which would require a complete revision of the Radio and Television Broadcasting Act.
- In line with the Community Law’s communications directives adopted in 2002, it seems necessary to update Radio and Television Broadcasting Act regulations relating to broadcast transfer and broadcast dissemination as well as to increase the coherence of electronic communications regulations.
- Due to all of the above considerations, the need for “digitalizing” domestic media regulation is an issue requiring urgent solution: the media regulation instruments discussed above need to be reviewed – in accordance with the National Audiovisual Media Strategy (NAMS) and this strategy (DSS).

Copyright rules

156. Highlighting the importance copyright has in the audiovisual market is a common element in the copyright-related statements made by the participants of consultations. In this context, almost all opinions recommend further analysis and a comprehensive overview of the issue. Collective rights managers representing the right-holders required a more detailed presentation of the procedure relating to the acceptance of tariff tables, while other participants – commercial users, civil organizations – requested a more detailed examination of the role of copyrights. Certain broadcasters believe that their own double nature – being commercial users and holders of neighbouring rights simultaneously – should also be taken into consideration in further analyses.

157. In relation to copyright regulation it is a basic strategic assumption that this function can operate properly only if it creates such an environment for both authors and users that inspires authors, performers, and other holders of neighbouring rights to produce artistic works and allows delivery of their works to the widest possible audiences.

158. When considering copyright regulation, it is worth highlighting that the increase in the number of channels and the enhancement of services, which are made possible by digital broadcasting, will consequently increase the ratio of using productions.

159. The responses received at the consultations confirmed that the fees specified in relation to the use of these productions in the scope of collective rights management have a regulatory effect on the activities of market players. This makes it necessary that the aspects of digital switchover be also represented when making decisions in the course of the Ministry's control relating to the activities of collective rights managers. The following objectives should be pursued in this phase:

- It is desirable to achieve such a general royalty level in the audiovisual sector that offers the authors, the users, and the audience the most favourable conditions with regard to the use of domestic productions. Thus, providing quality programs, domestic productions can significantly contribute to easing the “hunger for content”, which will inevitably occur as a result of digital switchover and reasonable royalties can also provide authors and other right-holders with a fair income.
- Appropriate actions should be taken to prevent royalty tables from including conditions that may hinder the introduction of digital services. Agreements to be made with collective rights managers on guaranteeing discount royalty rates for digitally broadcast channels should also be given consideration.

160. Taking all this into account, further detailed economic and strategic examinations of the impact royalty fees have on the domestic audiovisual market are justified and their outcome should be used for setting up the NAMS.

Conditions of placing receivers on the market

161. In the course of digital switchover, the conditions of marketing television and radio receiving sets will definitely need to be reviewed and modified as necessary. The responses

received at consultations were basically uniform – following the US pattern – suggesting that the ratio of television sets without digital tuner was to be decreased gradually.

162. In order to avoid Hungary becoming a “dumping area” of analogue television sets and to maintain the availability of the two national commercial television networks even if they should decide not to change for a digital platform until they have to, it is recommended that upon the sale or rent of television sets or set-top boxes in Hungary it should be required that any device be capable of

- decoding at least DVB-T standard broadcasts encoded using the selected (MPEG4) compression method; and
- receiving analogue television signals.

163. Besides, following consultations within the industry and the European Commission, the following restrictions shall apply from 2008 on:

- after June 1, 2008 every television set with a diagonal of 82 cm or more, and half of the television sets with a diagonal of 66 cm or more;
- after December 1, 2008¹⁶ every television set with a diagonal of 66 cm or more;
- after December 1, 2009 every television set with a diagonal of 38 cm or more;
- after June 30, 2010 any television set can only be sold if it has at least a DVB-T (or C and S) MPEG4 decoder and is capable of receiving analogue broadcasts;
- after August 1, 2012 any television set can only be sold if it has at least a DVB-T (or C and S) MPEG4 decoder.

164. Another recommendation brought up at the consultations is that vendors selling television sets must inform their customers (by means of technical specifications, product descriptions on display, stickers, etc.) whether or not a specific set is capable of receiving terrestrial broadcasts. This is the simplest – and in most cases, the most comprehensible – way of informing consumers.

