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COMMISSION STAFF WORKING PAPER

on the extended impact assessment of the Commission Communication on the Transition from Analogue to Digital Broadcasting (from Digital 'Switchover' to Analogue 'Switch-Off')

{COM(2003)541 FINAL}

PRELIMINARY

This document was prepared on the basis of the *Communication from the Commission on impact assessment*,[1] and the *Commission legislative and work programme for 2003*,[2] whose annex 2 on *2003 proposals that will undergo an extended impact assessment before their adoption* includes the '*Commission Communication on the transition from analogue to digital broadcasting'* (hereafter referred to as 'the, or this, Communication').

1. THE ISSUE

- *Switchover broadcasting in economic, social and environmental terms*

In the field of television and radio (jointly referred to as 'broadcasting'), 'switchover' refers to the migration process from analogue to digital broadcasting, starting with the introduction of digital and ending with the switch-off of analogue broadcasting. Switchover implies much more than a technical migration. Considering the role of TV and radio in modern societies, that impact is not only economic but also social and political.

The switchover cases for TV and radio are quite different. In addition, for both TV and radio, the challenge and impact associated with the switchover process can greatly vary from one local context to another. Many routes are possible in terms of the speed and length of the process, the parties involved, and the degree of government intervention. Each country follows its own switchover path, often influenced by local broadcasting legacy. For instance, digital broadcasting can be supported by various transmission networks, essentially terrestrial ("over the air"), cable and satellite.

Various countries carry out regular analysis of the evolution of their digital broadcasting market and policies[3] The purpose of the Communication is precisely to promote greater transparency about switchover, in particular, encouraging EU Member States to assess the need for, and implications from, their policy interventions.

Considering the national divergences and the uncertainties still associated with the process, the **general implications from the switchover process in the EU** can be only anticipated in broad qualitative terms:[4]

- **In economic terms**, switchover involves significant costs and difficulties associated with the need to: introduce technical upgrades in all segments of the value chain and review spectrum mechanisms and approaches; develop attractive services to drive demand, without which the overall process could be financially and politically unsustainable. The main challenge is on the reception side: to replace or upgrade the huge installed base of analogue receivers. This can be done with integrated digital television or radio receivers, or 'set-top-boxes' connected to the analogue TV set. Moreover, connection points (antennas, dishes, cabling) must often also be adapted.

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1 Communication on impact assessment, COM(2002) 276 final of 5.6.2002.

2 Communication on the legislative and work programme for 2003, COM(2002) 590 final of 30.10.2002.

3 See 'country profiles' annex in study by *BIPE consulting* for DG Information Society of the European Commission: *'Digital Switchover in Broadcasting'*, April 2002. This study and related material (workshop slides and replies to public consultation) is available at http://europa.eu.int/information_society/topics/telecoms/regulatory/studies/index_en.htm

4 For a more detailed analysis of costs and benefits associated with switchover, see *BIPE*, Ibid. p. 146, summarised in the last part of chapter 4 below.

The economic costs associated with switchover are therefore expected to be significant considering the size of the EU TV and radio markets. The actual amounts of expense, and their share amongst stakeholders, will depend on several variables such as: timing, e.g. the cost of digital broadcasting equipment will go down over time; favoured type of transmission network (primarily cable, satellite or terrestrial); geography, e.g. switchover should be cheaper in small flat highly populated areas; etc. All things being considered, the case scenarios vary significantly from one EU Member State to the other.[5]

As to the benefits of digital broadcasting, some are associated with the switchover process itself, others would be only achieved at the end, by stopping analogue broadcasts. All benefits derive from the possibility of processing and compressing digital data, making much more efficient use of network capacity than is the case with analogue signals. This can be exploited in several ways, namely: enabling the offering of new or improved broadcasting services; releasing radio-spectrum; increasing market competition and innovation. These advantages will yield financial revenue but, again, amounts and beneficiaries are difficult to estimate and can greatly vary from one context to another. For instance, market potential for interactive TV and convergent services is taking time to materialise and consumer willingness to pay for this remains uncertain.

- **In social and political terms**, the impact from switchover can be also relevant considering, on the one hand, the important role that TV and radio play in Western societies as major sources of entertainment, information and education, being consumed by more than 90% of EU households on a daily basis. On the other hand, switchover will affect, to an extent still difficult to predict, the features of broadcasting services, as well as reception costs incurred by consumers.

Digital broadcasting facilitates additional programming; programme-related enhancements; better picture and audio quality; and data and interactive services, including 'Information Society' and internet-like services. However, whereas the technological possibilities for service improvement are huge, it remains to be seen how far there is market demand to support all of these features.

Finally, any policy intervention to terminate analogue broadcasting without some form of compensation would have social and political costs. Consumers would be forced to choose between losing their TV and/or radio services, or investing in digital broadcasting equipment.

