

Driving digital switchover: a report to the Secretary of State



5th April 2004

The Secretary of State for Culture, Media and Sport asked Ofcom to report on the progress towards digital switchover. This is our report.

We believe that switchover is desirable and achievable; it would substantially improve the structure of the broadcasting market and benefit the wider economy.

Less than six years since its launch, more than half of UK homes have digital TV. In areas where there is a choice between free-to-view and pay digital TV, take-up is around 60 per cent.

We expect digital take-up to continue to grow strongly over the next two years. Thereafter, its growth is likely to slow. Ofcom's projections suggest that digital take-up will level off at around 80 per cent of households.

The market alone will not deliver switchover. It is time for the UK digital TV project to change gear and move from planning to implementation. Greater certainty over the timing of switchover would be an important step.

A new implementation body should be established. It should have the necessary funding, remit, leadership, resources and sufficient independence to encourage greater take-up of digital TV and to manage the challenging process of full switchover in the near future.

Contents

Section 1.	
Executive summary	03
Ofcom's 30 main findings and recommendations	09
Section 2. Introduction	17
Government plans for switchover	17
Benefits of switchover	19
UK precedents for switchover	20
International progress of digital television	22
Ofcom's role	25
Digital TV switchover in context	28
Report structure	28
Section 3. The growth of digital television	29
Take-up of different digital platforms	30
Progress in 2003	34
Secondary sets	38
Section 4. The national and regional dimension	39
Section 5. Projections for digital adoption	45
Basis of the estimates	45
Projections of future take-up under base case	47
Other scenarios	50
Secondary sets	52
Conclusions	54
Section 6. Challenges confronting a market-led digital switchover	55
Consumer issues	55
Broadcaster incentives and obligations	59
Free-to-view digital television	61
Timing issues	63
Implementation of switchover	64
International agreements	65
Section 7. Policy recommendations	67
The technical plans for switchover	67
The need for active co-ordination	68
Policy recommendations	69
Summary of obstacles and policy recommendations	84



Snapshot of digital TV in early 2004¹

Source: Ofcom

Technology	Equipment	Availability	Brand	Take-up (m)	Proportion of households
Satellite	Externally mounted satellite receiver and a set-top box.	97%	Pay: Sky digital	6.9m	28.0%
			Free-to-view: not branded	0.2m	0.9%
Cable	Cable connection from network to the home and a set-top box	51%	Pay: ntl, Telewest ²	2.3m	9.1%
			Free-to-view: not available	–	–
Terrestrial	Conventional TV aerial and either a set-top box or a TV with a built-in digital tuner	73% ³	Pay: Top Up TV	Launched spring 2004	–
			Free-to-view: Freeview	3.0m	12.2%
					50.2% Total Penetration

¹ Digital TV delivered through broadband not included as the numbers involved are currently too small

² Plus some others, for example in the Isle of Wight

³ A higher figure – 80 per cent – can receive at least some channels

Section 1

Executive summary and Ofcom's 30 main findings and recommendations



Executive Summary

- 1.1 Ofcom has been asked by the Secretary of State for Culture, Media and Sport to report on progress towards digital switchover over the next decade; to set out our views on potential uses for released spectrum; to list the main challenges that could prevent full switchover; and to analyse the policy options which could be implemented to achieve switchover.
- 1.2 The growth of digital TV has been one of the UK's most significant commercial and technical achievements of recent times. Since its launch in 1998, digital TV has grown faster than almost any other electronic household good or service, and the UK is recognised as the global leader in digital TV adoption. Driven by successful marketing of platforms, millions of consumers have subscribed to digital satellite and digital cable services or have bought Freeview set-top boxes and digital TVs. In the past year, the pace of growth has accelerated, leaving a minority of households with access to only four or five TV channels.
- 1.3 In September 1999, the Government first announced its ambition to switch off the analogue TV signal and move to digital TV. It said that digital switchover could start as early as 2006 and be completed by 2010.
- 1.4 Digital switchover has the potential to transform TV broadcasting, not least to create a more effective and well-functioning broadcasting market; it could open new avenues for the creative talents of the broadcasting industry; and it would provide the scope for new and exciting opportunities in broadcasting and in new communications technologies by freeing up a large amount of potentially valuable radio spectrum. The benefits are widely spread, however with some accruing to consumers, some accruing to Government and some to broadcasting companies.
- 1.5 Specifically, switchover would benefit the UK because:
- Digital terrestrial broadcasting would represent a big efficiency gain in spectrum use over analogue, thereby releasing spectrum for potential use by additional broadcasting services or many new communications services.
 - It would improve the functioning of the UK broadcasting market; the lack of access to spectrum would no longer be a significant entry barrier for new terrestrial TV channels.
 - Almost all households would be able to receive digital signals through their aerials compared with only around three-quarters today, providing many more than five free-to-air TV channels, interactive services and new pay TV options on all TV sets.
 - Early switchover would cement the UK's leading position in digital TV services.
- 1.6 The Government's detailed cost-benefit analysis calculates net benefits to the UK in the region of £1.5bn to £2bn. The price of these benefits would be the costs of transition. Around switchover, a substantial number of households would need to



convert their primary TV to be compatible with digital signals and many more households would need to convert secondary TVs and video recorders if they wished to continue using them.

- 1.7 Some disruption would be inevitable: a small proportion of existing roof-top aerials and many more existing portable aerials would be unlikely to be able to receive an acceptable digital terrestrial signal, even after switchover. However, TV screens would not go blank overnight because it is possible to switch off the analogue channels sequentially. At the start of switchover, there could be a period when one or two analogue channels were switched off and the digital signal was boosted to full strength. During this transition, consumers would be able to install new equipment without losing all their analogue TV services. This switchover method caused minimal disruption in Berlin when it successfully switched off its last analogue signal in August 2003.
- 1.8 With the potential for disruption in mind, the Government set two conditions for switchover in 1999: first, that all households who can currently get the main public service broadcasting channels (BBC1, BBC2, ITV and Channel 4) in analogue form can receive them on digital systems; and second, that digital TV would be affordable for the vast majority of households. The Government defined the indicator of affordability as “95 per cent of households having access to digital equipment before switchover is completed”.
- 1.9 For all the recent success of digital TV, Ofcom’s projections suggest that market-led digital adoption is unlikely to reach 95 per cent by the end of 2010 under the current commercial and policy environment. The central projection, based on current consumer attitudes and platform prospects, estimates that only 78 per cent of households will have digital TV by the end of 2010.
- 1.10 Ofcom’s central projection reflects the limitations on the digital terrestrial signal’s power before switchover. Until the power levels can be boosted at switchover, only about three-quarters of households will be able to receive digital TV through their aerials. Ofcom’s central projection has a 2010 digital penetration rate almost 18 percentage points higher in Digital Terrestrial Television (DTT) covered areas than in non-DTT covered areas. In addition to the coverage problem, without significant developments in the pay TV market, including the build-out of digital cable networks, pay TV penetration rates are unlikely to rise above 50 per cent of households. These two constraints suggest that it is unrealistic to expect the current rapid growth of digital adoption to continue. Ofcom’s projection suggests that penetration rates are unlikely to rise above 85 per cent without a decision to implement switchover.
- 1.11 But in circumstances where a clear date for switchover were to be announced and action was taken to implement the switchover timetable, projections for the take-up of digital TV are likely

to be significantly higher than 85 per cent, making switchover much more likely to be achieved successfully.

- 1.12 Ofcom believes digital switchover is desirable, practical and achievable. In return for the transitional cost of digital TV equipment, possibly retailing for as little as £30 to £40 each¹, the UK will be able to secure the benefits of digital TV and released spectrum for the nation.
- 1.13 It is time for all interested parties – Government, Ofcom, the broadcasters, manufacturers and retailers – to change gear. Everyone involved should move from planning to implementation. One element in implementation is to recognise that the process of switchover will have to start before digital adoption has reached 95 per cent of households. But a more important hurdle to jump is one of co-ordination: the beneficiaries of switchover are spread widely and are more diffuse than those likely to bear the transitional costs. It is this co-ordination problem among Government, Ofcom, broadcasters, manufacturers, retailers and consumers that needs to be solved if switchover is to be successful.
- 1.14 Specific obstacles to market-led digital adoption are:
- **Consumer take-up.**
At present, some consumers do not value digital TV. Attitudes are likely to change (mobile phones were considered to have limited appeal in the early 1990s), but consumer attitude surveys show that in

2003 some households (5 per cent) said that they would be willing to live without TV rather than convert their sets to digital. Some more (15 per cent) perceive little value in the greater choice digital TV offers. Only a minority currently support the policy of full switchover. In addition, consumers are considerably less interested in converting secondary TVs than their primary TV set. In the absence of further initiatives, there may be as many as 35 million TVs that will remain analogue-only at the end of 2010.

- **Broadcaster incentives and obligations.**
The public service broadcasters will need to have a clear and unambiguous commercial incentive to drive switchover. Commercial analogue broadcasters would benefit from the elimination of expensive transmission of both analogue and digital signals and new opportunities to expand channels and services. But digital TV would also increase competition, reducing audiences and advertising revenues. The BBC has a different, but equally difficult trade-off. Switchover would reduce the BBC's transmission costs and extend coverage of its digital services to all households, but any net loss of viewers could reduce public support for the licence fee.
- **Free-to-view digital TV.**
Free-to-view digital terrestrial TV will be an important feature of the TV market for the foreseeable future, but its coverage will be far from

1 Ofcom projection



universal before the signal can be boosted during switchover. Only about three-quarters of households are currently covered. Free-to-view satellite is not burdened by the coverage problems, but viewers cannot currently receive all the public service broadcasters on the satellite platform without a charge.

- **Timing issues.**

The timing of switchover has not yet been decided. Government and broadcasters are currently working on the timetable, but until it is announced, manufacturers, consumers, broadcasters and transmission companies will be less willing to invest in equipment necessary for switchover.

- **Implementation of switchover.**

The current loose confederation of interests in the digital TV action plan has been effective in delivering the pre-conditions for a Government decision on switchover. But as we move from planning to implementation, co-ordination and active management will be required to complete the process effectively.

- **International agreements.**

Many of the wider benefits of switchover would come only if spectrum can be reused after the analogue signal is switched off. Ofcom will represent the UK at important forthcoming radiocommunications conferences which will determine how the released spectrum may be used. These international issues do not represent a specific obstacle to market-led take-up, but the rationale

for switchover is strongest if efficient and flexible use of the spectrum can be secured.

1.15 To accelerate progress, the policies Ofcom suggests to overcome the obstacles to market-led switchover are:

- **Greater certainty over switchover timing.**

It is likely that digital switchover would be implemented through a rolling programme of regional switchovers, taking about four years to complete between the first and last region.

The benefits of an early announcement of a precise timetable are: certainty for consumers in their purchasing decisions; certainty for broadcasters, transmission companies, manufacturers and retailers in investment decisions; and certainty for Ofcom in implementing the regulatory framework for digital public service broadcasting licences, the review of public service broadcasting, spectrum pricing and spectrum trading.

But an early announcement would also have risks. The most serious is the possibility of reinforcing negative consumer attitudes towards switchover before it becomes seen as a technological certainty.

- **Use the regulatory framework to help drive switchover.**

Ofcom is the appropriate body to manage the regulatory framework in order to provide some broadcasters and transmission companies with commercial incentives to promote switchover. We will work with them to secure the wider

benefits of greater TV choice and spectrum efficiency for the UK.

Ofcom intends to consider including any appropriate switchover-related obligations in the framing of the new digital public service broadcasting licences before the end of 2004 to ensure the nationwide roll out of digital TV. We will also consider the ways in which spectrum pricing could sharpen broadcasters' incentives for digital switchover and whether the financial impact of switchover should be reflected in future renewals of commercial broadcasters' financial terms.

Ofcom recommends that as part of the BBC's Royal Charter review, the Government adds specific obligations to the BBC's current general obligations to promote digital TV. They should include obligations on rolling out digital transmission, providing public information, continuing to provide its TV channels on the free-to-view satellite platform, and providing on-air marketing of digital TV on a platform-neutral basis.

- **Improve access to free-to-view digital TV.**

Until switchover, free-to-view digital satellite could play an important role in increasing take-up among those who do not want pay TV. In non-DTT areas, it is the only option. But free-to-view access to all the public service broadcasters is currently not possible on digital satellite.

Ofcom will consider whether regulatory intervention is needed to secure a viable free-to-view satellite

proposition before switchover. The cost of any action would fall primarily on public service broadcasters. Depending on the coverage of the digital terrestrial signal after switchover, further measures may need to be considered to ensure universal coverage of the public service broadcasters on the satellite platform.

- **Provide information and advice for consumers.**

The BBC has been successful in marketing its digital channels over the past 18 months. But consumers will require considerably more support and information for switchover to be a success.

Well before the switchover date in their region, a wider promotion drive should include not just on-air advertising, but also direct marketing, help-lines, clear product labelling, and possibly in-home support. Clear consumer information will be crucial in helping consumers to convert secondary sets to digital around the date for switchover in each region.

Ofcom's Consumer Panel will be looking at the lessons that can be learnt from previous regulatory decisions to ensure that the consumer dimension of switchover is given due prominence in Ofcom's work.

- **A move from planning into implementation.**

Though it has been successful to date, the existing confederation of interested parties might find it difficult to align interests in favour of switchover.

Ofcom recommends the establishment of a body to lead switchover and to be responsible for its implementation. Termed 'SwitchCo' for simplicity,



the organisation should have a simple and clear objective to achieve switchover by a specified date. Its central role would be to co-ordinate the various parties in their areas of responsibility, rather than attempting to perform the roles best done by others.

Ofcom recommends that it should be sufficiently independent to avoid any conflicts of interest and ensure neutrality in the promotion of the different digital platforms. Secure and adequate funding should be provided.

- **Address affordability issues.**

The previous policy proposals would increase the rate and extent of digital adoption. But the transitional cost of conversion may remain a significant barrier for some households and risks excluding them from TV after switchover. If switchover occurred this year, the transitional burden would fall disproportionately on the 30 per cent of households with the lowest incomes, but that burden is likely to diminish over time as the cost of converters falls and digital penetration rises.

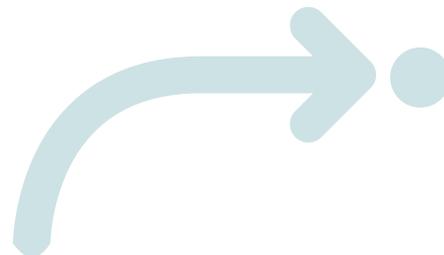
By the time of switchover, a residual affordability problem is all that is likely to remain for the conversion of households' primary sets to digital TV. There will be a wider problem of secondary TV sets, but the cost of conversion would represent less than 0.2 per cent of annual expenditure for the vast majority of households.

At the time of switchover, any financial support scheme should seek to avoid the risk that households would delay purchasing the relevant conversion equipment by offering any financial incentives to all households in designated groups rather than just digital non-adopters.

- **Seeking permission to use cleared spectrum to the greatest benefit.**

The UK's stance in forthcoming international radiocommunications conferences is to seek the greatest flexibility in the use of the cleared spectrum after switchover for the many other UK demands on its use, thereby maximising the benefits of switchover.

Preparation of the UK's negotiating position ahead of the conferences should be focused on seeking to secure full clearance for its switchover plans and seeking full and flexible use of the TV band after switchover.



Ofcom's 30 main findings and recommendations

In subsequent sections, we detail the progress of digital TV, the obstacles to switchover and the detailed policy recommendations. The 30 main findings and recommendations in this report are listed on the following pages. The recommendations are highlighted in bold.