Standardization

165. The current regulations relating to standards were implemented with Act CXII of 2001 (Nszt.), which amended the National Standardization Act, for the purposes of European legal harmonization. With this amendment, the legislator explicitly eliminated the possibility of issuing an obligatory standard. Despite that, apart from the regulator's decisions related to digital switchover, these European and national standards constitute essential orientation points. It is three European standards organizations, CEN, CENELEC, and ETSI, who are responsible to develop European standards (*which are applied on a voluntary basis, based on the basic principles*). From the perspective of the Digital Switchover Strategy (DSS), the European Telecommunications Standards Institute (ETSI) is the most important of the three organizations. ETSI works in close cooperation with the International Telecommunications Union (ITU) and the International Electrotechnical Commission (IEC). ETSI standards related to digital broadcasting (DVB, DRM, DAB) are adopted by the national standards

¹⁶ The turning point of the rules for placing receivers on the market should coincide with the beginning of Christmas sales as – apart from the periods of Football World Championships, Olympic Games, and Football European Championships – this is the time when most television sets are purchased.

organizations of European Union member states as national standards. The Hungarian Standards Institution (MSZT), which operates as a public corporation under the Nszt, has exclusive authority to perform standardization-related public duties. It is the MSZT's responsibility to develop, approve and publish national standards as well as to introduce European (including ETSI) standards.

166. Nevertheless, NHH may play an important role (also) in standardization, as the Authority may specify a wide range of individual responsibilities related to unbundling and access for operators with significant market power. In addition, to ensure the reception of digital television broadcasts, the European Commission and the NHH may impose obligations that enhance interoperability on operators that do not represent significant market power under Section (4) of Article 17 of the Framework Directive, and under the Eht. and Section 2 (3) of Government Decree No 277/2003. (XII.24.) on reference offers, network agreements and the detailed rules of related procedures, respectively.
167. The Ministry of Economy and Transport (GKM) and the ORTT also have the power to bind subsidies granted to players in the audiovisual sector to meeting conditions that help to promote any of the open API specifications.

Legislation on digital switchover

168. An important horizontal issue that goes beyond the regulatory instruments briefly overviewed above is the implementation of regulatory conditions required for digital switchover.
169. Bill T/1901 on the rules of digital broadcasting was a recent initiative addressing the issue, but in its current form, which already includes the modifications approved at the meetings of the respective Parliamentary Commission, it does no longer clearly serve the success of digital switchover. Nonetheless, creating the legal background for digital switchover continues to be a pressing matter. Since it concerns both the Radio and Television Broadcasting Act and the Electronic Communications Act (Eht.), more than one solution can be drafted. In our opinion the concept underlying the above Bill – suggesting that the regulations relating to electronic communications contained in the Radio and Television Broadcasting Act, the modifications of the Eht. and the new regulations to be introduced should all be incorporated in a single act – offers the most direct solution and the shortest implementation time.

Forms of subsidy	Network development subsidies of the Broadcasting Fund
	Subsidies for digital set-top boxes
	Innovative application and technology development

170. Based on international experience, relevant Community opinions, and the status assessment of the strategy, the following forms of subsidy are considered to be justifiable:

- utilization of the Broadcasting Fund's sources to promote the digitalization of networks;
 - subsidies for digital set-top boxes;
 - innovative application and technology development in the field of digital broadcasting.
171. In addition, the possibilities of providing subsidies to encourage the production of creative content, programs and artistic works to be transmitted and made available to the audience via digital networks should also be assessed.

Network development subsidies from the Broadcasting Fund

172. Managed by the ORTT, the Broadcasting Fund is according to the Radio and Television Broadcasting Act “a separate monetary fund that serves to support public service broadcasting, public broadcasters, non-profit-oriented broadcasters, public service broadcasts and programs, to preserve and further develop culture, to provide for the multicoloured nature of broadcasts, and to support other responsibilities defined in this Act”. The Act contains detailed provisions concerning the utilization of the Fund’s resources. Accordingly, the Fund covers:

- the operating expenses of public service broadcasters;
 - the operating costs of the ORTT and of the organizations controlling and supervising public service broadcasters;
 - the expenses related to program production tenders announced by the ORTT;
 - other tender objectives as specified by the Act.
173. As to the last item, the Radio and Television Broadcasting Act explicitly states that “the amount payable for the third national terrestrial television broadcasting licence (that is RTL Klub) shall be channelled into the Broadcasting Fund, and such proceeds shall be used to develop broadcasting as well as cable networks used for the distribution of broadcasting services. This money shall not be applied for any other purpose”.