- **In environmental terms**, switchover can have certain impacts, although far less significant than the economic and social impacts, and the number of variables makes it difficult to predict outcomes. In principle, digital broadcasting entails lower power transmissions than analogue, but the overall impact in terms of reduced electricity consumption is unlikely to be significant. In addition, digital terrestrial television network planners have an incentive to reuse existing analogue transmission masts in order to save money.

More significantly, as the digital broadcasting market develops, the issues of household power consumption and disposal of receiver equipment may be raised. For instance, detached modules such as 'set-top-boxes' consume more power and are replaced more frequently than integrated digital TV sets. However, they provide a flexible and low cost route to digital TV for consumers and the Commission has been working with industry to reduce their power

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[5] This was also one important conclusion of the cost/ benefit analysis on the migration from analogue to digital terrestrial TV in *BIPE*, Ibid. p. 146.

consumption in standby mode. Such detached modules obviate the sudden obsolescence of a large number of analogue television sets. Consequently, there is unlikely to be a sudden peak in the disposal rate for TV sets which might overload recycling and disposal facilities.

Digital television is very dynamic and new technologies are being introduced all the time. Switchover encourages this process of continual innovation. Industry is studying some technological possibilities with the capability to transform the way in which television is consumed, with consequences for the environment that are hard to identify at this time. For instance, current digital terrestrial transmission systems were primarily designed for fixed reception. Battery operated receivers are not practicable because they require too much power. However, TV transmission to portable, personal devices could be a unique selling point for digital terrestrial television against cable and satellite. Industry is therefore investigating both new battery technologies and new terrestrial transmission techniques in order to make this possible. The possibility of integrating portable TV receivers and networks with mobile communications systems is also being studied. This example indicates that the environmental aspects need to be monitored in follow-up work.

- *Underlying driver(s) and affected parties*

Switchover is a complex and long process involving many variables and affecting more or less directly many parties, namely: users/ consumers, industry and public authorities. Each group can be further subdivided into smaller segments. For instance, users can be categorised according to their attitude towards digital TV. Switchover also concerns many industry players, such as content creators, service providers, network operators or equipment manufacturers. Some were already active in the analogue broadcasting market, others target new business opportunities specifically in digital markets. Likewise, various departments in national and international administrations are interested in switchover insofar as it affects the achievement of policy objectives.

So users, industry and public authorities are the main forces driving switchover. Each one is driven by different motivations; schematically, consumers want to improve their "TV/ radio experience" through additional programming, better quality, enhanced and interactive services, etc; industry players look for new business opportunities; and public authorities can pursue various objectives like improving the quality and diversity of broadcasting services; recovering part of the spectrum currently consumed by those services; or promoting the information society.

- *Risks inherent in the initial situation and possible outcomes under a "no policy change" scenario*

The Communication takes place in a context where digital broadcasting is a market reality in several EU countries and the majority of them have adopted measures in this area. As with all new technologies, the development of digital broadcasting implies both market opportunities and risks. Indeed, a considerable level of investment and some commercial failures have already occurred in this market. However, the Communication does not aim at taking any position with regard to market outcomes. This should be for the market to decide. Instead, it focuses on policy interventions from EU Member States with a view to encouraging transparency. It is also intended to provide orientations which will help national measures to achieve consistency with EU law, thus reinforcing the internal market dimension of switchover broadcasting and ultimately facilitating the process. This concern was already

expressed in the action line on digital switchover in the Action Plan *"eEurope2005: an information society for all"*.[6]

In this context, **certain policy interventions at Member State level**, or the absence of intervention, **may entail various economic and social risks** including: market distortion and discrimination against certain operators; prejudice to users if they are forced to pay higher prices to receive broadcasting services; infringement of EU law, notably on competition and free movement of goods and services; inefficiency and ultimately costs for society. In addition, considering the internal market dimension (for instance regarding reception equipment or radio-spectrum management), uncoordinated national policies may delay and complicate the switchover process in Europe.

So, whereas switchover broadcasting is expected to happen sooner or later anyway, a "no policy change" scenario at European level - i.e. the absence of any Commission initiative - could fail to address the negative outcomes mentioned. In particular, lack of transparency from national policies regarding switchover may lead to uncertainty for industry operators and users. Moreover, interventions disconnected from market reality and expectations could cause market distortion, as well as exacerbate market and policy differences within the EU.

Considering the variety of switchover scenarios across the EU Member States and the time that the process could still take in some cases, it is difficult to predict outcomes, with or without EU initiative. In any event, the Communication is likely to add value insofar as **European co-ordination can improve policy certainty, facilitate economies of scale in equipment manufacturing, and ultimately reduce market fragmentation**. Indeed, some Community competencies related to the internal market are relevant for switchover.

2. MAIN OBJECTIVE OF THE PROPOSAL

- *Overall policy objective in terms of expected effects*

The Communication intends to **encourage transparent and appropriate switchover policies to accelerate the take-up of digital broadcasting** services in the EU, including advanced TV services, while safeguarding citizens' interests and fair market competition. This would help achieve the benefits commonly associated with digital broadcasting, namely: more and improved audio-visual services; greater efficiency in network capacity usage, notably spectrum capacity; increased market competition.