Ofcom's 30 main findings and recommendations

Timing issues

1

Ofcom recommends a gradual region-by-region switchover process. One or two analogue TV channels should be switched off first so that the digital signal can be boosted. TV screens would not go blank overnight and DTT availability would be increased to near-universal levels.

2

Without a firm timetable for switchover, broadcasters and transmission companies will not be able to decide if and when the obsolete analogue equipment should be replaced. Ofcom recommends that switchover is not delayed substantially so that it would fall beyond the lifespan of existing analogue transmission equipment.

3

The most serious risk of an early announcement is the possibility of cementing negative consumer attitudes towards switchover before it becomes seen as a technological certainty.

4

The benefits of an early announcement of a precise timetable are: certainty for consumers in their purchasing decisions; certainty for broadcasters, transmission companies, manufacturers and retailers in investment decisions; and certainty for Ofcom in implementing the regulatory framework for digital public service broadcasting licences, the review of public service broadcasting, spectrum pricing and spectrum trading.

5

An announcement of a timetable would significantly extend digital penetration in the UK and would help allow digital switchover to be achieved between 2007 and the end of 2010. Consumer research indicates that many current analogue households are prepared to purchase digital TV receivers provided they know that digital switchover is imminent. With the majority of households already having access to digital television, the foundations for an announcement of a timetable have already been laid.

Regulatory framework

6

Ofcom has a significant role to play in managing the regulatory framework to encourage digital TV adoption and removing some of the obstacles confronting switchover.

7

Although broadcasters should not necessarily manage the process of implementing switchover themselves, it is reasonable to expect them to make a fair contribution, particularly by extending digital terrestrial coverage and availability nationwide, and by ensuring viewers are properly informed about switchover and its implications for them. Ofcom will seek commitments from broadcasters and may consider including appropriate and necessary additional obligations for nationwide digital TV rollout in the new digital public service broadcasting licences, due to be issued by the end of 2004.

8

A market review of the broadcasting transmission market is underway. Ofcom has powers to ensure effective competition in this market and we will seek to ensure that an agreement to extend DTT transmission networks does not result in broadcasters being charged excessive prices.

9

Ofcom will consider imposing spectrum pricing to sharpen incentives to promote switchover. Channel 3 licensees and Five already pay for their licences to broadcast, which include an implicit charge for spectrum. Ofcom will ensure that licensees do not pay twice for the same spectrum. If spectrum pricing is introduced, charges could apply for the first time to the BBC, Channel 4 and S4C in 2006.

10

Some of the new and potential obligations could raise costs for commercial broadcasters. Ofcom would consider taking account of additional burdens on these companies where appropriate.

11

Ofcom recommends that as part of the BBC's Royal Charter review, the Government adds specific obligations to the BBC's current general obligations to promote digital TV. They should include obligations on rolling-out digital transmission nationwide, providing public information, continuing to provide its channels on the free-to-view satellite platform, and providing on-air marketing of digital TV on a platform-neutral basis.



Free-to-view digital TV

12

Even if all consumers wanted to convert to digital, some would face a serious hurdle because coverage constraints currently limit digital terrestrial television.

13

Until switchover, free-to-view digital satellite could play an important role in increasing take-up among those who do not want pay TV. In non-DTT areas, it is the only option. But free-to-view access to all the public service broadcasters is currently not possible on digital satellite. Ofcom will consider whether regulatory intervention is needed to secure a viable free-to-view satellite proposition before switchover. The cost of any action would fall primarily on public service broadcasters.

14

Depending on the coverage of the digital terrestrial signal after switchover, further measures may need to be considered to ensure that all households can receive the public service broadcasts on the satellite platform, including using the must-provide provisions of the Communications Act. Ofcom has the potential power to oblige certain named broadcasters to provide the means to receive public service broadcasting services when households cannot otherwise receive them to an acceptable technical standard. It could mean that these named broadcasters might be obliged to supply the necessary satellite decryption card to households which lost analogue reception and were not able to receive an adequate DTT signal after switchover.

15

The Government should continue its efforts to remove the coverage barriers which hinder other digital platforms and slow progress towards switchover, for example, planning restrictions which prevent the erection of satellite dishes on certain buildings.

Consumer information and advice

16

Switchover will simply not be possible unless consumers are persuaded of its benefits. Although half of households have digital TV, the other half are unlikely to go digital as quickly or as readily.

17

Well before switchover, a mass national advertising campaign should explain to all households that switchover is coming and should attempt to build public support for the objective. A new consumer labelling scheme should also be introduced to warn consumers that unconverted analogue equipment will not function past a set date. This needs to be implemented with the support of manufacturers and retailers. The funding requirements of consumer information and advice will be significant.

18

Around the switchover date in their region, consumers will require further information and support. The promotion drive should not just include on-air advertising, but also direct marketing, help-lines, clear product labelling and possibly in-home support. A regional communications campaign in the immediate run-up to analogue switch-off will need to be developed with specially tailored advice for households who are unable to receive digital terrestrial signals until switchover starts.

19

After switchover is completed, continuing support will also need to be offered to consumers who remain hesitant or confused about the conversion to digital.



A move from planning to implementation

20

The Digital TV Action Plan has been effective in delivering the pre-conditions for a Government decision on switchover. It is much less suited to the role of an implementation vehicle. Active management will be required to complete switchover effectively.

21

Once agreement has been secured with the many interested parties about the move to implementation, Ofcom recommends the establishment of a body, termed 'SwitchCo' for simplicity, to be responsible for its delivery by a specified date.

22

SwitchCo should highlight the benefits of switchover, provide public information, provide support at switchover, ensure clear labelling, liaise with other interested parties, report on progress made by them, attempt to maximise the number of digital options available, and ensure platform neutrality in the promotion of digital TV.

23

Many interested parties – the Government, the broadcasters, Ofcom, manufacturers and retailers – will continue to have important roles to play in delivering switchover. They must agree to SwitchCo's role and remit, and would be part of its governance arrangements. However, neither the Government, nor the BBC, nor a consortium of broadcasters, nor Ofcom should run SwitchCo because their interests are diverse. Instead, SwitchCo should have sufficient independence so it can represent the national interest effectively, ensure platform neutrality and avoid conflicts of interest.

24

The Government, in collaboration with broadcasters and Ofcom, should ensure SwitchCo is an adequately resourced body, which can gain the confidence of all parties. SwitchCo will require funding for running costs, marketing expenditure and consumer support around switchover. Funding could come from a number of potential sources including direct public expenditure, forgone future public receipts from broadcasting activities, an element of the TV licence fee, or private finance funded by foregone future spectrum revenues. Since the economy as a whole is the main beneficiary of switchover, the funding mechanism should not put a disproportionate burden on any interested party.

Affordability

- 25 Even if digital adoption rates are very high, the transitional cost of conversion to digital may remain a significant barrier for some households and risks leaving a few households excluded from TV after switchover. The penetration of digital TV currently rises with household income, so the transitional costs of switchover would currently predominantly fall on the poor.
- 26 These transitional costs need not be a great barrier to switchover: the cost of a basic converter box in 2004 is already less than half the cost of the annual licence fee; the relative burden is likely to diminish over time as the cost of converters falls; and digital penetration is likely to rise significantly before switchover.
- 27 **By the time of switchover, a residual affordability problem is all that is likely to remain for the initial conversion of households' primary sets to digital TV. A wider number of households will need to convert secondary sets and video recorders. Any financial support would reduce consumer resistance to switchover, although decisions on financial support need not be taken immediately, since the design of any appropriate financial support would depend on the nature of the transitional costs at the time of switchover.**
- 28 **At a later date, the Government should consider the costs and benefits of offering limited financial assistance to particular groups, similar to the free licence fee scheme for over 75s. To avoid the danger that some households might wait until the last minute in the hope of receiving financial support, any scheme should be available to all households in a designated group rather than just the remaining analogue households.**



International issues

29

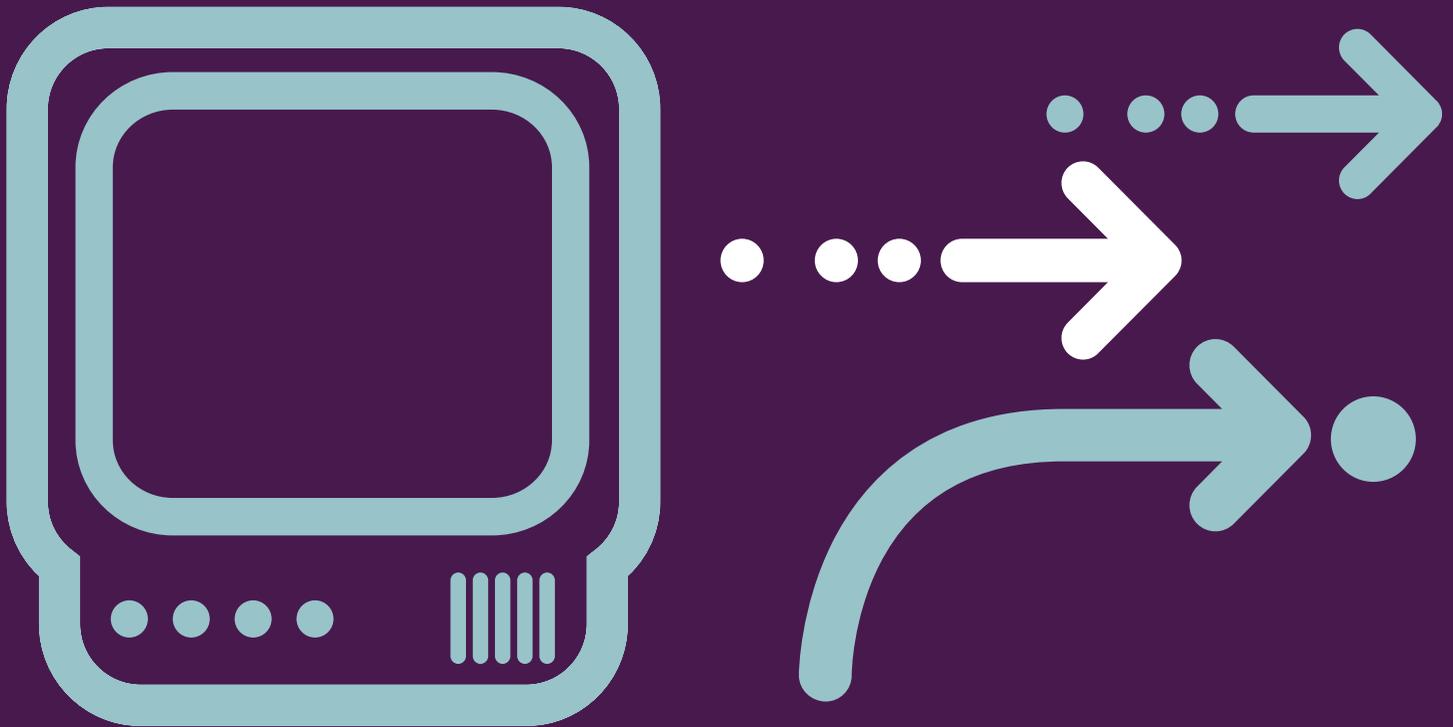
Switchover's rationale is strongest if flexible use of the spectrum can be secured. The UK's strategy for the TV spectrum should be to seek to ensure full protection of the UK's digital television switchover plan. It should also seek to protect future UK use of the released spectrum and any viable additional interleaved spectrum after switchover.

30

In the 2004 and 2006 Regional Radiocommunications Conferences, the UK will seek to protect its digital broadcasting plans and keep options open for any cleared spectrum made available after switchover. In the 2007 and 2010 World Radiocommunications Conferences, the UK will seek to gain the maximum flexibility of use for the TV band for broadcasting and other uses.

Section 2

Introduction



Section 2 Introduction

- 2.1 Ofcom has been asked by the Secretary of State for Culture, Media and Sport to report on progress towards digital switchover; to evaluate the prospects for market-led switchover; to set out our views on potential uses for released spectrum; to list the main challenges that could prevent full switchover by 2010; and to analyse the policy options which could be implemented to achieve switchover.
- 2.2 This report is not intended to cover every relevant issue in full. Some aspects of broadcasting regulation are summarised because the details will depend on the outcome of confidential negotiations between the Government, Ofcom and private companies. We have also not attempted to duplicate the Government's cost-benefit analysis of switchover². We accept the broad thrust of its analysis that switchover would provide a substantial net benefit for the UK so long as the necessary international clearance to use the released spectrum is secured. The joint DTI and DCMS cost-benefit analysis estimated that the benefits of switchover for the UK were in the region of £1.5bn to £2bn.
- 2.3 Digital TV is just one aspect of the trend from analogue to digital communication. Digital radio, for example, has become a successful and popular product over the past two years, enabling a growth in the choice of radio stations and improved sound quality. At the request of the Secretary of State for Culture, Media and Sport, Ofcom will conduct a review of digital radio later this year.



Government plans for switchover

- 2.4 In September 1999, Chris Smith, the then Secretary of State for Culture, Media and Sport, set out the Government's intention to achieve digital switchover. The Secretary of State said that digital switchover could start as early as 2006 and be completed by 2010 although the precise date would depend "on how the broadcasters, manufacturers and consumers behave".

2 http://www.digitaltelevision.gov.uk/pdf_documents/publications/costs_benefits.pdf



- 2.5 The Government further announced that switchover would not take place until the following conditions had been satisfied:
- Everyone who could watch the main public service broadcasting channels in analogue form could receive them on digital systems. The condition applied to BBC 1 and 2, ITV 1, Channel 4/S4C and Five.
 - Switching to digital was an affordable option for the vast majority of people.
- 2.6 Currently, 98.5 per cent of UK households³ can receive analogue TV signals for the four main analogue broadcasters. The target indicator of affordability was defined by Mr Smith as “95 per cent of households have access to digital equipment before switchover is completed”. This had more than one potential meaning, but was generally taken to mean that 95 per cent of households would have adopted digital TV before the date of switchover.
- 2.7 The Government launched the Digital TV Action Plan two years after the announcement of the long-run objective of switchover. The plan has successfully carried out a large number of measures in preparation for switchover and has co-ordinated the activities of the various parties involved, including Government departments, regulators, broadcasters, retailers, manufacturers and consumer groups. The objective of the Action Plan was not to implement switchover; instead, its aim has always been to make the necessary preparations to allow the Government to make a decision on the exact timing at a later date.

The UK would gain significantly from switchover; it has the potential to transform broadcasting and offer new services to millions of households.

³ This comprises the number of UK households who are able to receive all four analogue services with at least marginal reception. Source: a coverage assessment carried out by the Spectrum Planning Group (part of the Digital TV Action Plan).

Benefits of switchover

2.8 The UK would gain significantly from switchover; it has the potential to transform broadcasting and offer new services to millions of households:

- **Choice of digital platforms would be extended to all viewers.** Only about three-quarters of households can receive all the digital terrestrial television channels. To avoid interference, analogue switch-off is a pre-requisite for boosting the digital terrestrial signal to near-universal levels.
- **Choice of free-to-view TV channels would be extended to all viewers.** For the large number of households which do not wish to subscribe to pay TV, DTT is currently the only option for households wanting a free-to-view digital TV service which includes all the public service broadcasters: the BBC, ITV, Channel 4 and Five. Households would also receive many other TV channels, with the possibility of an even greater choice than at present.
- **New interactive services will become available.** Increased efficiency of spectrum use would provide the capacity for innovation in broadcasting techniques.
- **Broadcasting would become a reasonably well functioning market for the first time.** The barriers to entry associated with spectrum scarcity would be removed, and broadcasters would be freed to compete more effectively for viewers and for advertisers. Over time, the role for Government intervention might become more limited. Ofcom's forthcoming review of public service broadcasting will return to this issue in greater depth.
- **Switchover would represent a big improvement in spectrum efficiency.** Turning off the analogue terrestrial signal would release the parts of the radio spectrum currently used for analogue broadcasting. In total, 112 MHz would become available across the whole country as well



as a significant number of frequencies in the rest of the TV band, which are not being used to deliver the DTT service. This is a large amount of spectrum; by way of comparison, FM radio uses only around 20MHz of spectrum. The Cave Review⁴ concluded that digital switchover represented the biggest potential efficiency gain in spectrum use for the next decade.