Subsidies for digital set-top boxes

174. The switch-off of the analogue terrestrial broadcasting in general and more specifically the switch-off of public service channel m1 that may take place in an accelerated manner due to the relative shortage of available frequencies make the subsidization of set-top box purchases in the period of digital switchover worthy of consideration.
175. Basic requirements for this form of subsidy are as follows:
- Provision of subsidy must be neutral with respect to competition or platform;
 - Subsidies may only be granted on social basis;
 - Set-top boxes purchased using this subsidy must promote interactivity and interoperability;
 - They must be capable of decoding MPEG4 broadcasts.
176. Platform and competition neutrality means that the subsidy cannot be limited to fund supplementary receivers of a specific platform. However, it must be specified as a precondition that those receiving the subsidy must have sets capable of only analogue terrestrial reception and they must switch over to one the digital platforms (DVB-T, DVB-S,

DVB-C, IPTV, etc.) of their choice. Having endorsed the opinions brought up at the consultations, no other substantive requirements related to the set-top box subsidy (free channels or channels available at a low fee) are specified in the strategy. Instead, rethinking of the “must carry” regulation is deemed to offer a more suitable solution to handle this matter.

177. The systems of social aspects underlying the set-top box subsidies may be developed after the initial experience gained in connection with digital switchover have been processed. Simplicity and transparency of the subsidy system as well as minimizing the chances for ‘subsidy trade’ are high-priority requirements. The following decisions seem necessary to be made when developing the subsidy system:

A decision must be made on the basis of the entitlement:

- A social security type of benefit: entitlement based on paying contributions (e.g. social security);
- Aid type of benefit: entitlement based on income level (e.g. social aid);
- Benefit targeted at groups: based on some social or demographic attribute (e.g. *child care benefit*)

The subject of entitlement must be specified:

- It must be taken into account that there may be more than one television sets even in poorer households today, and that more than one entitled persons may live in the same household.

A decision must be made on the form of the subsidy:

- In kind (set-top box);
- Financial (cash or voucher).

The entities determining and granting the subsidies must be identified:

- The responsibility of determining whether an individual is entitled to subsidy could be assigned to the local government or the notary public if subsidies were to be granted as related to some aid. This latter solution increases normativity.
- It may be possible that those entitled to subsidy receive it from the given service provider: similarly to the telephone subsidy granted to those socially deprived.

178. Concerning the technical parameters of the set-top boxes to be subsidized, a uniform opinion of those participating at the consultations was accepted. According to this, only those receiving sets should be subsidized that can use any API standard and may as well be capable for the use of interactive services.

179. The final decision concerning the necessity and form of set-top box subsidies should be made upon completion of the multiplex tender, as individual bidders are expected to be assessed also on the role they are willing to play in the distribution of set-top boxes. If State involvement is unavoidable, a system of social criteria must be developed based on the assessment of the initial experience gained from the switchover, but not later than half a year prior to the beginning of the switch-off of m1 (expected to occur in 2009). Simplicity and transparency of the subsidy system as well as minimizing the chances for ‘subsidy trade’ are high-priority requirements.

Subsidy for the innovative application and technology development

180. The innovative application and technology development becoming available in the field of digital television and radio has good chances to attract European Union subsidies. The FP7 Research and Development Framework Program, which is a central subsidy granted by the European Union, and the R&D components of the New Hungary Development Plan for 2007-2013 (NFT II.), which is available to domestic entities, can be viable options. In order to ensure the best possible use of these opportunities, special attention should be paid in the course of coordinating the digital switchover to formulating the criteria for the 2007-2013 R&D tenders in a way that encourages innovative digital television and radio development projects.