More specifically, in the shorter term, the Commission intends to monitor national switchover policies and market development. In any case, the switchover process could be long (for TV, probably 5-10 years) and the Commission may revisit as appropriate various issues relevant to

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6 ***Digital switchover***. *In order to speed up the transition to digital television, Member States should create transparency as far as the conditions for the envisaged switchover are concerned. Member States should publish by end 2003 their intentions regarding a possible switchover. These could include a road map, and an assessment of market conditions, and possibly a date for the closure of analogue terrestrial television broadcasting which would enable the recovery and refarming of frequencies. National switchover plans should also be an opportunity to demonstrate a platform-neutral approach to digital television, taking into account competing delivery mechanisms (primarily satellite, cable and terrestrial).*
COM(2002) 263 final, eEurope 2005: An information society for all**.**
http://europa.eu.int/information_society/eeurope/news_library/documents/eeurope2005/eeurope2005_en.pdf

the switchover process, in order to facilitate the efforts of Member States and market players, and to ensure compatibility of national measures with Community law and policy.

- *Relevance of previously established objectives*

The Communication is a contribution to EU policy on digital broadcasting. More specifically, the Communication contributes to the objective set in Article 1 of Directive 95/47/EC on television standards to *"promote the accelerated development of advanced television services, including (…) fully digital transmission systems,"*[7] which is also in line with the goals of the *new regulatory framework for electronic communications*.[8] It also takes into consideration the aim of the Action Plan *eEurope 2005* to promote *"an information society for all"* through a 'multi-platform' approach that specifically includes digital TV, and in particular the Plan's stated goal *"to speed up the transition to digital television"* (See *eEurope 2005* action line on switchover in footnote above). The objective from the 2000 Lisbon European Council 'to make the EU the world most competitive knowledge-based economy by 2010' is also relevant.

Moreover, the Communication addresses general objectives of EU law, such as promoting the internal market and fair competition, and protecting consumers' interests; also principles enshrined in the *new regulatory framework for electronic communications* and other EU legal instruments, notably the priority given to market initiative and technological neutrality of regulation. Finally, it takes into consideration the objective of developing a new EU policy on spectrum management set in the 'Decision on radio-spectrum policy'.[9]

3. MAIN POLICY OPTIONS AVAILABLE TO REACH THE OBJECTIVE

- *Policy instruments considered and options discarded at this stage*

Switchover policy corresponds to government strategy for promoting digital broadcasting in general; so its remit is extremely broad. It can address a range of aspects, involving interventions at different levels through various instruments. It is important to distinguish national from EU intervention, and recall that the latter has precedence since most competencies in broadcasting fall within the remit of Member States, and significant differences between national markets persist.

The switchover study by *BIPE consulting* referred to above contains a chapter on "public policy"[10] where three scenarios are assessed according to the degree of policy intervention required: market-driven switchover (minimum intervention), forced analogue turn-off (maximum intervention) and targeted switchover (in between the two other scenarios). Within

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7 Directive 95/47/EC on the use of standards for the transmission of television signals, OJ L 281, 23.11.95, p. 51.
http://europa.eu.int/information_society/topics/telecoms/regulatory/studies/documents/directive9547.pdf

8 Directive 2002/21/EC on a common regulatory framework for electronic communications networks and services (framework directive), OJ L 108, 24.2.2002, p. 33.
http://www.europa.eu.int/information_society/topics/telecoms/regulatory/new_rf/documents/l_1082002 0424en00330050.pdf

9 Decision 676/2002/EC on a regulatory framework for radio spectrum policy in the European Community, OJ L 108, 24.4.2002, p. 1.
http://europa.eu.int/information_society/topics/telecoms/radiospec/radio/legislation/index_en.htm

10 Ibid., p. 119.

this framework, the study analyses possible measures to encourage digital broadcasting take-up, and provides 14 recommendations to national authorities grouped under three headings:[11]

– Overall switchover strategy.

– Actions regarding industry.

– Actions regarding consumers.

The study also suggests principles for policy intervention at national or international level, which revolve around the notions of necessity and proportionality of the intervention.[12] Finally, it provides recommendations for European intervention in support of switchover, which are inspired from some of the national recommendations, in particular:[13]

– Establish an EU strategic switchover plan containing guidelines on best practice for national policy, and consolidating national switchover roadmaps into an EU roadmap.

– Ensure compatibility of national measures with fair competition on the single market.

– Guarantee harmonisation of terminal equipment.

– Encourage more effective cross-border radio spectrum planning and new approaches to spectrum management.

The Communication, which is an EU policy proposal, was inspired by the European actions recommended in the study, as validated by the public consultation that followed its publication.

While acknowledging that there is a variety of policy actions that can be envisaged in support of switchover, two main possible approaches can be identified for Community action:

– A heavy, interventionist approach involving harmonisation and support measures such as those mentioned later in this section, where the Commission would play a leading role regarding switchover policy.