- **Switchover would provide the potential for innovation in spectrum use.** The spectrum freed by digital switchover would be attractive to many providers of communications services. It could be used to provide additional broadcasting services such as extra digital terrestrial TV channels, more radio services and interactive services. Alternatively, the existing broadcasting transmitters could be used to send TV and some other forms of data to mobile devices. Provided the necessary international agreements were secured, the freed spectrum could ultimately supply the capacity for entirely new wireless communications services, such as mobile wireless broadband.
- **Early switchover would cement the UK's leading position in digital television.** It would also provide an additional stimulus to growth in creative industries, particularly in interactive TV. This should bring wider benefits to the UK economy as the skills developed during switchover attract interest from other countries in the future.

UK precedents for switchover

2.9 Little on the scale of digital TV switchover has been attempted in the UK, but lessons can be learnt from Channel 5's (now known as Five) experience with retuning video recorders, BSkyB's switch from analogue to digital broadcasting and the telephone 'Big Number' changes. Box 2.1 provides the relevant lessons.

⁴ Review of radio spectrum management, March 2002. Department of Trade and Industry and HM Treasury

Box 2.1 Lessons from recent consumer changes in the communications sector

Channel 5 retuning

Channel 5 commenced broadcasting in early 1997. Its broadcasting frequencies were expected to cause interference with many video recorders. It accepted an obligation to fix any interference problems free of charge. The retuning was ultimately successful, but it was not without problems:

- Channel 5 encountered severe skill-shortages in recruiting retuners capable of coping with up to 7,000 different video recorders.
- Some households tried to take advantage of the retuning exercise by trying to get many of their other reception problems fixed.
- A difficult trade-off existed between pro-active retuning and reacting to problems once the signal was switched on.
- The cost of retuning overran substantially with staff alone costing £50 million.

BSkyB analogue to digital switchover

Analogue switch-off has already happened on one platform in the UK: BSkyB turned off its analogue satellite service in September 2001. An intensive marketing campaign was launched to remind analogue subscribers of the forthcoming change and the digital equipment was offered free of charge. As in Berlin, on-screen warnings were given and some stations were switched off ahead of others which reinforced the idea that switchover was imminent.

By the time all the analogue signals were finally switched off, around 98 per cent of BSkyB's subscribers had switched to digital. BSkyB's task was helped by the fact that it knew its remaining analogue customers precisely.

The Big Number

On 22 April 2000, 11.5 million phone numbers in the UK changed. The then regulator, Oftel, worked closely with the telecoms industry on their 'Big Number' campaign to publicise the changes to businesses and consumers. All parties had an interest in the success of the project. Each telecoms company also sent material to their customers to inform them of the changes. The changeover was implemented successfully with minimal disruption to consumers.





International progress of digital television

- 2.10 Five years since its launch, the UK leads the world in the take-up of digital television. However, digital television is also enjoying accelerated progress elsewhere and the UK must continue to learn lessons from abroad. Analogue TV signals were switched off successfully in and around Berlin in August 2003. Its lessons for the UK are considered in detail in Box 2.2.
- 2.11 DTT is the most rapidly growing platform across Europe, as EU member states move towards switchover over the next decade. Germany and the Netherlands are leading the way at present, taking advantage of over 90 per cent multichannel penetration. Other countries, such as Finland, have set target dates for the achievement of switchover but have not published detailed plans for implementing it. In Italy, meanwhile, a deadline of 2006 has been set and efforts to achieve this target have concentrated on extending DTT coverage throughout the country. The European Commission also has also published a communication⁵ on the subject of digital switchover and is committed to monitoring market developments and member states' policies in the area.
- 2.12 There has also been some progress towards digital switchover in the US. The US Congress has set a target date of 2006 for the completion of the transition to digital TV, but analogue signals will not be switched off until 85 per cent of homes in an area have converted to digital. The Federal Communications Commission (FCC) adopted a plan in August 2002 which will require all new TV sets to be fitted with digital tuners by 2007.

⁵ Communication from the Commission on the transition from analogue to digital broadcasting; COM(2003) 541 final

2.13 The potential consumer benefits of UK digital switchover are evident from the experience of Berlin and trials in other countries. Less than a year after Berlin's analogue signal was switched off, a consortium of world-leading mobile players is laying the foundations for a new converged broadcast and mobile platform⁶ to offer an exciting range of multimedia-rich interactive services which were not feasible before, either technologically or commercially. For example, the new platform could offer football spectators at a match the chance to view a replay of a recently scored goal delivered via their mobile device, at their leisure, without blocking the entire local mobile network capacity. In Finland, Nokia has played a leading role in trials of a similar new platform targeted at delivery of multimedia services to handsets. In Italy, the Government has extensive plans to deliver a rich array of interactive electronic services using both digital TV and a new broadcast-mobile platform that supports access on the move.

Less than a year after Berlin's analogue signal was switched off, a consortium of world-leading mobile players is laying the foundations for a new converged broadcast and mobile platform.



⁶ See <http://www.bmco-berlin.com> for further details



Box 2.2: The lessons from Berlin's digital switchover

The timescale

Berlin-Brandenburg became the first region in the world to switch off its analogue signal in August 2003. Switchover was first announced in February 2002 and the public communication campaign started in October 2002.

The consumer experience

No televisions went blank because analogue services were gradually phased out between February and August 2003. The phasing allowed the digital signals to be introduced before the last analogue frequencies were switched off.

Effective communication was of central importance: letters were sent to every household ahead of switchover and broadcasters showed on-screen reminders. The campaign worked in persuading consumers of the desirability of change, and most incurred the extra expenditure willingly. Limited subsidies were given to those on some state benefits. The total number of available TV channels was eventually expanded from eight to 30.

Switchover was marketed as a way of receiving more channels at a lower price. The implicit comparison was with cable television, where a monthly charge of around €15 gave access to only slightly more channels than the new digital terrestrial platform.

The scale of the task

About 150,000 households (six per cent of all households in Berlin) relied on analogue terrestrial television prior to switchover. Another 90,000 homes were dependent on terrestrial reception for secondary TV sets.

Important policy decisions

The regulator provided incentives for commercial broadcasters, which had little commercial interest in investing in switchover due to the relatively small number of households which depended on terrestrial TV. The state Government offered certain terrestrial households on means-tested social security benefits a voucher which could be exchanged for a specified model of digital converter.

Costs

- The costs of running the switchover process were allocated as follows:
- Marketing (~€1m)
- Box subsidies (~€0.5m)
- Transmission cost subsidies (up to ~€0.7m a year for 7 years)

Lessons learned

- The importance of gradual switchover so screens did not go blank overnight.
- TV advertising was the most effective communication channel.
- By giving only a few months' notice before the start of switchover, the costs of the communication and support were kept to a minimum.
- It was, however, vital that the trade was well prepared with adequate stocks of the receivers.
- More support for the elderly might have reduced the number of follow-up calls.
- The relatively small fraction of households dependent on analogue terrestrial transmissions helped limit the scale of the switchover process.

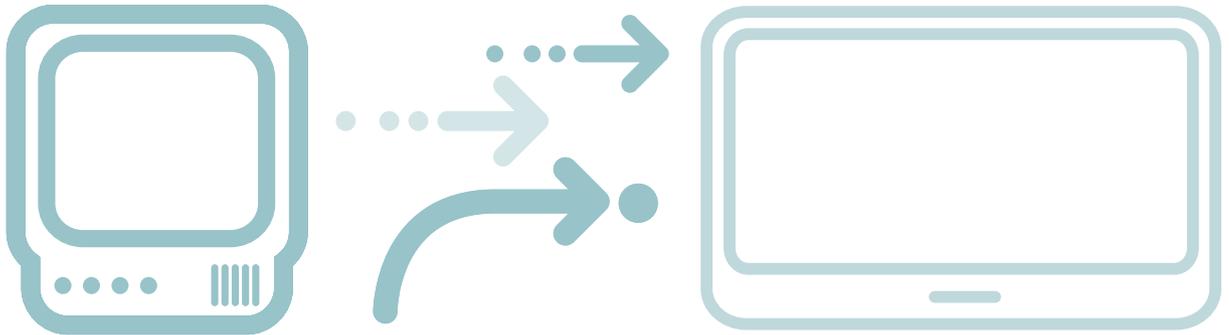
Ofcom's role

- 2.14 Ofcom is committed to help drive digital switchover. Switchover would ensure a more technically and economically efficient use of the spectrum, facilitate investment in new digital services and would promote competition in broadcasting.
- 2.15 The legacy regulators which preceded Ofcom, in particular, the Independent Television Commission (ITC) and the Radiocommunications Agency, made significant contributions to the Government's Digital TV Action Plan, particularly in the sphere of spectrum planning. The advent of Ofcom allows this work to be better co-ordinated and more precisely targeted to the objective of driving digital switchover. Ofcom will support the overall planning for switchover through a mixture of research, analysis, and policy initiatives.
- 2.16 Ofcom's work is either directly or indirectly relevant to switchover in at least ten areas:
1. **Issuing of broadcasting licences.** Ofcom may consider using the digital replacement broadcasting licences it issues in 2004 to secure broadcaster commitments to the process of switchover.
 2. **Review of broadcasters' financial terms.** Ofcom has consulted on its future reviews of the financial terms of Channel 3 (ITV1) licences.
 3. **Spectrum pricing and spectrum trading.** Ofcom is committed to using market mechanisms, where appropriate, to ensure the efficient use of spectrum. These mechanisms could also be used to facilitate switchover.
 4. **Ofcom's review of public service broadcasting.** The review will consider how to maintain and strengthen public service broadcasting in the UK. It will examine the role and delivery of public service broadcasting in an all-digital world.



5. **Ofcom's Consumer Panel and National Advisory Committees have an important role to play.** The Consumer Panel will be looking at the lessons that can be learnt from previous regulatory decisions to ensure that the consumer dimension of switchover is given due prominence in Ofcom's work. The National Advisory Committees will monitor progress towards digital switchover as it affects the nations and regions of the UK.
6. **Assessing the usability of digital TV equipment and enhancing the public's media literacy.** Ofcom has a role in researching and reporting on the ease of use of digital TV equipment on sale and switchover will form an important part of our work in media literacy.
7. **Negotiating, planning and evaluating the use of any released spectrum.** Ofcom has a duty to allocate spectrum to the most efficient new uses. One of the most important tasks for Ofcom in the years ahead will be to ensure that any spectrum freed up as a result of switchover continues to be available to the UK for as wide a range of services as possible. Ofcom will represent the UK at the Regional Radiocommunication Conferences in 2004 and 2006 and will seek to ensure that the newly cleared spectrum benefits the UK. Ofcom will also seek to create opportunities for technical innovation in the provision of digital TV and similar services.
8. **Domestic spectrum planning.** In the absence of market mechanisms, Ofcom has responsibility for planning and organising the use of the spectrum. For DTT, this will involve coordinating the plan for the regional roll-out of digital transmission.

9. **Monitoring and analysis of the broadcasting market and digital TV adoption.** Ofcom will research evolving market trends and will continue to undertake consumer research and will report regularly on the take-up of digital TV among households. We will also continue research into attitudes to digital TV and the barriers to digital TV adoption.
10. **Monitor competition in the broadcasting market.** Ofcom has powers to ensure fair and effective competition in the broadcasting market, either through licence conditions, or through concurrent powers under the Competition Act.





Digital TV switchover in context

- 2.17 Switchover represents a major gain in technical spectrum efficiency, providing between four and six TV channels for each existing analogue TV channel.
- 2.18 But in the very distant future, it is possible that superior broadcasting technologies, or a consumer-led move away from traditional broadcasting towards video-on-demand, could displace DTT in consumer affections. That could create pressure to use the spectrum for other purposes.
- 2.19 Ofcom does not envisage the end of DTT broadcasting. We do, however, recognise that as technology develops, more economically efficient use could theoretically be made of the spectrum allocated to DTT. We will, therefore, continue to monitor the optimal delivery mechanisms for broadcasting services and the other potential uses of the TV spectrum, and ensure that all users of spectrum face incentives to do so efficiently.

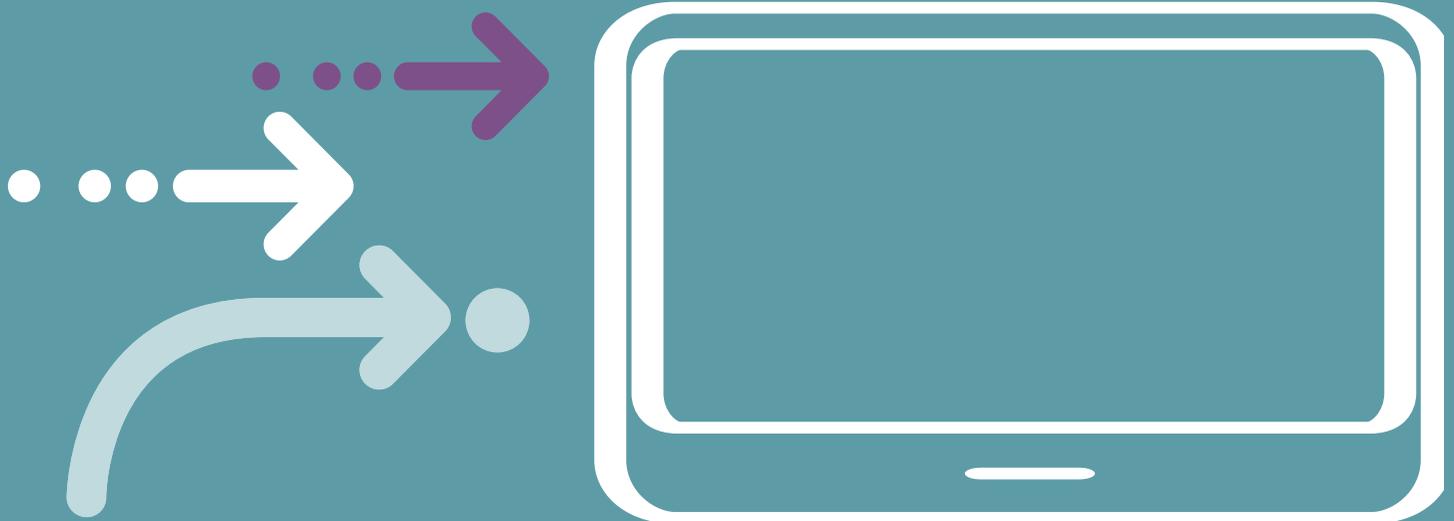
Report structure

- 2.20 The remainder of this report is structured as follows.
- Section 3 documents the growth of digital television over the past five years, with particular focus on progress made in 2003.
 - Section 4 considers the national and regional aspects of switchover.
 - Section 5 presents Ofcom's projections for the adoption of digital TV until 2012 by platform and for both primary and secondary sets.
 - Section 6 evaluates the remaining barriers to digital adoption under current commercial conditions.
 - Section 7 analyses possible policy options to increase the speed of digital adoption, enable effective implementation of switchover and reduce the transitional costs and risks.

Section 3

The growth of digital television

3



Section 3

The growth of digital television

- 3.1 More than one in every two UK households now have digital TV. Reaching this milestone in just over five years since the launch of digital TV is a significant achievement. But digital TV has not grown from a standing start: it is a development of the pre-existing multichannel services and, at least until recently, most of the growth in digital TV take-up has come as a result of the investments and efforts of pay TV operators.