IV. Relationship between objectives and instruments

181. In mapping the relationships between strategic objectives and instruments, we presented both direct and indirect effects. The establishment of correlations between objectives and instruments used is particularly important for the monitoring of the projects, the identification of the indicators on different levels, and the assessment of the contribution of each activity to the realization of strategic objectives also becomes possible.

182. The abbreviations used in the table presenting the relationships between objectives and instruments stand for the following instruments:

- E 1. Adoption of the Digital Switchover Strategy (DSS)
- E 2. System for the allocation of digital terrestrial multiplexes
- E 3. Information to consumers
- E 4. Role of public service broadcasters in the digital switchover
- E 5. Promotion of digital archiving
- E 6. Frequency management
- E 7. Competition control
- E 8. Media regulation
- E 9. Copyright rules
- E 10. Conditions of placing receivers on the market
- E 11. Standardization
- E 12. Legislation on digital switchover
- E 13. Network development subsidies from the Broadcasting Fund
- E 14. Subsidies for digital set-top boxes
- E 15. Innovative application and technology development in digital broadcasting

183. The list including the assumed effects of the proposed instruments shows that the measures contribute most to the following specific objectives:

- Increasing the penetration of digital television;
- Switching off the analogue terrestrial service;
- Promoting interactive DTV services.

184. This also shows the focuses of the strategic approach and provides orientation when developing those action plans defining the application of each instrument.

4. table Relationship between the objectives and the instruments of the Strategy

Areas of intervention	Priorities	Specific objectives													
		E1	E2	E3	E4	E5	E6	E7	E8	E9	E10	E11	E12	E13	E14
Program provision	Digital content and service development	Media pluralism	Switching off analogue terrestrial broadcasting should not mean that popular free channels (m1, RTL Klub, tv2) will be lost	X	X	X			X	X	X				
			Availability and use of multi-channel (10+) television services should dynamically increase as a result of digitalization	X	X	X	X	X	X	X					
			Public service radio must be granted a broadcasting opportunity on the DVT-T multiplex and an independent DAB multiplex access		X	X		X							
			Promotion of the digitalization of existing audiovisual contents	X		X	X			X					
			Development of interactive DTV services	X	X	X	X	X	X	X	X				X
Broadcasting	Sustainable and effective competition	Efficient management of limited resource	The percentage of households using digital broadcasting service should reach the level of the following EU15 benchmark countries: Portugal, Ireland, Norway, Finland, Germany, Denmark, Sweden	X	X	X	X	X	X	X	X	X	X	X	X
			Frequencies ensuring a balanced switchover and favourable long term business opportunities	X			X				X				
			Promotion of effective compression procedures		X		X			X		X			X
			Gradual switch-off of analogue terrestrial services by 2012 in order to free the frequencies currently used for analogue broadcasting	X	X	X		X	X	X	X	X	X	X	X
End-users	Information to consumers		Preparation of households for the switch-off of analogue terrestrial services, and the effective communication of the opportunities, benefits and costs of changing the reception mode	X	X					X					
	Access for disadvantaged groups		Provision of end user devices providing access to public service contents for those who cannot afford to purchase such a device	X	X										X

V. Institutions and monitoring

Organizational system of digital switchover

Tasks related to the control and coordination of digital switchover

185. For a successful digital switchover in Hungary, it is necessary that this process be performed under appropriate control and coordination. Coordination tasks essentially emerge in three relationships:

- In the course of digital switchover, both the activities and the communication of government institutions must represent uniform standpoints, and they must send the same messages to market players and consumers. In the absence of such internal coordination, the market cannot be expected to demonstrate concerted behaviours either. Accordingly, the bulk of coordination means the harmonization of the opinions of the public administration institutions.
- For the purposes of digital switchover, the government must do its utmost to cooperate with the market players. Thus, the coordination related to the switchover must also extend to include the market players.
- The third emphatic element of coordination is information provision to the consumers, which has been detailed above under public policy.