– A lighter intervention approach, where the Commission provides encouragement and policy support to initiatives undertaken by Member States.

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11 Ibid., p. 186. Overall switchover strategy (recommendations 1 to 5): 1 National switchover roadmap and action plan; 2 Financial instruments in support of the switchover action plan; 3 Monitor digital broadcasting market status and development; 4 Define post- analogue turn-off (ATO) policies and scenarios; 5 Link broadband policy and digital television policy under information society objectives. Actions regarding industry players (recommendations 6 to 9): 6 Ensure greater commercial freedom for digital TV and broadband services; 7 Tax spectrum to encourage efficient use; 8 Make spectrum users reveal their economic utility, to optimise long-term spectrum management; 9 Promote proportionate regulation on standards for receiving equipment and facilities.
Actions regarding consumers (recommendations 10 to 14): 10 Undertake common consumer research; 11 Improve consumer information about DTV; 12 Encourage consumer switchover by reducing the switchover cost; 13 Prefer ex-post, targeted measures to deal with the "digital divide" risk; 14 Ensure consumers' multi-platform access in order to broaden competition.

12 Ibid., p. 185.

13 Ibid., p. 201.

The second option was retained in the Communication. As in the study, the Communication eschews the heavier, interventionist approach, since this would involve measures in areas which fall under the competence of Member States. This is due to the specific rationale and limitations for EU action in digital broadcasting. The rationale for EU intervention is the efficient functioning of the internal market, including the achievement of economies of scale and increased business confidence arising from co-ordinated EU action. Limitations to EU intervention arise from subsidiarity considerations: TV and radio remain politically sensitive; legal competencies in the area largely lie with Member States; and significant differences exist between national markets.

As a result of these limitations, it seems inappropriate to envisage certain measures at EU level, for instance: setting up a fund to support actions under an EU switchover action plan; defining in advance the post switch-off broadcasting landscape; tax spectrum used for broadcasting services; or encourage a reduction in the price of digital broadcasting terminals through subsidies or tax reductions. In addition, strong EU harmonisation measures were discarded, such as setting a common switch-off date for the EU, or imposing the inclusion of digital tuners in all TV sets.

Such measures are not feasible in market and political terms. The purpose of the Communication is more modest. It does not constrain Member States' freedom to organise their switchover policies. However, the Commission essentially wishes to improve transparency of national policies, which should also contribute to ensure their compatibility with EU law.

- *Basic approach to reach the objective*

The present Communication is the first comprehensive attempt to assess the issues invoked by switchover. It provides an overview of the subject, as well as suggestions for possible policy intervention. It is a policy proposal without legal or financial implications.

At this stage in the process, a Communication is the most appropriate instrument. Recommendations or legislative proposals would be premature, given that Member States are due to report on their national plans for switchover by December 2003, under the *eEurope* Action plan.

The proposed approach basically consists in providing **orientations for policy intervention** on switchover, leaving implementation choices to Member States while monitoring those choices at EU level. This is **complemented by suggested EU action in certain areas**. More specifically, the approach contains the following elements:

a) On national action: a.1) provide best practice orientations inspired from principles and requirements of EU law, as well as market analysis (See Communication, sections 1.4 to 2.1.3 and 2.2.7);[14] a.2) facilitate transparency and comparability, identifying information that Member States could supply to fulfil the *eEurope 2005* requirement on switchover. (See annex 2 of the Communication)

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[14] 1. Switchover should be driven by market forces and consumer demand, consumer information is essential; 2. Policy intervention should facilitate market initiative and avoid market distortion; 3. Policy intervention should be transparent, justified, proportionate, non discriminatory and timely, which requires clarity of objectives, market analysis, impact assessment of planned measures, regular monitoring, and technological neutrality; 4. Policy intervention is constrained by the obligation to respect of EU law, notably on competition law and the internal market.

b) On European action: b.1) recall existing EU instruments that support digital broadcasting development;[15] b.2) identify or suggest EU debate and follow-up actions on relevant areas, some of which were already launched or planned before the Communication.[16]

The main trade-off is between the diversity of circumstances across Member States and the internal market dimension, which call for, respectively, minimal and substantial intervention at EU level. The challenge is to find the right balance between national autonomy and European critical mass. This balance is likely to change over time as the digital broadcasting market evolves and as take-up increases across Member States.

- *Subsidiarity and proportionality considerations*

The entire approach is inspired by these two principles. Firstly, it is acknowledged that, whilst **each Member State follows its on switchover path**, largely influenced by its analogue broadcasting legacy, there is also an internal market dimension. Subsidiarity therefore advocates complementary national and EU action. However, the priority should lie with national action for the reasons explained above, at least in the initial stages of the market. Regular monitoring should enable the Commission to assess how far national situations are converging as the market matures and whether further EU action could be justified. However, at this stage where national circumstances vary widely, the Communication duly stresses the importance of each Member State drawing up and disclosing its switchover plans as required by *eEurope*.