Box 3.1 History of multichannel TV in the UK

- 1989** Sky Television launches UK satellite TV with a four channel service.
- 1990** British Satellite Broadcasting (BSB) launches. Sky and BSB merge to form British Sky Broadcasting (BSkyB).
- 1992** BSkyB buys exclusive rights to live FA Premier League football coverage.
- 1993** Sky launches multichannel pay TV package.
- 1997** Independent Television Commission licenses digital terrestrial TV multiplexes to Digital 3&4 and British Digital Broadcasting. The BBC is also allocated one multiplex.
- 1998** BSkyB launches UK's first digital TV service and attracts 100,000 customers in its first month. Digital terrestrial TV broadcasts start. British Digital Broadcasting launches its pay TV service under the ONdigital brand name.
- 1999** Sky and ONdigital begin to offer free set-top boxes. NTL and Telewest launch digital cable TV services. Sky introduces interactive services. Secretary of State announces ambition to complete digital switchover and defines switchover targets.
- 2000** NTL acquires the consumer operations of Cable and Wireless Communications (CWC) to become largest cable operator. Telewest merges with Flextech.
- 2001** BSkyB reaches five million digital subscribers and switches off its analogue service. ONdigital relaunched as ITV Digital. NTL and Telewest launch broadband internet services. Government launches Digital TV Action Plan.
- 2002** ITV Digital closes down. Freeview launched. New BBC digital TV and radio services begin broadcasting. NTL applies for Chapter 11 protection in the US; it later secures recapitalisation. Half of all UK viewers have multichannel TV.
- 2003** At the end of the year, half of all UK households have digital TV.

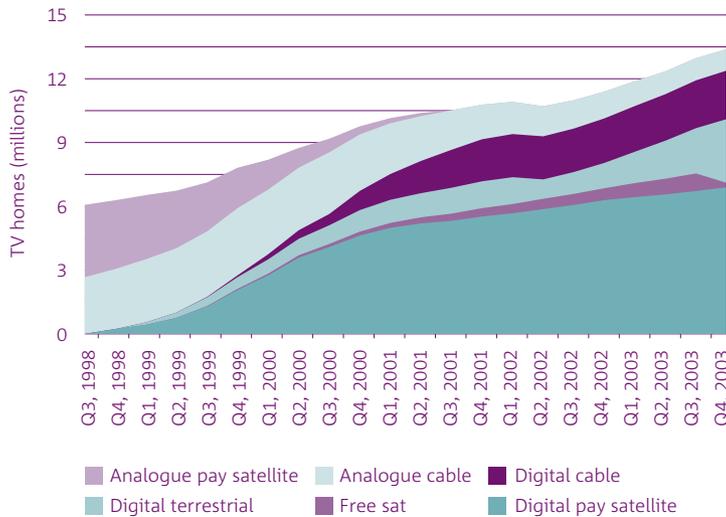


Take-up of different digital platforms

3.2 Chart 3.1 shows the development of the multichannel TV market since the launch of BSkyB's digital TV service in October 1998.

Chart 3.1: Multichannel TV uptake by platform

Source: Ofcom's Digital TV Update



3.3 Most of the initial growth in digital households came from the conversion of analogue pay TV households to digital pay TV. But once BSkyB and ONdigital began to offer free digital set-top boxes in 1999, there was a steady increase in new multichannel viewers.

3.4 BSkyB in particular has succeeded in winning and retaining many customers new to multichannel pay TV while its investment in converting its existing analogue pay TV customers to digital allowed it to turn off its analogue pay TV service in 2001. BSkyB now accounts for 55 per cent of all digital homes.

- 3.5 Even when BSkyB customers decide to stop their subscriptions, some continue to use their set-top boxes (which they continue to own) to receive digital TV. Until recently it was possible for all of these former subscribers to continue watching all the main public service analogue channels using their set-top box. However, BSkyB replaced all its viewing smartcards during 2003 which meant that the old smartcards ceased to work. Since then, former subscribers with the old smartcards have only been able to watch unencrypted channels. This means that although they can watch the BBC channels, which are not encrypted, they cannot watch the other public service channels which are.
- 3.6 BSkyB's decision to replace its viewing smartcards also affected about 300,000 households who had installed a digital satellite receiver and set-top box but had never subscribed to BSkyB's pay TV service. These households had used free-to-view smartcards, known as Solus cards, supplied by the BBC. But the BBC stopped making these cards available in summer 2003 after it began broadcasting its channels in an unencrypted form. Although a replacement free-to-view smartcard scheme was initially funded by ITV, Channel 4 and Five, this scheme has now closed.
- 3.7 The result of these changes is that many homes with a digital satellite set-top box but without a current Sky subscription can receive BBC channels but not ITV1, Channel 4 and Five. Ofcom no longer considers such homes to be digital households. The effect of this is shown in chart 3.2 as leading to a sharp fall in the number of free-to-view satellite households. Further details can be found in Ofcom's digital TV update⁷.
- 3.8 The cable companies have gradually shifted their analogue customers to digital, although chart 3.1 shows that this process is not yet fully complete. Nevertheless, the cable companies together account for 25 per cent of all multichannel homes and 19 per cent of digital homes. The companies' financial problems have hindered the process, but all of the analogue

Most of the initial growth in digital households came from the conversion of analogue pay TV households to digital pay TV.

7 http://www.ofcom.org.uk/research/industry_market_research/m_i_index/dtv/



cable subscribers are likely to be upgraded to digital in the next few years. Even if they were not converted to digital cable, these customers do not rely exclusively on the analogue terrestrial signal, so would not be adversely affected if it was switched off.

- 3.9 In its original guise as a predominantly pay TV service, the digital terrestrial platform did not prove to be a success. The demise of ITV Digital in 2002 created an opportunity for a new digital proposition: a free-to-view digital terrestrial service which offered a limited range of channels for a one-off cost of less than a hundred pounds. This easily understood product, marketed under the Freeview brand, has succeeded in winning many customers who were not attracted by the subscription-based digital services.
- 3.10 Chart 3.2 shows the rates of take-up of the different digital platforms since 1998. The take-up curves of the satellite and cable services show rapid increases during the periods in which they were converting their existing analogue customers to digital and when they were succeeding in winning large numbers of new customers. Over time, however, it can be seen that the rates of growth of satellite and cable platforms have slowed. Since its launch in October 2002, Freeview has enjoyed a similarly successful launch phase and now accounts for 24 per cent of digital homes.
- 3.11 Chart 3.2 can misrepresent the speed of adoption of different digital TV platforms because the DTT platform has only proved successful since the launch of Freeview. Chart 3.3 shows the take-up of each digital platform in the first five quarters of their operation. It shows that Freeview has been as successful as Sky digital in 1998 and 1999 and more successful than digital cable, which accelerated later. Since the early figures for BSkyB and cable companies mostly represent their conversion of analogue subscribers to digital, the recent success of Freeview is all the more impressive.

Chart 3.2. Digital TV uptake by platform

Source: Ofcom's Digital TV Update

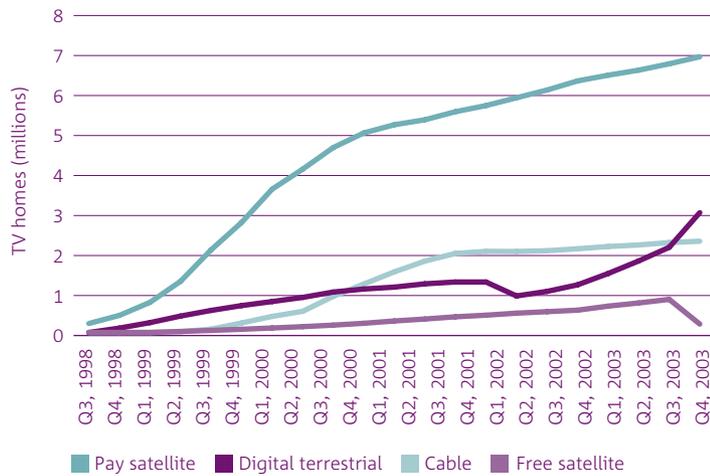
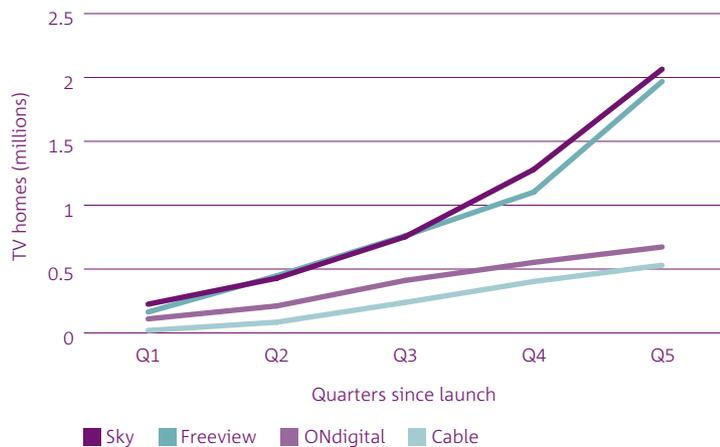


Chart 3.3: Initial take-up of digital TV platforms

Source: Ofcom





Progress in 2003

3.12 The growth of digital TV in 2003 was strong, particularly in the fourth quarter. The proportion of digital households grew from 41 per cent of households at the end of 2002 to 50.2 per cent of households a year later. Most striking was the remarkable growth of Freeview, which exceeded almost all sales predictions. By the end of 2003 there were almost three million Freeview households, up from 1.2 million a year earlier. The sales of Freeview boxes during the fourth quarter of 2003 were particularly impressive: in the run-up to Christmas more than 100,000 Freeview boxes were being sold every week. A number of reasons account for Freeview's success:

- **Appeal to new customers.** Before the launch of Freeview, the demand for greater choice without a monthly subscription had not been catered for by other multichannel services. Research conducted for the BBC⁸ has indicated that almost two-thirds of Freeview customers said the one-off payment and lack of contract was extremely important to them. Freeview has also attracted a different demographic from other digital TV platforms, including older people, who often report no desire to obtain digital TV.
- **Increasing number of channels.** More TV and radio channels were launched on Freeview during 2003, including a new entertainment channel, ftn, and BBC3 which replaced BBC Choice. New radio services on the platform included new music stations from EMAP as well as from the BBC. More interactive services have also appeared, e.g. the BBC has launched an interactive news service allowing viewers to see the news headlines at any time of their choosing. A new pay TV offering from Top Up TV may make digital terrestrial TV more attractive.

8 The BBC/Dixons Group Survey, March 2003

- **Greater channel appeal.** The channels available through Freeview have gained viewers through higher investment, greater promotion and through more tie-ins with their analogue stablemates. For instance, ITV2 increased its share of viewing from 1.1 per cent of total viewing during 2002 to 1.5 per cent during 2003. BBC3 meanwhile enjoyed a 50 per cent increase in its viewing share compared with its predecessor, BBC Choice. Part of BBC3's increase in audience was driven by a large increase in its budget.
- **Promotion by the BBC.** The BBC has heavily promoted its digital TV and radio channels and this promotion has encouraged viewers to consider the various digital platforms available as well as increasing the brand recognition of Freeview. Over the past year, awareness of Freeview has increased from 58 per cent to 80 per cent of adults⁹. BBC research¹⁰ has indicated that more than half of Freeview customers said the BBC digital channels were a significant factor in their purchasing decision. This is a positive influence for switchover, although it may give rise to competition concerns.
- **Wider distribution of Freeview products.** As demand for Freeview has grown it is being stocked by different types of retailers, including some supermarkets. BT has also begun to market Freeview to its customers.
- **Falling equipment prices.** As the number of digital set-top boxes sold has increased, the prices of digital TV equipment have fallen as the boxes are produced in ever greater volumes and as more manufacturers begin to produce them. Whereas most digital terrestrial set-top boxes cost around £99 when Freeview was first launched in October 2002, a more typical cost is now around £80, and the cheapest retail for around £50. There are also indications that Freeview is now cheap enough for it to become

The BBC has heavily promoted its digital TV and radio channels and this promotion has encouraged viewers to consider the various digital platforms available as well as increasing the brand recognition of Freeview.



⁹ Continental Research, The Spring 2004 digital TV report

¹⁰ The BBC/Dixons Group Survey, March 2003



an impulse buy for some consumers: during the second half of 2003, more than 100,000 Freeview boxes were sold in supermarkets.

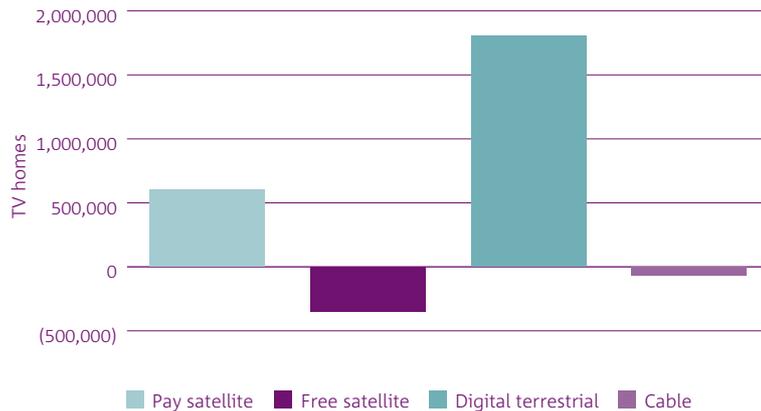
- **Rising sales of IDTVs.** The prices of integrated digital TVs (IDTVs) have also fallen, although there is still a gap of over £100 between the average IDTV and its nearest analogue equivalent. More than 180,000 IDTVs were sold during 2003 – a 60 per cent increase from 2002.
 - **Word of mouth sales.** BBC consumer research¹¹ found that more than 80 per cent of Freeview customers said that they would recommend it to a friend. This trend also applies to other digital TV platforms: research conducted by the ITC¹² showed that 81 per cent of people who were doubtful beforehand were more favourably disposed to digital TV after experiencing it.
 - **Secondary sets.** Falling prices are also likely to have encouraged more people to convert their secondary TV sets. Ofcom-commissioned research and data from Freeview suggests that around 15 per cent of sales of Freeview boxes are for secondary sets.
 - **Improved coverage.** At launch, all the DTT services reached only 56 per cent of UK households compared to around 90 per cent for the analogue services being broadcast from the same sites, mainly due to limits on the power of the transmissions in order to protect analogue services. The equivalent figure is now 73.1 per cent after many improvements to the broadcast signal and its power.
- 3.13 Freeview now accounts for one in four digital households and this proportion can be expected to increase as it is growing faster than other digital platforms as Chart 3.4 shows.

¹¹ The BBC/Dixons Group Survey, March 2003

¹² Go Digital key findings, April 2003.

Chart 3.4: Change in customers during 2003

Source: Ofcom



- 3.14 BSkyB has also continued to grow steadily during 2003, adding 603,000 to its total number of customers over the course of the year. At the same time BSkyB has increased average revenues per subscriber and has lost less than 10 per cent of its subscribers a year. It has recently put efforts into promoting its personal video recorder technology, known as Sky+, as a way of both attracting new customers and retaining existing ones. There are now more than a quarter of a million Sky+ customers.
- 3.15 As described earlier, the end of the free-to-view smartcard scheme has, however, led to a sharp fall in non-subscription satellite digital homes. Estimates suggest that just 211,000 households are now able to receive the full range of public service channels through the digital satellite platform. If the free-to-view smartcard scheme were still in operation, there could be as many as 600,000 extra digital households and the reported level of digital take-up would be 53 per cent rather than 50.2 per cent.