Requirements relating to the organization controlling digital switchover

The following basic requirements can be set forth in relation to the institution controlling and coordinating digital switchover:

- Apparent dedication
- Clear mandate
- Coordination capacity
- Planning and programming experience
- Thorough knowledge of the strategic area

186. The institutions must be capable of making digital switchover a primary government, economic and social priority.

187. The institution controlling digital switchover must have an uncontested mandate from top-level decision-making forums (the Parliament, the Government) to implement and continuously evaluate the strategy, also extending to the adjustment of the strategy, if necessary.

188. The institution to be set up must be able to effectively harmonize the activities of

- government institutions and entities affected by the implementation of the development policy, and that of
- strategy planners, economic entities, regions, the corporate sector, and the civil society.

189. The institutions must be able to properly plan, schedule and implement the objectives identified as well as to verify and feedback the results. Apart from that, they must also have the characteristics that allow effective enforcement of the interests of digital switchover against those of other market players and areas competing for the same (domestic or international) resources.

190. The organization responsible for coordinating digital switchover must have a wide range of up-to-date and relevant information about the area as well as the problems and needs of economic and social players affected.

191. The institution having the above characteristics and competencies will basically appear in three roles:

- It represents the aspects relating to digital switchover within the system of government institutions and coordinates the activities of the organizations performing tasks in the course of implementing the Digital Switchover Strategy (DSS).
- It maintains contact with market players. It defines for them the directions of government intervention made to support digital switchover, continuously monitors the domestic status of both the digital broadcasting networks and the services provided through them, identifies and evaluates service providers' positions.
- It provides consumers with information and promotes the use of digital broadcasting.

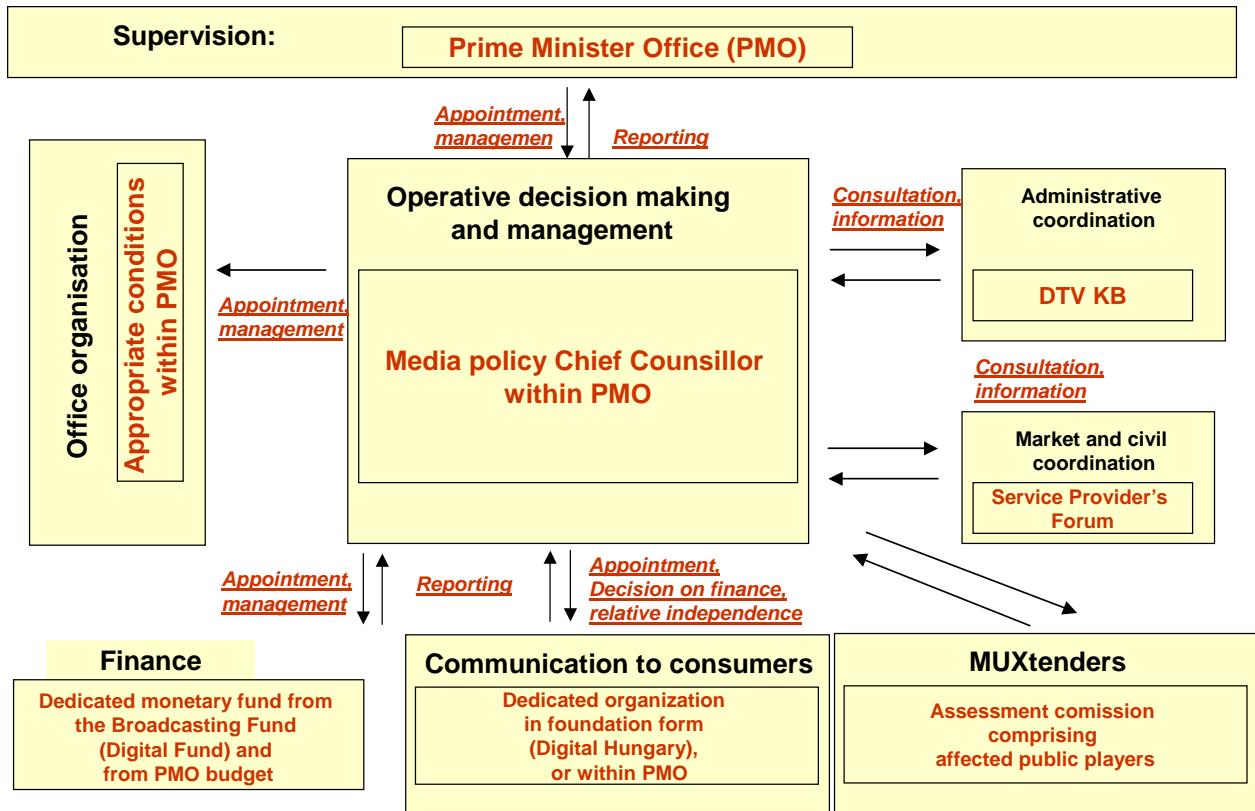
192. A further duty of the institution responsible for digital switchover, affecting all three of its roles above, is to take care of the continuous "maintenance", updating and monitoring of the switchover strategy and to publicly evaluate the implementation of the strategy from time to time.