Regarding the proportionality principle, one of the key messages from the Communication is that digital broadcasting switchover should be market-led, in line with the *new regulatory framework for electronic communications* and other instruments of EU law. Policy intervention should be transparent, justified, proportionate, non-discriminatory and timely.

4. POSITIVE AND NEGATIVE IMPACTS EXPECTED FROM THE DIFFERENT OPTIONS IDENTIFIED

- *Selected options' expected positive and negative impacts above the "no policy change" scenario*

As indicated in the first chapter of this document ('the issue') the relevance of switchover can be significant in economic, social and environmental terms. Consequently, the impact from policy intervention can be also important. However, for the reasons explained above, notably relating to subsidiarity and proportionality considerations, the Commission has opted for a lighter approach which acknowledges Member States' lead in switchover policy. The impact

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[15] 1. Transparency and comparability of national switchover policies supported through annual implementation report on electronic communications and national information supplied under *eEurope* switchover requirement (See Communication, section 2.1.1); 2. Developments in digital receivers supported through *IST* EU R&D programme and list of standards (See Communication, sections 2.2.1 to 2.2.4); 3. Access to added value services, including *e-government* services, supported through various EU programmes (*IST*, *e-government*, *e-content*, *e-learning*, *e-health*) and the implementation of pro-competitive provisions in the *new regulatory framework for electronic communications* (See Communication, section 2.2.3).

[16] Consumer information; digital connectivity; interoperability; accessibility; must-carry; copyright; diversity of digital broadcasting services, including 'Information Society' services; spectrum management (See Communication, sections 2.1.1, 2.2.2, 2.2.4 to 2.2.6, 2.3.1 to 2.3.3, and 3).

from this option is therefore expected to be lighter than if a more interventionist approach had been retained.

The objective pursued by this Commission initiative is, in the shorter term, to encourage transparent and appropriate switchover policies, and ultimately contribute to accelerate the take-up of digital broadcasting in Europe. In this regard, the heavy, interventionist approach identified in the previous chapter would not only have a negative impact, but would also be politically unrealistic. Indeed, the main elements of such an approach would be setting a common switch-off date for the EU and imposing the inclusion of digital tuners in all TV sets, as recently done in the United States, possibly accompanied by other measures like EU subsidies or some spectrum management harmonisation. This would theoretically ensure a faster development of digital broadcasting and an earlier analogue switch-off, but would also entail significant costs, so that the overall impact would be negative. Although the exact impact would depend on the specific measures adopted, e.g. earlier or later compulsory date for analogue switch-off, the overall impact can be broadly estimated.

First, forcing consumers to change or upgrade their TV and/ or radio equipment, or otherwise renounce broadcasting programming, would have enormous social and political costs, even in those Member States with the highest digital broadcasting penetration. This would be very negative for EU image and difficult to accept by Member States anyway. Avoiding such negative scenario would imply massive financial intervention to supply digital equipment for many households, which would be a significant burden for the EU budget, reducing the funds available for other policies accordingly.

Secondly, the economic impact on the industry would be also significant. Essentially, the sooner the obligation to turn off analogue broadcasting, the highest the costs associated with the required technical upgrades to all segments of the value chain. As indicated in the first chapter, the actual level of expenditure required, and its share amongst stakeholders, will depend on the modalities of the transition. Certain stakeholders would certainly benefit from heavy intervention. For instance, a compulsory analogue switch-off date would mean improved sales' prospects for manufacturers of digital broadcasting equipment and all those involved in related businesses, e.g. antenna installers, TV software developers, etc. However, other parts of the industry would suffer insofar as they would be obliged to support the costs from the migration. This option is particularly difficult to envisage at a time where the financial situation is rather difficult for most companies concerned.

Under these circumstances, apart from the subsidiarity considerations already mentioned, a heavy EU intervention in support of switchover would therefore have an overall negative impact and would not be very credible.

The lighter EU intervention approach eventually retained is expected to have a more positive impact. Concretely, the Communication proposes general policy orientations that are non-legally binding, rather than concrete regulatory or financial measures. Their impact is therefore expected to be indirect and difficult to quantify in the short term. The selected options aim at both **accelerating the transition to digital broadcasting and avoiding market distortion** potentially associated with this process. Positive impacts would be in terms of citizens' welfare (including better information about the digital migration process, and availability of affordable alternatives) and fair market competition.

One important concern of the Communication is to prevent market and social distortion potentially associated with switchover policies, to the detriment of certain social groups, economic sectors or regions. In particular, it stresses that consumers and users must be at the

centre of any switchover strategy; that is, all demand segments, including people with fewer financial resources and those with special needs. It also underscores the point that policy intervention should be technologically neutral and broadcasting switchover should be an inclusive process encompassing various networks, business models and services.