3.16 The cable companies have been less successful than other digital TV platforms at attracting new subscribers. The overall number of cable customers fell by 52,000 during 2003. The conversion of analogue to digital customers continued, however, and the number of digital cable subscribers increased from 2.1m to 2.3m. During the last quarter of 2003 the number of overall cable customers increased compared with the previous quarter, suggesting that the falls which took place earlier in 2003 are capable of being reversed.

During 2003, there has also been a growth in the number of people converting their second sets to digital TV.

Secondary sets

- 3.17 During 2003, there has also been a growth in the number of people converting their second sets to digital TV. Many people are using DTT set-top boxes to obtain digital TV on their second sets; Ofcom commissioned research and data from Freeview suggest that 15 per cent of Freeview boxes are used on secondary TVs and BSkyB also report growing numbers of households converting their second sets. BSkyB have reported that at the end of December 2003, there were 237,000 Sky subscribers with extra set-top boxes, an increase of 103 per cent on the previous year.
- 3.18 Given that households regularly use almost two TV sets, most digital households still have additional analogue-only sets at home. The consequence is that the proportion of TV sets which are digital is well below the proportion of households with digital TV. This need not present a problem in itself: if those non-primary sets are converted to digital when the analogue signal is switched off then people will be able to continue using them. But the figure does put the success of digital TV to date into perspective. Section 5 considers the likely levels of digital take-up for both primary and secondary sets in the years ahead.

Section 4

The national and regional dimension



Section 4

The national and regional dimension

4.1 Ofcom considers it is important that the benefits of digital TV are extended throughout the UK and are not just confined to metropolitan areas. One of the roles Parliament gave Ofcom was to secure the availability of a wide range of electronic communications services throughout the UK. Ofcom has established separate advisory committees for England, Scotland, Wales and Northern Ireland to provide advice on the whole breadth its communications responsibilities and maintains an office with a senior member of staff in each nation. The advisory committees will be important in monitoring progress towards digital switchover as it affects the nations and regions of the UK.

4.2 Take-up of digital TV in mid-2003 varied across UK regions from a digital adoption rate of 37 per cent in the South West ITV region to 56 per cent penetration in the Wales ITV region. Chart 4.1 shows the take-up rate in different regions. Since adoption grew strongly at the end of the year after this survey, most regions in Chart 4.1 have penetration rates below 50 per cent. Other data indicates that since this data was collected, take-up has added five or six percentage points to each area.

Chart 4.1: Digital penetration by ITV region – mid 2003

Source: BARB establishment survey

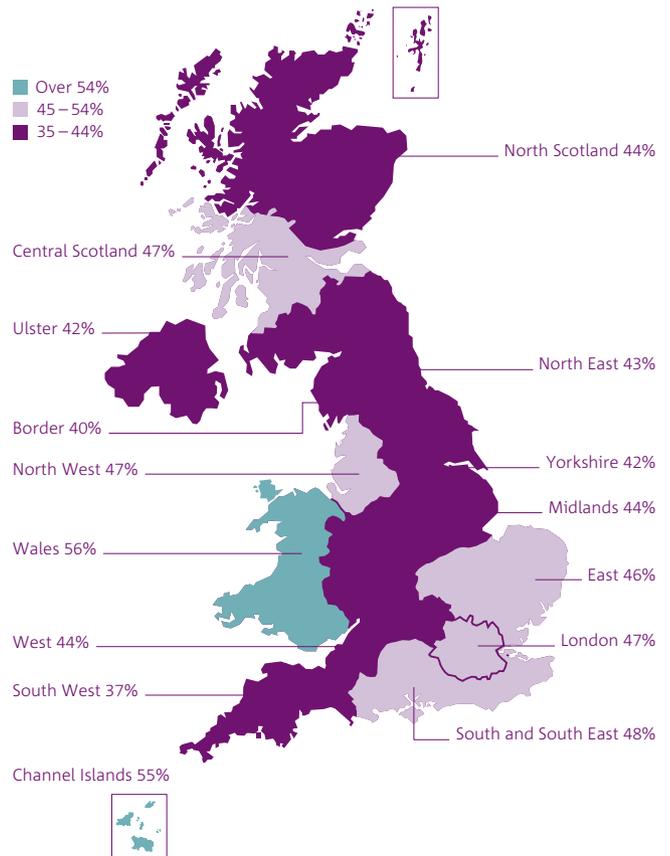




Chart 4.2: The coverage of the current digital terrestrial signal

Source: BBC and ITC



- 4.3 Large parts of the UK, predominantly rural areas, are currently unable to receive DTT. Chart 4.2 shows the gaps in current coverage which cannot be filled unless new transmitters are converted to digital and the power levels of the signal are increased, both of which depend on digital switchover. Specific DTT coverage problems exist in the Highlands and Islands of Scotland and also the upland areas England and Wales. In Northern Ireland, only three transmitters – Divis, Limavady and Brougher Mountains – broadcast the DTT signal, limiting its coverage and DTT take-up significantly.

Chart 4.3: The expected coverage of the BBC DTT signal after switchover

Source: Ofcom



4.4 After switchover, the DTT signal can be boosted. Chart 4.3 shows the expected coverage of the BBC digital terrestrial service across the UK after switchover. It should be noted that the switchover plan is still under development and that a final agreement on the number of sites to be adopted and therefore extent of digital coverage has not yet been reached. However, Chart 4.3 shows that the coverage is expected to be improved significantly and in many rural areas compares favourably with the coverage of the current analogue signal shown in Chart 4.4.



Chart 4.4: The coverage of the current analogue BBC1 signal

Source: Ofcom



4.5 Chart 4.4 shows the current analogue coverage map for BBC1 across the UK. It shows that in many rural areas, particularly in Scotland and Wales, coverage is often marginal. Few households live in these areas, however. General problems include the upland areas of the UK. Specific local difficulties also exist, such as the parts of Edinburgh around Corstorphine Hill, which do not receive a good analogue signal.

Chart 4.5: The coverage of the digital satellite signal
Source: Ofcom



4.6 DTT is only one route to digital TV. Chart 4.5 shows the coverage of the digital satellite service. It shows that the satellite signal is available to almost everyone in the country, subject to a lack of coverage in areas where a poor line of sight to the satellite exists, such as the north coast of Devon. Satellite reception is also subject to practical limitations such as planning restrictions, whether individual flats have a south facing aspect, and whether the line of sight to the satellite is obstructed by large office blocks for some city centre homes. Research carried out by the ITC indicated that between 96 and 98 per cent of households within the shaded area are able to receive digital satellite services via a dish mounted on their roof.



Chart 4.6: Cable franchise areas in the UK

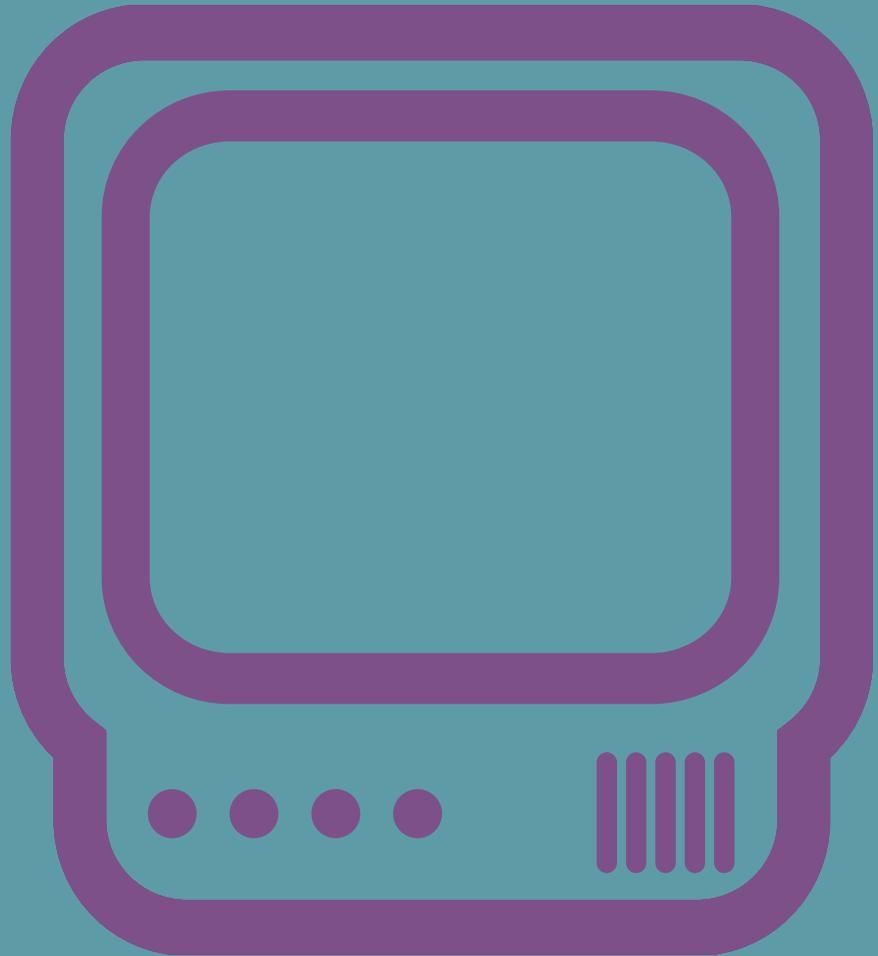
Source: Ofcom



4.7 Chart 4.6 shows the areas within which the cable companies were allocated franchises and within which they operate their cable networks served by digital cable services. It should be noted that the cable companies have not fully built out their cable networks within these areas. Cable TV services are available to over half the population, although virtually all of these are in urban areas.

Section 5

Projections for digital adoption



Section 5

Projections for digital adoption

- 5.1 Consumers have rapidly adopted digital TV since 1998 without a specific Government commitment to switch-off the analogue signal. In this section, Ofcom presents the results from its forward projections of market-led adoption of digital TV to estimate when penetration rates would reach near-universal levels. The model disaggregates between the different platforms for digital TV and is calibrated by current consumer attitudes towards digital TV. Projections for central, high and low scenarios are set out below, all of which assume that there are no new policy interventions and few important market developments.
- 5.2 Any model which makes long-term projections about a rapidly changing product such as digital TV is certain to prove incorrect. Few foresaw the popularity of mobile phones in the early 1990s, for example. Ofcom has prepared these projections in order to give an indication of likely future take-up based on the information available in early 2004. The figures can be nothing more than that. They are, however, useful in aiding the policy-making process by informing the likely degree of success for market-led switchover.

The model used to develop take-up projections incorporates research evidence on consumers' attitudes to different digital platforms and to digital TV in general.

Basis of the estimates

- 5.3 The model used to develop take-up projections incorporates research evidence on consumers' attitudes to different digital platforms and to digital TV in general:
- **Attitudes to digital TV.** Consumer research conducted for the Department of Trade and Industry (DTI)¹³ has indicated that one in five households would be unwilling to adopt digital TV. The reasons for their reluctance are discussed further in the next section and are assumed to remain constant over the next few years.

13 Attitudes to digital switchover, March 2004



- **Purchasing intentions by platform.** Ofcom's projections also take into account a further finding from the consumer research that most of those with firm intentions to acquire digital TV said that they intended to get Freeview rather than a pay TV service.
- **Coverage levels.** Another constraint on the overall levels of digital take-up is the restricted availability of DTT coverage. One in four households will not be able to receive DTT signals until after switchover occurs. Some of those wishing to obtain DTT but unable to receive it will opt for cable or satellite; but it is assumed that most will stick with analogue TV because they are attracted by free-to-view digital TV rather than pay TV.

Under the base case it is estimated that 78 per cent of households would have digital TV by the end of 2010.

5.4 The model also incorporates industry forecasts for the various digital platforms over the next few years. In particular, the central projection is based on the following assumptions:

- BSkyB reaches its subscriber target of eight million at the end of 2005 with growth continuing thereafter.
- Cable operators gradually convert all their TV customers to digital and gain new subscribers by offering digital TV alongside broadband internet access.
- The current free-to-view smartcard scheme for satellite is not reintroduced and free-to-view satellite is not actively promoted.
- The price differential between IDTV and DTT set-top boxes falls over time, but remains significant.
- A wide range of IDTV models is introduced but analogue models remain the main products on offer in high-street shops.
- The lowest price of DTT set-top boxes drops to around £30 leading it to become an impulse buy for some consumers.
- DTT set-top boxes become more widely available in supermarkets.

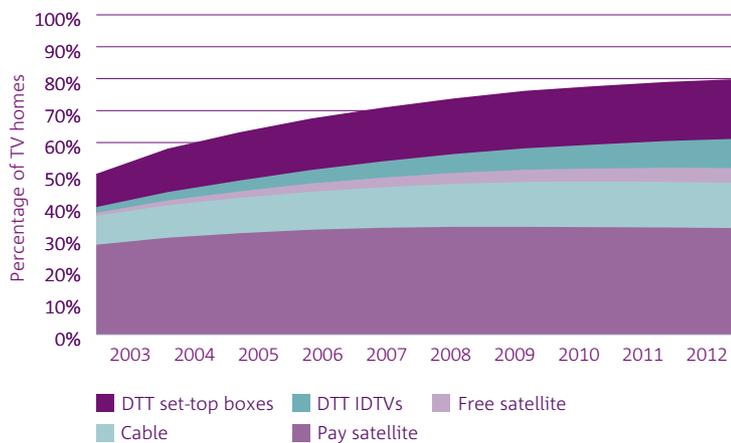
- A pay TV DTT option is taken up by no more than half a million subscribers with the vast majority of these being existing Freeview customers.

Projections of future take-up under base case

5.5 Chart 5.1 sets out a central projection for digital take-up in coming years. Under the base case it is estimated that 78 per cent of households would have digital TV by the end of 2010. Each of the current digital TV platforms would continue to grow. In the case of cable companies, take-up growth is augmented by the complete conversion of their analogue networks to digital by 2010.

Chart 5.1: Estimated take-up of digital TV by platform at the end of each year

Source: Ofcom Projections





5.6 Digital terrestrial TV is likely to be responsible for most of the future rise in digital TV take-up because:

- Consumer research and the slowing growth of pay TV suggests that the majority of households likely to convert to digital in the coming years are likely to want a free-to-air service rather than a pay TV service.
- Prices of DTT receivers, both set-top boxes and IDTVs, are likely to continue to fall.
- The increase in the numbers of Freeview viewers is likely to lead to an improvement in the output of the current channels and to the possible launch of new free-to-air channels.
- Word-of-mouth is likely to increase take-up further.

5.7 The projections indicate that the number of homes with DTT receivers will increase from three million currently to 6.7 million by the end of 2010, with a growing proportion of these accounted for by IDTVs rather than set-top boxes. Though fast, the growth in DTT households is limited by the lack of DTT coverage for over a quarter of the population. By the end of 2010, digital adoption is projected to be almost 18 percentage points higher in DTT-covered areas relative to areas without an adequate DTT signal. In DTT-covered areas, we project that 83 per cent of households would have digital TV by the end of 2010.

5.8 Other digital TV platforms are also likely to continue to expand but at a slower rate than DTT. As described in section 3, the growth rates of both cable and satellite have slowed in recent years.

5.9 Continued growth in pay TV subscribers is to be expected, not least because the cable and satellite platforms have an important advantage over DTT in that they have far greater capacity available and premium content. Whereas only around 30 channels will be available on digital

terrestrial TV until switchover, digital cable and satellite networks can offer hundreds of channels. As well as extra channels this capacity will be used to offer innovative services which many consumers will find appealing, including more interactive services and video-on-demand services. Bundling broadband internet access along with digital TV and voice telephony is also likely to benefit the cable operators.