Proposal for the organizational system

193. In order to define the organization, legal status and other characteristics of the institution controlling digital switchover, the following questions must be answered:

- Who should supervise the institution to be set up?
- What form of decision-making and management should be implemented?
- What organizational solution should serve the work organization and the office?
- Where should the administration and market coordination function be placed within the institutions?
- What organizational criteria are required for the funding of the switchover?
- What organizational criteria are required for communication and providing citizens with information?
- What should the institutional embedding of tenders for terrestrial digital networks (multiplexes) be like?

10. chart Main characteristics of the organizational system proposed for the digital switchover



source: PMO

194. Taking into account the existing organizational characteristics, the institutional proposal based on consideration of the above questions will be the following:

- Supervision of the institutions should be assigned to the Prime Minister's Office. Direct subordination to the Government or the Parliament would result in a more serious mandate but it would also render operation less flexible. Assignment to the ministry supervising this area would, however, strongly limit the opportunities for effective coordination.
- The power to make operational decisions and the management would continue to be associated with the function of the Media Policy Chief Councillor within the organization of the Prime Minister's Office (PMO), which would also be assigned appropriate organizational and financial capacities.
- The administrative coordinator's role may continue to be filled by DTV KB, which was reorganized at the beginning of 2007, and the associated Service Providers' Forum (currently being in the preparatory phase).
- In order to ensure the transparency of financing, a dedicated monetary fund (Digital Fund) – following the Austrian model – should be set up, as held worthy of consideration by the strategy.

- Provision of information to consumers and communication, and later, the public administration coordination of set-top box subsidies could be implemented either in the framework of a dedicated organization (Digital Hungary Task Force – following the British model) or as part of the PMO organization.
- With regard to multiplex tenders, the proposal for organization development suggests setting up an assessment commission comprising the affected public administration organizations. Commission decisions would be made into appropriate public administration resolutions by the National Communications Authority, and where such decisions involve making certain agreements, those would also be entered into by the Authority.

Monitoring

195. The Digital Switchover Strategy (DSS) can be fully assessed during the implementation phase if changes in the broadcasting system can be monitored using appropriate data sets. It is vital that such data should be comparable even after several years because only in this way can sufficient evaluation of the processes be ensured..

196. Taking that into consideration, a system of criteria must be developed – with the relevant international experience taken into account and based on the indicators shown at the target system – by the time the implementation of the strategy begins, and this criteria system can be used in the future to monitor the strategy and assess its effects. For the purposes of monitoring the digital switchover process

- the main indicators must be verified on a monthly basis, and
- the market processes must be assessed and evaluated at least once a year in the form of a comprehensive regular report (Digital Report Hungary) being part of a uniform system, which must be suitable for evaluating the effects of both market processes and government involvement.

VI. Financial planning

197. While digital switchover can result in savings in certain areas, there are considerable expenses associated with the instruments proposed in the Digital Switchover Strategy. Regarding that no specific proposal was received in relation to the changes of savings and expenses during the consultations, and as a consequence, there were no significant changes in the financial calculations laid down in the working papers of the Strategy, these calculations continue to serve as an appropriate basis for administrative discussions and detailed model calculations.