The Communication also takes into consideration the major differences between EU Member States regarding their digital broadcasting market, abstaining from proposing harmonisation measures that would have a greater impact on certain countries. For instance, apart from other potential problems, imposing the inclusion of digital tuners in all TV sets would be particularly burdensome in countries with a low level of digital broadcasting penetration.

No negative impact is anticipated considering the non-legally binding nature of the options retained. If anything, some interested parties may find this proposal not far-reaching enough, but that is justified by the cautious approach adopted at the start of this complex process .

- *Impacts over time*

This Communication is a first examination at EU level of the switchover process, which will still take several years to complete. The Commission will continue working on specific issues around digital broadcasting, thus contributing to switchover, and is likely to revisit the switchover subject in a global way subsequently.

Impact over time **will vary depending on how Member States follow through on the specific actions** envisaged in the Communication. In the very short term, it is likely to have an impact on the switchover reports that *eEurope* requires Member States to submit by end 2003. Moreover, the Commission plans a follow-up Communication on Member States' switchover plans (See chapter 5 below). The proposed discussions on subjects like receiver issues or spectrum management (sections 2.2 and 3 of the Communication) would have impact in a much longer term. In any event, it will be necessary to monitor the switchover process regularly and review EU strategy as necessary.

- *Results of any scenario, risk or sensitivity analysis undertaken*

No such analysis was undertaken for the options retained in the Communication, considering their general and non-legally binding nature dictated by the diversity of situations within the EU. **Member States are better placed to undertake that task,** thanks to their proximity to market parties and their legal competencies in the area of broadcasting. They are therefore encouraged to carry out *ex ante* impact assessments regarding their envisaged policy interventions.

This said, the *BIPE* study on digital switchover includes a detailed 'cost/ benefit' analysis testing the economic impact of accelerating the analogue terrestrial TV switch-off through compulsory measures such as setting a switch-off deadline and mandating digital tuners in all TV sets.[17] Results largely vary from one country to another since the starting assumptions can be quite different. This led to the conclusion that proposing such measures at EU level would be inappropriate.

More specifically, the 'cost/ benefit' analysis indicates that national authorities have two types of important policy choices to make: on the transmission infrastructure, basically whether or not close down analogue terrestrial TV and introduce digital terrestrial television,

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[17] Ibid., p. 146.

or just rely on digital cable and satellite TV; on the timing of the closure of analogue terrestrial TV. In both cases cost and benefits are considered,[18] and those that are financially measurable are incorporated into a model allowing simulations to be run according to relevant variables.[19] The exercise is highly theoretical and the value of the results relative. This is due to the restricted hypothesis retained, especially because some cost and benefits could not be quantified. Moreover, the results are very sensitive to the value of certain variables, notably the relative market shares of TV transmission networks (terrestrial, cable, satellite) used in the starting scenario, and the estimated value of the total spectrum to be released at analogue terrestrial switch-off.

In summary, in countries where the penetration of cable and satellite is already high it is relatively more advantageous to close down analogue terrestrial TV without introducing digital terrestrial TV. Moreover, independently of the introduction of digital terrestrial TV, the lower the penetration of analogue terrestrial TV, the sooner it should be switched off.

The impact of mandating "integrated digital TV receivers" is also assessed. In summary, the net benefit from such measure is difficult to determine, as it depends on certain aspects that are difficult to predict and therefore to integrate into the analysis; for instance, the number and cost of the equipment features to be made compulsory will determine the final price for the consumer.[20] There is also some risk of market distortion, such as an implicit support for the digital version of the dominant TV network in analogue and for free-to-air business models.[21]

This type of cost/ benefit analysis can usefully inform policy decisions that require reliable data and robust models. A further complication is the need to incorporate also qualitative variables, such as consumer attitudes and responses towards different types of digital TV service, etc. This is very difficult to do at EU level considering the diversity of national scenarios, as well as the difficulty to find, assemble and analyse vast amounts of information therefrom. For these reasons, cost/ benefit analysis seems to be a more relevant and feasible tool at national level, where relatively homogeneous situations can be studied.

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18 Costs: digitisation of reception; digitisation of receivers; digitisation of broadcasting infrastructures; interference caused by DTT on cable and vice-versa; risks of competition distortion; risks of moral hazard.
Benefits: positive impacts on markets, information society and economy; reduction of (savings on) transmission costs; increase of competition; spectrum gains; prevention of the "digital divide". Promotion of universal digital access.

19 Notably, number of national households and total population; percentage of analogue terrestrial households in starting scenario; breakdown of TV transmission networks (terrestrial, cable, satellite) in starting scenario; average number of analogue receivers per household in starting scenario; spontaneous switching rate to digital TV; average reception upgrade cost per household; set-top-box price in starting scenario and expected annual decrease; yearly cost of analogue terrestrial transmission; total spectrum to be released at analogue terrestrial switch-off and estimated value; interest rate.