- 5.10 The projections indicate that by the end of the 2010 BSkyB will have close to 8.7 million subscribers in the UK, significantly more than the current figure of around 6.9 million. The number of free-to-view satellite homes is also expected to grow to over one million from 212,000 currently, although given the absence of a free-to-view smartcard scheme, virtually all of these will be lapsed Sky subscribers. We assume that BSkyB will not undertake another swap of decryption cards in the relevant time frame. The cable companies will also continue to increase their subscriber numbers, and the combined subscriber figure of all the cable operators will rise from 3.3 million now to almost 3.7 million by the end of 2010.
- 5.11 Over the next few years, an acceleration of new broadband connections (digital subscriber line or DSL) into people's homes is likely to stimulate a rapid increase in video services delivered over telephone lines. It is even possible DSL will begin to become an important alternative platform for digital broadcasting in addition to digital cable, digital satellite and digital terrestrial. But it currently appears unlikely that these new services will play a significant role in the move towards digital switchover for two reasons: first, at least initially, it is envisaged that video services over telephone lines will be premium rate video-on-demand rather than TV broadcasting; and second, TV services over broadband connections are expected to be predominantly in areas of high population density where cable and digital terrestrial services are already available.

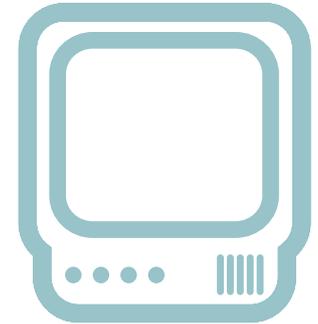


Other scenarios

- 5.12 We also attempted to test the sensitivity of our projections to alternative high and low take-up assumptions.
- 5.13 The high-case scenario assumes the following:
- BSkyB successfully launches a low-cost pay TV offering which attracts subscribers who would otherwise remain with analogue TV.
 - A successfully marketed free-to-air satellite option increases digital TV uptake in areas which cannot currently receive digital terrestrial TV.
 - Additional subscribers are attracted to cable TV. Cable operators convert their networks to digital by 2008.
 - The price of IDTVs falls considerably and they become the main offering in high-street shops, leading them to be bought by consumers who would not adopt digital TV otherwise.
 - There are improvements in the free-to-air channel line-up.
 - The price of Freeview receivers drops to around £20 leading it to become an impulse purchase for the majority of households.
 - The attitude of those consumers strongly resistant to digital TV softens over time as a result of compelling content, falling costs and favourable experiences of friends/family etc.
- 5.14 The low-case scenario assumes the following:
- BSkyB concentrates on raising revenue per subscriber rather than on increasing the number of its subscribers.
 - A free digital satellite platform ceases to be offered and all those who stop subscribing to pay TV give up digital TV entirely.

The results of the high-case and low-case projections show that by 2012, we expect the take-up of digital TV to lie between 70 and 90 per cent of households.

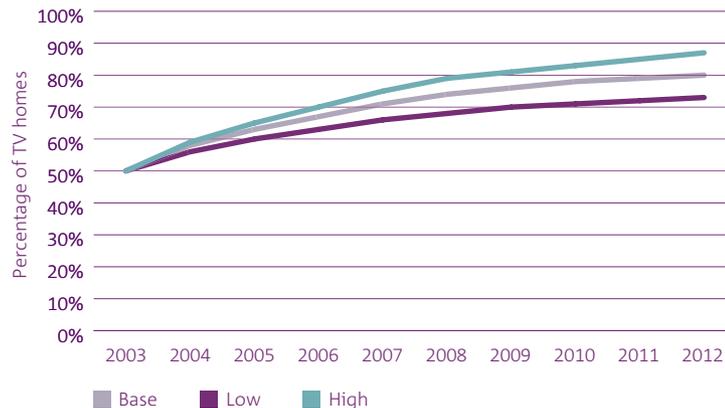
- Conversion to digital is not a priority for cable companies and complete conversion to digital is not achieved until 2012.
- IDTV prices remain high, deterring purchases.
- Freeview prices drop to around £40 but the majority of households do not regard it as a spontaneous purchase.
- Consumers are not convinced that digital TV content is compelling, and the attitude of those resistant to the propositions on offer hardens over time.



5.15 The results of the high-case and low-case projections for overall digital take-up are shown alongside the central projection in Chart 5.2, which shows that by 2012, we expect the take-up of digital TV to lie between 70 and 90 per cent of households.

Chart 5.2: Projected overall take-up of digital TV at year end

Source: Ofcom Projections





Secondary sets

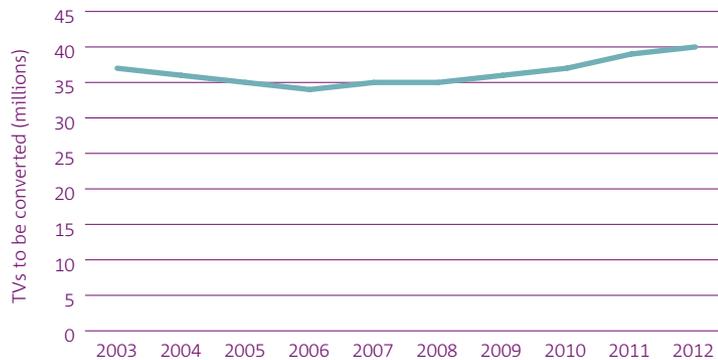
- 5.16 Ofcom has also sought to consider the likely rate of conversion for all TV sets, not just the primary TV in any household. While over half of households have converted to digital for at least one TV set, we estimate that only approximately 26 per cent of all TV sets in the UK are converted to digital reception¹⁴.
- 5.17 Secondary sets are much less likely to have been converted to digital: only about 3.5 per cent of non-primary sets had been converted by the end of 2003. Freeview accounted for over half of these TVs because its low price was more attractive than pay TV platforms which usually charge a monthly subscription of at least £10 per month for a second set-top box.
- 5.18 Digital conversion of all television sets will be slower than digital adoption among households for two reasons: first, many households will not upgrade second or third sets as quickly as their primary sets; and second, the number of TV sets sold with analogue tuners continues to outstrip the number of digital receivers.
- 5.19 Nevertheless, the fall in the price of DTT receivers is likely to lead to an increase in the conversion of non-primary sets, and together with the continued increase in digital take-up for primary sets the penetration levels for all TV sets is likely to rise from 26 per cent of total sets at the end of 2003 to 41 per cent by 2010. This reflects a penetration level of 3.5 per cent of non-primary sets in 2003 rising to 17 per cent in 2010.

¹⁴ The figure is based on operators' estimates of digital take-up and the June 2003 Barb Establishment Survey, which found that each household has on average two regularly used TVs.

5.20 As Chart 5.3 shows, Ofcom's estimate of the outstanding number of TVs to be converted to digital remains relatively constant between 2003 and 2012 if there is no announcement of a definite timetable for switchover. The outstanding number of unconverted TVs is high throughout. It is projected to fall at first while the take-up of digital TV on primary sets is growing quickly, but begins to rise towards the end of the decade as the purchase of new TVs without associated digital converters again exceeds the conversion of secondary sets to digital. The projections for second sets are particularly sensitive to trends in the price of digital converters, so the numbers of outstanding unconverted TV sets in chart 5.3 would be subject to a larger margin of error than the projections for digital adoption by households.

Chart 5.3: Outstanding number of TV sets which would need digital conversion

Source: Ofcom Projections





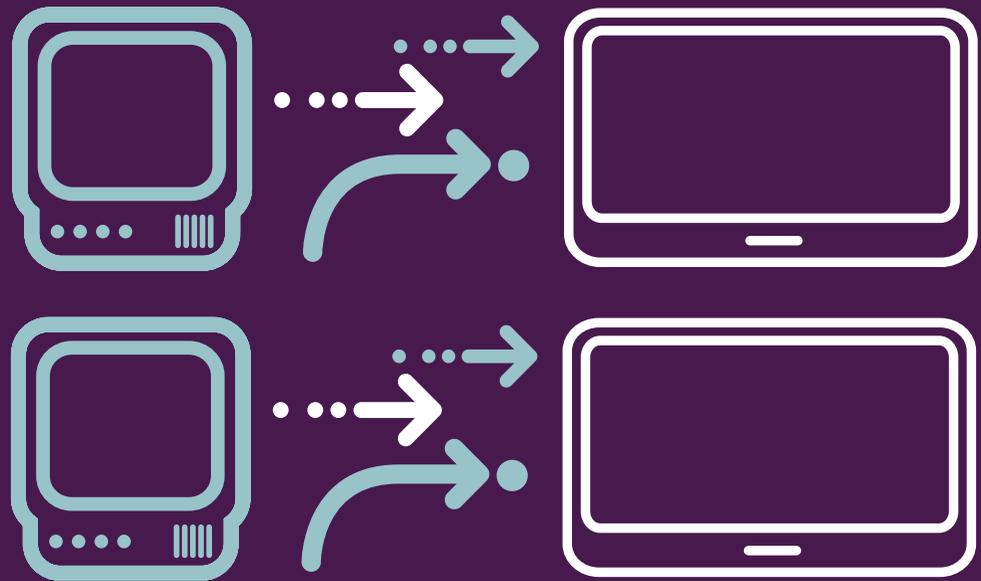
Conclusions

- 5.21 Digital television is growing fast, but even on the optimistic assumptions of the high-case scenario, digital take-up in 2010 is still less than 90 per cent. Ofcom considers that the finding that market-led digital take-up will be significantly less than 100 per cent is robust for a number of important reasons. Firstly, research on consumer attitudes indicates that a relatively small but stable set of consumers are unwilling to adopt digital TV voluntarily. Secondly, significant numbers of consumers currently without digital TV are not willing to subscribe to pay TV. The alternatives for these households are limited, not least because a quarter of all households will be unable to receive digital terrestrial TV unless and until switchover happens. The combined effect of these factors is to produce an upper ceiling on market-led take-up of around 85 per cent of households.
- 5.22 The number of TVs which need to be converted is likely to remain relatively constant at over 35 million for the whole of the next decade. This presents a real challenge for switchover, but the conclusion should not be that switchover is impossible. So long as digital penetration is high and those sets are converted to digital when the analogue signal begins to be switched off, people will be able to continue using them. The high number of sets to be converted around the switchover date in any region nevertheless puts the recent success of digital TV in some perspective and highlights the challenge of implementing switchover successfully.
- 5.23 The natural limits to digital penetration of households and the high number of outstanding analogue sets implies that a strategy of waiting for consumers to gradually adopt digital TV at their own pace faces serious obstacles. Before outlining an alternative strategy we examine the specific challenges to be overcome in more detail.

The natural limit to digital penetration implies that a strategy of waiting for consumers to adopt digital TV at their own pace faces serious obstacles.

Section 6

Challenges confronting a market-led digital switchover



Section 6

Challenges confronting a market-led digital switchover

- 6.1 The popularity and take-up of digital television has been so rapid that it is easy to understand the motivation behind the Government's current policy of being committed to switchover and preparing for it without actively pursuing its implementation.
- 6.2 Ofcom's digital TV projection suggests, however, that such a market-led approach is likely to hit natural limits. Pay TV penetration rates are unlikely to rise far above 50 per cent of households within the next decade and digital terrestrial coverage is limited to three-quarters of households before switchover. Therefore, high trigger levels for digital penetration are unlikely to be met, including the Government's 1999 indicator of affordability which was set at 95 per cent of households.
- 6.3 This section details the specific challenges confronting a market-led process of switchover.

Consumer issues

Attitudes to digital TV

- 6.4 Although half of households have digital TV, the other half are unlikely to get digital as quickly or as readily. And unless they can be persuaded to do so, switchover will be more difficult.
- 6.5 Ofcom has used research, commissioned by the DTI¹⁵, to examine the attitudes and interests of the consumers who currently have only analogue TV. One encouraging conclusion from this research is that most of those without digital TV said that they were likely to convert to digital of their own accord over the next few years. This, however, leaves some 20 per cent of households who currently intend to remain analogue only. Independent of whether they could receive a DTT signal, three-quarters of this group (15 per cent of all households) said that they would adopt digital if they knew switchover was imminent, while the remaining

15 Attitudes to digital switchover, March 2004



quarter (five per cent of all households) said that they would never be willing to convert.

- 6.6 The consumer research investigated the attitudes and interests of those who are least willing to adopt digital TV in greater depth. It showed that this group are not a coherent cluster with clearly defined socio-economic or demographic characteristics. Instead, the non-adopters seem to have a variety of different reasons for remaining with analogue TV.
- 6.7 Most important, a household's propensity to adopt digital TV often reflected its attitudes towards TV and multichannel TV in particular. Those least willing to adopt digital TV tended not to value TV as a medium or alternatively felt that more TV channels would have a negative impact on society. Some others believed digital TV to offer little of value over and above that offered by existing analogue services; while some mentioned practical problems including cost and difficulty of use.
- 6.8 Such deep-rooted attitudes will be difficult to overcome quickly. For example, the current marketing of digital TV – pushing the greater range of channels – may actually repel some people. Although attitudes may change over time and some consumers may receive digital TV as a gift, take-up will undoubtedly also be constrained by the negative attitudes of a minority.

Attitudes to switchover

- 6.9 Even if consumer take-up of digital were to increase, shutting down analogue TV services will only be a realistic possibility if there is support for the objective of switchover itself. Such support is currently limited. Research conducted for the DTI¹⁶ has indicated that around 50 per cent of people objected to switchover and were suspicious of the Government's motives. This suspicion was not confined to those least willing to adopt

16 Attitudes to digital switchover, March 2004

digital TV – many of those consumers with digital TV already said they would resent the loss of their analogue service.

- 6.10 Public suspicion might not last long, especially if attitudes are addressed by an effective and well co-ordinated public information campaign. The same survey found that people accepted that technology advance was inevitable and that at some point digital TV would replace the analogue TV. Nevertheless, a successful implementation of switchover will require an improvement in public support for the goal itself. At present, there is very little public recognition or understanding of the underlying case for switchover.

Secondary sets

- 6.11 Although half of households have digital TV, only one in five have completed the conversion of all of their sets. This means that four out of five households still rely on analogue terrestrial TV for some of their sets¹⁷. Most households own and watch an additional set in the kitchen or in bedrooms; some have numerous TVs.
- 6.12 By the end of 2003, only 3.5 per cent of non-primary TV sets had been converted, leaving over 35 million non-converted TV sets in the UK. Although the proportion of secondary set conversion is likely to increase in the coming years, Ofcom's projection is that only around 17 per cent of secondary sets will be converted to digital by 2010.
- 6.13 A further problem relating to secondary sets is that around half do not have the SCART sockets which increase the ease of connecting a set-top box. Some consumers are therefore likely to find converting secondary sets difficult and time consuming.
- 6.14 Previous unpublished research for the ITC in 2003 indicated that around 21 per cent of all TV sets and a higher proportion of secondary sets are

Four out of five households still rely on analogue terrestrial TV for some of their sets.

17 Attitudes to digital switchover, March 2004



dependent on portable aerials. It remains unclear how many of these would be able to receive acceptable digital reception after switchover on their current aerials because the adequacy of their analogue reception is not known. Ofcom is leading a project looking at reception using portable aerials for both analogue and digital services. The study will look at current and prospective coverage levels, portable set usage patterns and how technology development could contribute to improved reception.

One lesson from Berlin is that households seemed to accept a temporary loss of access to TV reception on secondary receivers and were content to convert these receivers more gradually.