Direct savings related to digital broadcasting

198. We used the following assumptions when estimating the direct savings generated in the course of the terrestrial digital switchover:

- The annual cost of the analogue broadcasting of m1 will be around 5 billion HUF in the second half of the period examined.
- The analogue broadcasting of m1 can be switched off as soon as possible, even as early as in 2009.
- The extending coverage of Multiplex 1 will allow terminating the analogue satellite broadcasting of m2 by 2009. (This saving can be attained if the multiplex provider allocates a slot for the m2 channel on Multiplex 1 either based on its own decision (due to market considerations) or as a result of an Authority decision.)
- The costs associated with the digital broadcasting of a public service channel equal one fifth of the costs of analogue broadcasting.

5. *table Direct savings generated in the course of the terrestrial digital switchover, 2008-2012 (in million HUF)¹⁷*

6. *table*

	2007	2008	2009	2010	2011	2012	total
Switch-off of the analogue broadcasting of m1	0	0	0	5,000	5,000	5,000	15,000
Switch-off of the analogue satellite broadcasting of m2	0	0	1,341	1,341	1,341	1,341	5,364
Costs of the digital broadcasting of m1 and m2	0	-2,200	-2,200	-2,200	-2,200	2,200	-11,000
Total	0	-2,200	-859	4,141	4,141	4,141	9,364

Source: DSS consultation material

199. The above calculations show that it is possible to save HUF 9-10 billion in broadcasting costs in the period until 2012 if the broadcasting of m2 and m1 is transferred to the digital terrestrial network in a relatively early phase (in 2009/2010).

Direct costs incurred in relation to the digital switchover

200. The following main items of expenditure were quantified in relation to the 2007-2012 period of the digital switchover:

¹⁷ The sale of frequency rights can also be included as a one-off or as an annual income, but it is pointless to estimate even its scale until we have the exact tender specifications. However, we do believe that the closer the tender for the DVB-T platform gets to the target date of 2012, the less income we can expect because the costs and risks of the platform operator related to a successful switchover will increase. We cannot eliminate the possibility either that instead of on a financial basis, frequency rights will finally have to be sold on a content basis, in the framework of a so-called "beauty contest".

- Measures aimed at providing information to and increase the awareness of consumers;
 - Funding to facilitate the digital switchover of public service channels;
 - Network development subsidies disbursed from the Broadcasting Fund;
 - Set-top box subsidies in a platform- and technology-neutral form, based on social criteria;
 - Innovative development of digital applications and services;
 - Financing needs of the institute controlling the digital switchover and of the administrative coordination.
201. Consumers should be informed mainly in the form of PPP-based campaigns. Based on service providers' estimates and international experience, the annual costs of a focused information campaign ensuring continuous media presence may amount to HUF 1.5-2 billion. If the PPP-based program is successful, the Government can finance one quarter of that amount. Information should be provided throughout the entire digital switchover period but the need for such a function will obviously be lower before the start of the digital terrestrial platform operation.
202. The funding to facilitate the digital switchover of public service broadcasters is included as a potential expenditure item. Currently, we have a more important strategic message than the amount of resources indicated for the period following 2008: any specific financing need must be based on the tasking and financing systems developed for public service broadcasters and reviewed on the basis of the results of NAMS.
203. So far only cable television companies have been able to use subsidies from the Broadcasting Fund to transform their network infrastructure into a digital structure, but in the future this resource will be available to provide platform-neutral subsidies for digitalization. The budget of the Broadcasting Fund is determined in Annex 3 to *Act CLII of 2005 on the annual budget of the National Radio and Television Board for 2006*. According to that, the total amount of the Fund's budget is HUF 31,310,000,000. HUF 853,000,000 of that amount is available this year for the purposes of subsidizing the installation of broadcasting networks. This entire amount can be spent on digital switchover, and regarding that M-RTL had its broadcasting rights prolonged until 2012 (the broadcasting fee appearing on the income side provides the basis for that budget), a resource of this volume is expected to be available every year until that time.
204. The following table describes a possible scenario for the subsidization of set-top boxes. According to preliminary calculations, set-top box subsidies provided on the basis of social criteria and in a platform-neutral form would equal to a total amount of HUF 3.5-4 billion in the period 2008 to 2012.