20 The obligation could theoretically go well beyond digital tuners and embrace other features such as APIs.

21 Digital cable, satellite and terrestrial TV sets all require different tuners. Combining them into a single receiver has so far been too expensive. Purchasing an analogue TV receiver and a digital converter box is still cheaper than buying an integrated digital TV set.

5. HOW TO MONITOR AND EVALUATE THE RESULTS AND IMPACTS OF THE PROPOSAL AFTER IMPLEMENTATION?

- *Policy implementation, monitoring and ex-post evaluation*

With Communications there is no formal requirement for implementation. However, the Commission envisages various follow-up actions. First, the Commission will collect the national switchover plans, as required in *eEurope 2005*, for which indications are given in annex 2 of the Communication. In addition, it envisages summarising these plans in a new Communication to be published in 2004.

Secondly, the Commission will continue monitoring the evolution of digital TV markets in the EU, including household penetration and other relevant parameters. To this effect, the questionnaire that will be sent to Member States in preparation of the annual report on the electronic communications sector will include relevant questions on digital TV. No quantitative targets for EU digital TV or radio market development are set.

In addition, the Commission intends to launch various co-ordination activities in specific areas to support switchover; in the short to medium term, spectrum aspects and consumer information on digital equipment, in the longer term possibly other initiatives (See chapter 3 above). Some of these initiatives were already launched or planned before the Communication, which simply recalls them.[22].

6. STAKEHOLDER CONSULTATION

As indicated, the Communication was preceded by an independent study on *'digital switchover in broadcasting'* by *BIPE consulting*, containing market, policy and technical analysis, as well as recommendations. Stakeholders were extensively consulted during the preparation of the study, as well as requested to provide feedback on interim and final results.[23] Member States were also regularly informed and had the opportunity of expressing their views on the study in the framework of the *Digital Broadcasting Experts Group* ('DBEG').[24] Moreover, the final report was followed by a public online consultation; around 30 contributions were received.[25].

This feedback from interested parties is reflected in the final report and its annexes, as well as the contributions to the online public consultation, both available at the web address

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22 For instance on digital TV interoperability, accessibility for people with special needs, must carry or copyright.

23 The following instruments were used for that purpose: written questionnaire (around 30 replies) and interviews (around 80). Their content is confidential but a list of the entities that co-operated is supplied in an annex to the study; two public workshops on 24.4.2001 and 9.4.2002, attended by an average of 65 participants from 50 entities;

24 Under the authority of the *Open Network Provision Committee* chaired by the Commission. In particular, Member States commented on the country profiles annexed to the study. The switchover study was on the agenda of the DBEG meetings on 31.1.2001, 7.1.2001, 31.1.2002 and 4.6.2002. For details see: http://forum.europa.eu.int/Public/irc/infso/e-broadcast/home

25 For details see : http://europa.eu.int/information_society/topics/telecoms/regulatory/publiconsult/comments/digital_switchover/list_of_comments_on_digital_switchover.htm

mentioned in footnotes. It was particularly useful to know the reactions from stakeholders to certain recommendations in the study so as to assess their feasibility in the short term and therefore decide how suitable it was to include them in the Communication. The approach and suggestions eventually retained were thus largely influenced by stakeholders' feedback. In particular, the results from the online public consultation can be summarised as follows:[26]

- Summary of stakeholders' contributions

- Many respondents favour a **market-driven switchover**, but think this is **compatible with some form of public policy framework**.

- Regarding the market drivers for switchover various respondents stress the importance of free-to-air, multi-channel programming over other types of service provided by digital TV like interactivity, and warn against digital TV being dominated by and identified with pay-TV *(EBU, BBC, Digitag, ECCA, Telenor, SES-Astra, Austrian chamber of commerce).*

- Public intervention should be based on market analysis, notably cost-benefit analysis (*UK authorities, Association of Spanish commercial broadcasters, Austrian chamber of commerce*). It should not be exclusively guided by economic efficiency but also cultural and pluralism considerations, notably regarding must carry, universal access and spectrum assignment *(ARD/ZDF, German regional media regulators, EBU, Austrian chamber of commerce). ECCA* warns about excessive regulation on such general interest grounds.

- Several respondents support the horizontal recommendations for public intervention made in the study, especially the one on technological neutrality (*UK authorities, ECCA, Telenor, Digitag)*. Digital terrestrial TV is controversial. Some stress its role in driving the switchover and justify specific public support (*BBC, Digitag, German regional media regulators*), which is questioned by cable and satellite companies (*ECCA, Sogecable, SES-Astra).*

- As to the nature of public intervention, several respondents acknowledge the **added value from switchover roadmaps and co-ordination** between interested players *(WorldDAB, Association of European Radios, UK and Finnish authorities).* **Reactions are very mixed to the idea of a special fund** for switchover actions**,** possibly financed by a spectrum tax on broadcasters. Some welcome this, especially if broadcasters can benefit from the fund without contributing to it *(Association of Spanish commercial broadcasters, WorldDAB, Austrian chamber of commerce, RAI).* Other points at difficulties of setting up such fund, notably with regard to State aid rules *(Telenor, UK authorities).*