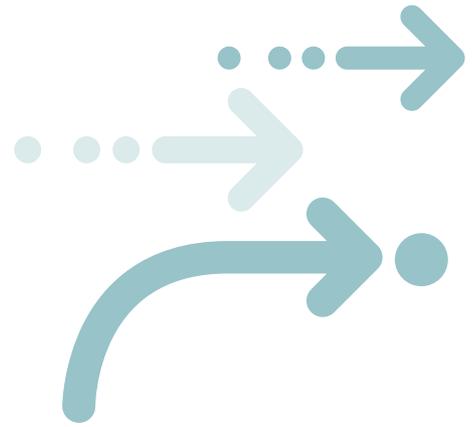
- 6.15 The experience of Berlin shows that the lowest cost alternative to analogue is likely to dominate secondary set conversions around switchover and highlights the importance for households of being able to receive a digital terrestrial signal on a portable aerial after switchover. One encouraging lesson from Berlin, however, is that households seemed to accept a temporary loss of access to TV reception on secondary receivers for some time and were content to convert these receivers more gradually. Retailers found that the demand for set-top boxes remained strong for months after switchover had been completed.

Video recorders

- 6.16 Around 80 per cent of households have at least one video recorder, and research conducted for DTI¹⁸, found that among this group approximately 60 per cent record programmes from the TV at least once a month. Each video recorder has its own analogue tuner, separate from that in the TV set, which allows it to receive and record TV programmes. In order to record a digital TV channel it is possible to plug in a digital TV set-top box into the video. But it is not possible to record one digital TV channel and watch a different one unless both the video recorder and the TV are connected to separate set-top boxes. Such an arrangement would be difficult for many consumers to master.

18 Attitudes to digital switchover, March 2004

- 6.17 This means that, as well as converting their TV sets, people wishing to retain the existing functionality of their video recorders after switchover will either have to convert their video recorders or purchase new recording devices with integrated digital tuners.
- 6.18 Such devices are only currently available in limited numbers, although more models are being released and prices are falling. Another recent development has been the growing success of personal video recorders (PVRs) which use hard disks rather than video tapes or DVDs. BSkyB now has more than a quarter of a million users of their PVR (known as Sky+) and has found that nine out of ten users would recommend the product to others. If the market for these devices grows strongly, it could, over time, help to solve the problem of converting video recorders to digital. We expect a number of new DTT video recorders to be launched on the market this year and prices to fall over the next two years.



Broadcaster incentives and obligations

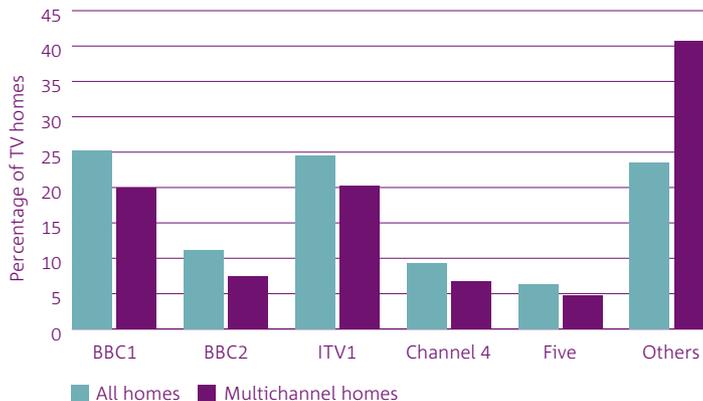
- 6.19 Analogue public service broadcasters – the BBC, the ITV network, Channel 4 and Five – can make a significant contribution to switchover in at least two distinct ways: by investing in extending digital TV coverage and by promoting digital TV take-up.
- 6.20 For analogue terrestrial broadcasters, switchover presents an opportunity to eliminate the current need and expense of dual transmission of both analogue and digital signals. They would also benefit from being able to extend the availability of their digital channels which have enabled them to appeal to new audiences, produce innovative programmes and launch further interactive services. In particular, the BBC would benefit if all licence fee payers could receive the new digital services, including BBC3, BBC4 and interactive services, which they pay for.



6.21 However, analogue terrestrial broadcasters will need to have a clear and unambiguous commercial incentive to drive switchover. In an all-digital world, the existing analogue broadcasters will face greater competition for viewers and the commercial channels are likely to lose advertising revenues as a result. The BBC could lose support for the licence fee if its viewing share fell significantly.

Chart 6.1: Share of viewing by channel in all homes and multichannel homes, Jan 2004

Source: BARB



6.22 The extent of the fall in viewers is uncertain: chart 6.1 shows that traditional analogue channels lose significant viewing in multichannel homes, although households adopting digital terrestrial TV show less inclination to change their viewing habits. Viewing patterns among later converters to digital TV are also likely to differ from existing subscribers to satellite and cable services although it is a reasonable assumption to expect the viewing share of the existing analogue channels will decline as digital penetration increases¹⁹.

¹⁹ Five might be an exception because it will benefit from improved strength and coverage of its signal after switchover.

6.23 It is not clear therefore that under the existing policy framework, analogue broadcasters perceive a clear and unambiguous interest in driving switchover. Ofcom will develop appropriate incentives and obligations to encourage them to develop active strategies to drive switchover.

Free-to-view digital television

Coverage of DTT signals

- 6.24 Even if all consumers wanted to convert to digital, some would face a serious hurdle because coverage constraints currently limit digital terrestrial television. DTT provides the lowest cost access to digital television and is the most popular means of converting secondary TV sets. However, it cannot resolve its coverage limitations until some of the analogue networks are switched off. In particular:
- coverage of all DTT channels will remain limited to only 73.1 per cent of households²⁰ unless and until switchover happens;
 - even where coverage is currently available, 34 per cent of households are likely to need an aerial upgrade before they can receive a reliable signal at a cost of £80-£300;
 - the percentage of households that can buy a set-top box, plug it in and expect it to work is under 50 per cent;
 - current DTT coverage for sets using portable aerials is much lower; and
 - households which depend on a communal aerial for coverage may find that they are unable to get any aerial upgrade that might be required.
- 6.25 After switchover, it will be possible to increase the power levels and extend coverage of DTT signals without any danger of interference with

²⁰ This coverage refers to the availability of all six multiplexes. A higher coverage figure – 80 per cent – applies to the availability of the three public service carrying multiplexes only



analogue TV signals. Provided more transmitters are converted to broadcast a digital signal, it will be possible to extend DTT coverage throughout the country and, by increasing power levels, it will be possible to enable DTT to be received by the majority of existing aerials and on many portable TV sets.

- 6.26 However, since DTT is currently the digital TV platform favoured by most of the remaining analogue-only households²¹, the coverage gap places a limit on the maximum penetration of digital TV prior to switchover. It thereby creates an intractable problem for any switchover plan which is wholly dependent on achieving a near-universal level of take-up: without an extension of DTT coverage it will not be possible to raise digital penetration above around 85 per cent of households; but it will be impossible to extend DTT coverage further without switching off the analogue signal. A carefully managed transition strategy will therefore be required in order to minimise viewer disruption while the coverage of digital services is increased.

Free-to-view satellite TV

- 6.27 Freeview is currently the only digital TV option available to consumers who want access to the existing analogue channels but do not wish to acquire pay TV or for some former BSkyB subscribers who no longer want pay TV. If a free-to-view satellite service were readily obtainable then this would significantly extend the availability of non-subscription digital TV. As discussed in section 3, such an option was available until relatively recently but it ended once a free-to-view satellite smartcard ceased to be offered by broadcasters. The reintroduction of such a scheme or greater use of non-encryption would help improve the situation as BSkyB continues to offer a full digital satellite installation plus set-top box for a one-off fee of £169 for non-subscribers.

21 Attitudes to digital switchover, March 2004

- 6.28 Another problem which continues to limit the availability of digital satellite services concerns restrictions such as requirements for planning permission or landlord agreement which prevent satellite adoption in some areas and for inhabitants of some multiple dwelling units. The Government is consulting on this issue separately.

Timing issues

- 6.29 The Digital TV Action Plan currently foresees the process of digital switchover as a rolling programme of regional switchovers. It requires two years' preparation before the first analogue channel is switched off in the first region and a further four years until the process is completed. If the first region switched off the analogue signal in 2007, the process could be completed by the end of 2010. However, the timing of all parts of the process has yet to be decided, causing consumers, retailers, manufacturers and broadcasters to hesitate in investing in switchover.
- 6.30 If a firm date for switchover in any region existed, consumers could make better informed purchasing decisions. For example, consumers would be able to choose between a brand new analogue TV set or an integrated digital TV knowing the usable lifespan of the analogue option. For switchover, the threat is that continued uncertainty over timing is likely to reduce the number of integrated digital TVs bought and could increase public resistance.
- 6.31 Retailers also suffer from the problems of a lack of information about the timing of switchover. Ofcom conducted a mystery shopping exercise in February 2004 to investigate the information consumers were receiving from retailers. Researchers visited over 300 shops, including both high-street chains and independent retailers, and found that only 19 per cent of retail outlets mentioned switchover as a relevant issue for the purchase of digital TV equipment. In around half of these cases a specific date was given ranging from 12 months' time to 2010.

If a firm date for switchover in any region existed, consumers could make better informed purchasing decisions.





- 6.32 Manufacturers of equipment complain that the lack of a firm date complicates forecasting the likely level of demand for their digital TV products. For switchover to happen, many tens of millions of digital receivers will have to be manufactured and sold in a relatively short space of time. Without a firm date for planning, manufacturers will not know when they should aim to gear up production and retailers will not know when they should increase stock levels. Unless the timetable and final deadline for switchover is made known well in advance, therefore, there is a significant risk of a shortage of digital receivers.
- 6.33 The lack of certainty over the switchover timetable has a negative impact on broadcasters and transmission companies. Many of the existing analogue transmitters will need replacing within the next decade. Without a firm timetable for switchover, broadcasters and transmission companies will not be able to decide if and when the obsolete analogue equipment should be replaced. It would not be in anyone's interests to spend money on replacing analogue transmitters shortly before switchover.

Implementation of switchover

- 6.34 The Digital TV Action Plan has been effective in delivering the pre-conditions for a Government decision on switchover: understanding the interests of all the interested parties and ensuring that the early stages of planning have been completed. It is, however, much less suited to the role of an implementation vehicle with the simple goal of achieving switchover.

- 6.35 As we move from planning to implementation, the lack of an effective implementation body would begin to hamper progress towards switchover. In areas where the interests of various parties were not in alignment with the goal of switchover, progress could quickly stall if the project was managed by a loose confederation of broadcasters, transmission companies, Government, the regulator, manufacturers and retailers.
- 6.36 A loose confederation is also unlikely to be able to deliver simple and clear information to the public regarding switchover. It is likely that more active management will be required to encourage the remaining households to adopt digital TV and to complete the process effectively.

International agreements

- 6.37 Many of the wider benefits of switchover come in the possible use of the cleared spectrum for other uses. Though not a barrier to market-led digital adoption, it is important for the UK to be successful in achieving efficient and flexible use of the spectrum at forthcoming regional radiocommunication conferences in 2004 and 2006 and world radiocommunication conferences in 2007 and 2010. For more details of efforts to secure spectrum efficiency, see Box 6.1.
- 6.38 Convincing the public of the wider benefits of switchover will depend to some degree on imaginative and popular alternative uses for the cleared spectrum. Initial analysis suggests the fourteen released channels and the spectrum interleaved among the DTT services could be used to carry a number of different services; either additional DTT broadcasting, or for services aimed at mobile portable receivers, possibly to be used in conjunction with other telecommunication networks to deliver on-demand content to users' handsets.



Box 6.1: Efforts to securing spectrum efficiency in international negotiations

The purpose of international agreements on spectrum use.

TV broadcasts are transmitted using the UHF band. International agreements on the use of these frequencies (and others) are necessary because radio waves do not respect national frontiers. Overlapping signals on the same frequency from rival broadcasters causes interference.

The current international rules of TV broadcasting

Under existing international agreements, the UHF band is allocated on a primary basis to broadcasting use. The UK is free to use the band for some other services, but only on a secondary basis. This means that any such services must not cause any interference to the primary broadcasting services in any neighbouring territories. In addition the UK cannot claim any protection from interference from any other current or future broadcast transmissions occupying this band.

The need for greater flexibility

Ofcom is required to seek efficient use of the spectrum to maximise the use of a scarce resource. The current restriction on the use of the UHF spectrum for broadcasting limits the UK from allowing other uses which could provide greater benefits. Previously, the Radiocommunications Agency made some progress in relaxing the rules at the 2003 World Radiocommunications Conference. The UK has gained rights with some neighbouring countries to use some of the TV spectrum for mobile services on a co-equal, as opposed to secondary, status. Changes to the international spectrum allocations can only be made at a world radiocommunications conference. The next two conferences in 2007 and 2010 provide an opportunity to seek additional flexibility in the international regulatory framework.

The UK's agenda in forthcoming international negotiations

In the 2004 and 2006 regional radiocommunications conferences, the UK will seek to protect its digital broadcasting plans and keep options open for any cleared spectrum made available after switchover. In the 2007 and 2010 world radiocommunications conferences, the UK will seek to gain the maximum flexibility of use for the UHF band for broadcasting and other uses.

Section 7

Policy recommendations



Section 7

Policy recommendations

- 7.1 Ofcom believes that digital switchover is desirable, practical and achievable.
- 7.2 Already, over half of UK households have been convinced of the benefits of digital TV. The challenge will be to convince the remaining analogue households that digital TV is a genuine improvement in terms of choice and capability, rather than a Government-sponsored imposition of costly and unnecessary technology. The previous two sections showed that this was unlikely to occur spontaneously, so a more active policy approach is needed.

The challenge will be to convince the remaining analogue households that digital TV is a genuine improvement in terms of choice and capability.

The technical plans for switchover

- 7.3 Over the past year there have been intensive and successful discussions between Government, the regulator and the industry regarding the technical details of switchover.
- 7.4 Switchover should be a region-by-region occurrence, limiting the scale of consumer disruption. It would be practical for switchover to be a rolling programme of regional switchovers, taking about four years to complete after two years of initial preparation. The regional element would allow the necessary technical preparations to be undertaken in each area without the costs and risks of a national switchover. If switchover were to occur between 2007 and the end of 2010, the decision to fire the starting gun would need to have been taken early in 2005.
- 7.5 The example of analogue switchover in Berlin suggests that it would be useful for some analogue TV channels to be switched off before others. One or more analogue channels would be switched off six months ahead of the others to enable the digital terrestrial signals to be boosted to full strength. Switching off one or two channels would allow areas currently without any DTT reception to begin receiving DTT signals. It would also demonstrate to consumers the imminence of switchover and the need to purchase digital converter boxes. The remaining analogue signals would then be turned off at the set date in each region and continuing



information and assistance would be provided for some months after switchover is completed.

- 7.6 Although the broad outlines of the plan have been developed, more work needs to be done on determining the details. The switchover frequency plan has assumed that all 1,154 current analogue transmission sites will be converted to digital transmission. However, it has not yet been agreed that all of these sites will be converted or at what power levels the transmitters will work.

The need for active co-ordination

- 7.7 Digital switchover offers many widely dispersed benefits to UK households and the economy. Many consumers will benefit from being able to receive digital terrestrial signals for the first time, others will gain from being able to receive more digital services, broadcasters will benefit from eliminating dual transmission costs, manufacturers and retailers will be able to sell more digital receivers, operators of new services will be able to win access to released spectrum, and finally, the country's output will be boosted because a scarce resource – the radio spectrum – is used more productively.
- 7.8 The considerable transitional costs of switchover will be borne by a different range of people, primarily by some consumers who would not choose to purchase digital TV otherwise, and by the larger number of households who would not choose to convert secondary TV sets and video recorders.
- 7.9 If one party was able to capture most, or all, of the benefits of switchover, it could bear all the costs involved, e.g. by funding consumer equipment. For example, BSkyB was able to devote time, effort and expenditure to switching off its analogue services in the knowledge that it could capture the resulting benefits through the elimination of analogue transmission costs and through higher revenues from its enhanced digital pay TV

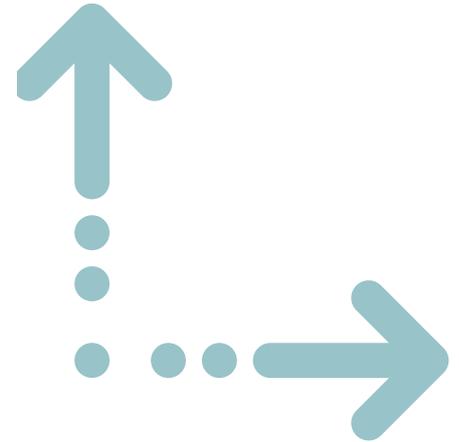
service. In the future, if spectrum pricing and spectrum trading were introduced into the part of the spectrum used by broadcasters, there could be a sharper incentive for broadcasters to drive switchover.