7. table A possible scenario for the subsidization of set-top boxes¹⁸

	2007	2008	2009	2010	2011	2012
Expected prices of set-top boxes ('000 HUF)	17,100	15,390	13,851	12,465.9	11,219.31	10,097.4
Organic path						
Analogue terrestrial reception ('000 households)	1,010	800	680	622	530	410
Digital terrestrial reception ('000 households)	25	156	241	266	324	410
Total terrestrial reception ('000 households)	1,035	956	921	888	854	820
Desired path						
Analogue terrestrial reception ('000 households)	1,008	756	386	178	81	0
Digital terrestrial reception ('000 households)	27	200	535	710	773	820
Total terrestrial reception ('000 households)	1,035	956	921	888	854	820
Changes to digital terrestrial reception ('000 households)	27	173	335	175	63	47
Changes for another platform ('000 households)	182	79	35	33	34	34
Applies for set-top box subsidies ('000 households)	0	0	88	48	20	16
Subsidy amount (million HUF)	0	0	2,017	1,022	399	300

¹⁸ We used the following assumptions for the calculations:

1. We used the organic development path specified under the target value-based future prospects as a starting point. This is where the estimates regarding households with analogue and terrestrial reception capabilities as appearing in the first three rows of the table are taken from.
2. Then, we determined a desirable development path, which – through switching off the analogue broadcasting of m1 in 2009 – would allow the complete switch-off of analogue broadcasting by 2012.
3. Based on that, we made estimates broken down to years about the expected number of households which
 - replace analogue terrestrial reception capabilities with digital ones,
 - and on the organic development path we indicated the number of those households that leave the terrestrial platform for any reason whatsoever.

Practically, these two groups cover most of those who are potentially affected by the subsidies.

4. We used the following additional assumptions for the calculation of specific subsidy needs:

- set-top box subsidies will be first available in 2009,
- the price of set-top boxes will continuously decrease at a rate of 10% per year,
- 25 percent of the households leaving the analogue terrestrial platform or changing for digital terrestrial reception will apply for set-top box subsidies based on social criteria,
- half of those leaving the terrestrial platform will change for some other digital platform, while the rest will subscribe to analogue cable television services.
- half of those entitled to receive set-top box subsidies will request assistance for switching over to digital reception. We estimated the related costs at HUF 20,000 per household.

Source: DSS consultation material

205. Based on the experience we gained in relation to GVOP Priority 3, we expect that in the case of innovative digital application and service development, the total amount of subsidies disbursed for this purpose will not exceed HUF 500 million per year, and the volume of the related national contribution will be around 28 percent, similarly to the 1st period of the National Development Plan (NFT I.). This equals to an annual budget expenditure of about HUF 140 million, which will contribute to the implementation of the objectives laid down in the Digital Switchover Strategy.

206. Based on the specified organization development ideas and the remarks made at the consultations, the annual operating costs of digital switchover coordination and the monitoring systems were reduced to HUF 150-200 million.

207. Consequently, the indicative financial table of the Strategy shows that State participation relating to digital switchover requires additional resources of about HUF 3-5 billion per year until 2012. The largest single item of that is the earmarked subsidy for the digital switchover of public service broadcasters.

8. table Indicative financial table¹⁹

	2007	2008	2009	2010	2011	2012
Measures aimed at providing information to and increase the awareness of consumers	200	375	500	500	500	375
Funding to facilitate the digital switchover of public service channels	0	2,000	2,000	2,000	2,000	2,000
Subsidies for set-top boxes	0	0	2,017	1022	399	300
National contribution to the innovative development of digital applications and services	140	140	140	140	140	140
Coordination of digital switchover and the monitoring system	150	200	200	200	200	200
Total	490	2,715	4,857	3,862	3,239	3,015

Source: DSS consultation material

¹⁹ This table does not contain the annual amount of network development subsidies disbursed from the Broadcasting Fund, which equal to about HUF 800 million, since this expenditure is independent from digital switchover, and as such, it is not considered to be an “additional resource” required for the implementation of the strategic objectives.