- The idea of spectrum tax to encourage digitisation is broadly opposed with the argument that relevant players are, in any case, interested in accelerating the process and financial resources, needed in particular to support free-to-air programming, shouldn't be curtailed through any tax *(EBU, ARD/ZDF, BBC, WorldDAB, Association of European radios, Telenor, Digitag, SES-Astra, UK authorities).* For the same reasons, several broadcasters strongly opposed a reduction in consumer licence fees for digital TV as an incentive to go digital *(EBU, ARD/ZDF, BBC, WorldDAB),* while others don't oppose it but find it difficult to implement *(Telenor, UK authorities).* Tax reductions on digital receivers were supported by *EBU, WorldDAB, Association of European radios and ECCA.*

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[26] Only responses from those contributors who did not request confidentiality for their replies are reproduced here. Full replies are available at the web address indicated above.

- Broadcasters think spectrum released by the closure of analogue broadcasting should be used to support additional broadcasting programmes and universal terrestrial coverage *(BBC, Digitag, EBU). UK authorities* consider that the market should decide.

- Several respondents stress the need for open standards and interoperability of digital receivers, especially regarding APIs *(Telenor, German regional media regulators)* while others think that the idea of uniform digital receivers across Europe is not viable commercially and they should be as cheap as possible in order to drive the market forward *(Digitag, ECCA).* Others warn about the difficulties associated with implementing a decision to mandate digital tuners in TV sets *(UK authorities, ECCA).*

- Switchover measures should also cover digital radio *(WorldDAB, Association of European radios).* Various organisations of handicapped people claim that needs of disabled users must be considered, notably when developing digital TV standards.

- Finally, regarding EU intervention, some respondents oppose it as Member States situations are very different (Danish authorities, Austrian chamber of commerce). Others see a potential EU role, although with limits, in frequency planning and in the provision of guidelines regarding equipment subsidies and standards (*ARD/ZDF, Telenor, UK au*thorities).

- Impact of stakeholders' contributions on policy proposal

As mentioned above, the policy approach finally retained was largely influenced by the stakeholders' feedback. Besides, this feedback confirmed initial Commission's views. Stakeholders confirmed that imposing a single, harmonised date for turning off analogue television would be inappropriate, given different speeds of development for digital television across the Member States. A majority of stakeholders supported technological neutrality, although some emphasised the role of digital terrestrial television in migrating free-to-air audiences from analogue to digital. Moreover, interactions with stakeholders showed an absence of sufficient market consensus for implementing some more far-reaching options analysed in the *BIPE* study without further debate, notably certain spectrum pricing concepts.

In line with the results from the consultation, the Communication, while stressing the importance of switchover, also underlines that it must be primarily a market-led process. The Communication argues that excessive or inappropriate government intervention risks distorting the market. For government intervention to help in driving switchover, it must be transparent and based on objective criteria. Moreover, policy interventions should essentially come from Member States rather than the EU, considering market and policy disparities across the Union. Some EU actions can however contribute to efforts at national level. Notably, EU monitoring and benchmarking can help to ensure the transparency of Member States' switchover policy initiatives. Moreover, many stakeholders identify spectrum and switchover as an area deserving an EU debate, which the Communication seeks to initiate rather than already identifying particular measures to take

7. CONCLUSION: COMMISSION PROPOSAL AND JUSTIFICATION

The final policy choice is a Communication that does not propose legally binding or financial measures, but rather general orientations and issues to be followed up. A more ambitious option would be inappropriate at this stage considering the existence of major policy and market differences between Member States on broadcasting; the fact that most legal competencies in this area remain national, although Community responsibility in respect of

infrastructure regulation increase with the entry into force of the *new regulatory framework for electronic communications*; and the fact that that the Commission is approaching this subject for the first time. On the other hand, a less ambitious option than the current proposal would have added little value.

As indicated, the main trade-off is between autonomy of Member States, advocating for minimum EU intervention on digital broadcasting, and the need for critical mass on the EU internal market, calling for EU intervention to encourage convergence of national approaches.

The Communication was preceded by and extensive data gathering and analysis phase. In addition, its calendar is dictated by the *eEurope* requirement for Member States to publish their switchover intentions by end 2003, given that the Communication intends to provide Member States with guidance in this context.

No negative impacts are expected. As to the positive ones, the Communication intends to encourage transparent and appropriate switchover policies so as to accelerate the take-up of digital broadcasting services in the EU, including advanced TV services, while safeguarding citizens' interests and fair market competition. It also assumes an added value from EU intervention on switchover, identifying a series of EU co-ordination initiatives to be implemented in the shorter or longer term.

While Member States retain their freedom regarding national digital broadcasting, the Communication proposes a flexible EU framework for the follow-up and support of switchover. This would help maximise the benefits commonly associated with digital broadcasting, and minimise the possible negative effects of the transition process.