- 7.10 However, the current wide dispersal of both costs and benefits complicates the implementation of digital switchover. A serious co-ordination problem exists. Since there are so many interested parties in digital switchover, each with different costs and benefits from switchover, it would be difficult to establish a co-ordination mechanism which enabled them to share the costs among themselves. The result is that although switchover provides significant benefits to the UK as a whole, it is difficult to achieve without some degree of external intervention to resolve the problems of co-ordination. Given the importance of television to the UK population, until the co-ordination problem is addressed, switching off the analogue signal would entail significant practical and political risks.

Policy recommendations

Greater certainty over the timing of switchover

- 7.11 Though plans for the regional programme of switchover are well-advanced, decisions on the start and completion dates of switchover have yet to be taken.
- 7.12 By giving advance notice of the date for switchover, consumers would be able to make decisions about purchasing digital equipment without the uncertainty of not knowing when switchover was going to happen in their area. Advance notice is also necessary for other parties involved in implementing switchover: retailers would be able to make the necessary plans for marketing and providing consumer information; manufacturers would be able to invest in the production plant secure in the knowledge that substantial demand for digital converters was likely to exist; high-volume manufacturing would also contribute to falling retail equipment prices; and certainty would also help Ofcom in implementing the





regulatory framework for channel 3 digital replacement licences, digital terrestrial licences, the review of public service broadcasting, and spectrum pricing and spectrum trading.

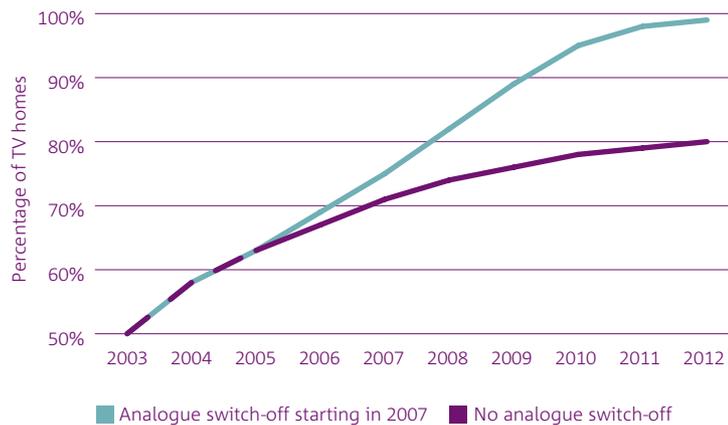
- 7.13 But an early announcement would also have risks. The most serious is the possibility of reinforcing negative consumer attitudes towards switchover before it becomes seen as a technological certainty.
- 7.14 It is a matter for Government to decide when it believes the benefits of certainty outweigh the potential negative reactions of the declining number of analogue households. But with the majority of households already having access to digital television, the foundations for an announcement of a timetable have already been laid.
- 7.15 In Ofcom's view, an announcement of a timetable would significantly extend digital penetration in the UK and would help allow full digital switchover to be achieved by the end of 2010 – if the Government, after consultation, decided that this was the appropriate date. This notification is, in itself, likely to have a significant impact on digital take-up. Recent consumer research conducted for the DTI²² indicates that many current analogue households are prepared to purchase digital TV receivers provided they know that digital switchover is imminent. Up to 15 per cent of households who would otherwise not obtain digital TV would convert once they knew the timetable for switchover, although most of these say they would only acquire digital TV in the year immediately prior to the analogue terrestrial signal being switched off.
- 7.16 Chart 7.1 shows the sensitivity of Ofcom's forecasting model to an announcement of a firm date for switchover completion. The analogue switch-off curve shows digital penetration reaching 67 per cent prior to the beginning of regional switch-off in 2007 and 99 per cent after switch-off had been completed. Though consumer research showed that five per

22 Attitudes to digital switchover, March 2004

cent of households currently say they would prefer to forego TV rather than convert their sets to digital, we believe these attitudes would be bound to change as the switchover date came closer.

Chart 7.1: Switchover with date announced, and regional switchover starting in 2007

Source: Ofcom Projections



7.17 The date chosen for completing switchover in each region needs to be considered carefully. In deciding the date for completion the Government should remember that most of the existing analogue transmission equipment will near the end of its useful life in the next decade or so. If digital switchover does not occur, this equipment may need to be replaced, quite possibly at the same time as new digital transmitters are being installed. In order to avoid both sets of costs, Ofcom recommends that switchover is not delayed substantially so that it would fall beyond the reasonable lifespan of existing analogue transmission equipment.



Use the regulatory framework to help drive switchover

- 7.18 One of Ofcom's tasks in 2004-05 is to drive digital switchover, so ensuring a more efficient and effective use of the electro-magnetic spectrum. Ofcom therefore has a significant role to play in managing the regulatory framework to encourage digital TV adoption and removing some of the obstacles confronting switchover.
- 7.19 Although broadcasters should not necessarily manage the process of implementing switchover themselves, it is reasonable to expect them to make a fair contribution, particularly by extending digital terrestrial coverage and availability nationwide and by ensuring viewers are properly informed about switchover and its implications for them. Ofcom will consider policy measures which will provide broadcasters with clear incentives to support the goal of switchover.
- 7.20 Ofcom will seek commitments from broadcasters and may, for example, consider including appropriate and necessary additional obligations for nationwide digital TV rollout in the new digital public service broadcasting licences, due to be issued by the end of 2004. Where appropriate Ofcom will seek to take account of investments made to fulfil this objective. A market review of the broadcasting transmission market is underway. Ofcom has powers to ensure effective competition in this market and we will seek to ensure that an agreement to extend DTT transmission networks does not result in broadcasters being charged excessive prices.
- 7.21 Ofcom will consider imposing spectrum pricing to sharpen incentives to promote switchover. Channel 3 licensees and Five already pay for their licences to broadcast, which include an implicit charge for spectrum. Ofcom will ensure that licensees do not pay twice for the same spectrum. If spectrum pricing is introduced, charges could apply for the first time to the BBC, Channel 4 and S4C from 2006.

7.22 The proposal to extend spectrum pricing to broadcasters was first proposed by the Review of Radio Spectrum Management, conducted by Professor Martin Cave²³. In its response²⁴ to the review the Government said that any proposals to extend pricing to broadcasters would take into account the following:

- the effect of the proposals on the actions that broadcasters can take to make progress towards early achievement of the conditions for digital switchover;
- the ability of broadcasters to meet their public service obligations; and,
- the need for the charging proposals to be based on incentives that work in practice and to have a material effect on the broadcasters in enhancing spectrum efficiency.

7.23 Ofcom will consider how to introduce spectrum pricing for broadcasting in accordance with the Government's response to the Cave review and will consult on any such proposals separately.

7.24 Ofcom also recognises that there is a trade-off between achieving the required universal coverage of the public service channels and the channel capacity of the digital multiplexes. This issue is discussed in the following subsection.

7.25 Some of the new and potential obligations could raise costs for commercial broadcasters. Ofcom will seek to recognise the investments made to further switchover where appropriate.

7.26 The Government should encourage the BBC to develop parallel proposals consistent with this approach. Ofcom recommends that as part of the

Ofcom will consider how to introduce spectrum pricing for broadcasting in accordance with the Government's response to the Cave review and will consult on any such proposals separately.

²³ Review of radio spectrum management, March 2002. Department of Trade and Industry and HM Treasury

²⁴ Government response to the independent review of radio spectrum management, October 2002



BBC's Royal Charter review, the Government adds the following specific obligations to the BBC's current requirement to promote digital television:

- the BBC should roll-out digital transmission nationwide;
- it should continue to ensure that viewers can receive its TV channels on the free-to-air satellite platform;
- it should provide public information about digital television and switchover; and
- it should provide on-air marketing of digital TV on a platform-neutral basis.

Free-to-view digital satellite could play an important role in increasing take-up among those who do not want pay TV. In non-DTT areas, it is the only option.

Improve access to free-to-view digital TV

- 7.27 Only around three-quarters of households can currently receive a reliable digital terrestrial signal, so the initial emphasis should be on attempting to provide free-to-view digital options to households in non-DTT areas. This will primarily involve development of the free-to-view satellite platform.
- 7.28 Until switchover, free-to-view digital satellite could play an important role in increasing take-up among those who do not want pay TV. In non-DTT areas, it is the only option. But free-to-view access to all the public service broadcasters is currently not possible on digital satellite. Ofcom will consider whether regulatory intervention is needed to secure a viable free-to-view satellite proposition before switchover. The cost of any action would fall primarily on public service broadcasters.
- 7.29 The Government should also continue its efforts to remove the coverage barriers which hinder other digital platforms and slow progress towards switchover, for example, planning restrictions which prevent the erection of satellite dishes on certain buildings.
- 7.30 Once switchover is underway, the DTT signal can be boosted and many of the current free-to-view coverage problems will be eliminated. Ofcom intends to consider whether additional duties are required to oblige commercial terrestrial broadcasters to extend digital coverage nationwide,

and recommends that the BBC is put under a clear obligation of this nature following the completion of the charter review process.

- 7.31 However, transmission power cannot be boosted at will, even after switchover, due to international agreements which protect against interference. Even operating at the maximum power limit, it currently appears possible that achieving universal coverage will require the use of a lower capacity transmission mode for the multiplexes carrying public service broadcasting channels.
- 7.32 A difficult trade off exists between coverage and the efficiency of spectrum use in the DTT signal. For any given level of transmission power, the higher is the coverage of the signal, the fewer channels can be carried on each multiplex. This reduces the attraction of digital terrestrial television for consumers and potentially its commercial viability for some broadcasters. If one technical standard for transmitting DTT pictures (16QAM²⁵ – rate 3/4) is chosen, a higher level of coverage is possible than the alternative technical standard (64QAM – rate 2/3). But the result of using the more robust technology is that fewer channels would be available to consumers: under 16QAM, roughly four TV channels can be squeezed into the same amount of spectrum as six TV channels using the 64QAM mode.
- 7.33 Depending on the broadcasters' choice of DTT transmission mode, further measures may need to be considered to ensure that all households can receive the public service broadcasts on the satellite platform, including using the must-provide provisions of the Communications Act. Ofcom has the potential power to oblige certain named broadcasters to provide the means to receive public service broadcasting services when households cannot otherwise receive them to an acceptable technical standard. It could mean that these named broadcasters might be obliged

25 Quadrature Amplitude Modulation



to supply the necessary satellite decryption card to households which lost analogue reception and were not able to receive an adequate DTT signal after switchover.

For switchover to be achieved, a body properly focused on co-ordination and implementation will be required.

Provide information and advice for consumers

- 7.34 Switchover will simply not be possible unless consumers are persuaded of its benefits. Therefore, a mass national advertising campaign should explain to all households that switchover is coming and should attempt to build public support for the objective. This should be followed by specific information for each household to inform everyone of the switchover timetable in their region. A new consumer labelling scheme should also be introduced to warn consumers that unconverted analogue equipment will not function past a set date. This needs to be implemented with the support of manufacturers and retailers.
- 7.35 Consumers will require further reliable support and information to make the right purchasing choices in the run-up to switchover. A regional communications campaign in the immediate run-up to analogue switch-off will need to be developed with specially tailored advice for households who are not be able to receive digital terrestrial signals until switchover starts. After switchover is completed, continuing support will also need to be offered to consumers who remain hesitant or confused about the conversion to digital. The lesson from the Channel 5 video retuning is that providing support in people's homes must be planned carefully because it can prove difficult, expensive and time-consuming.

A move from planning to implementation

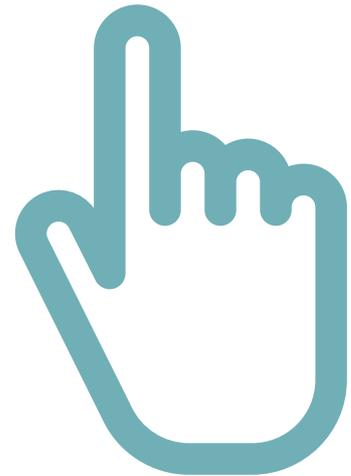
- 7.36 For switchover to be achieved, a body properly focused on co-ordination and implementation will be required. The importance of effective management was amply demonstrated in other successful projects involving big changes for consumers, such as Berlin's digital switchover in 2003, London's congestion charge in February 2003, and the introduction of euro notes and coins across the eurozone in January 2002.

- 7.37 One option would be a Government-led confederation of all the main stakeholders. Essentially, this would be a further iteration of the existing Digital TV Action Plan. Such a body would have the advantage of being able to involve all the important parties, but at the risk of not having central direction to focus on the important implementation tasks ahead.
- 7.38 Another option would be to hand the responsibility for completing switchover to broadcasters, either collectively or to the BBC on its own. Broadcasters have an important advantage over other bodies in being able to reach viewers through their broadcasts.
- 7.39 But agreement between the broadcasters is a pre-requisite of a successful implementation programme and this may be impossible to achieve given that they have diverse and competing interests. If left to agree and implement a switchover programme, broadcasters are likely to find it difficult to find the necessary degree of consensus. It may also be difficult for a body led by broadcasters to maintain the necessary degree of neutrality between different digital platforms, especially given that the BBC is involved in the consortium which operates Freeview.
- 7.40 Ofcom considers therefore that the most preferable option is a body focused entirely on co-ordinating the various players, communicating the benefits and practicalities of switchover to consumers and bringing digital take-up to a level which allows switchover to be implemented.
- 7.41 This organisation, termed ‘SwitchCo’ for simplicity, should be sufficiently independent of broadcasters, Government and the regulator, although all would need to remain involved and must agree to its role and remit. Sufficient independence for SwitchCo is necessary to avoid any conflicts of interest and to ensure neutrality between the digital satellite, digital cable and digital terrestrial platforms.
- 7.42 Given its statutory responsibilities in a number of important areas – from spectrum management to broadcast licensing – Ofcom would need to play an important role. Other parties, including manufacturers, retailers



and consumer groups, would also need to keep in regular contact with SwitchCo, and be part of its governance arrangements. But SwitchCo should, above all, assume the public role of implementation with all of its activities being directed towards a very clear and simple objective: to achieve switchover by a set date.

- 7.43 One possibility for the governance and funding of SwitchCo is that it could be constituted along the lines of the London's 2012 Olympic bid, where the three important stakeholders have two representatives each on the board. These representative members on the board remain in the minority, however. See Box 7.1 for more details of the delivery vehicle set up in August 2003 for London's Olympic bid.
- 7.44 SwitchCo's role should include:
- highlighting the benefits of switchover to consumers;
 - communicating and marketing the timetable and the practicalities of switchover to consumers;
 - providing support to consumers during the period of switchover;
 - co-ordinating progress on the usability and ease of installation of digital equipment;
 - ensuring clear labelling of consumer products in the run-up to switchover;
 - liaising with Government, Ofcom, transmission companies and the broadcasters in their areas of responsibility;
 - reporting on progress made by each of the relevant parties; and,
 - working to maximise the range of digital options for consumers in the run-up to switchover on a platform-neutral basis.
- 7.45 The Government, in collaboration with broadcasters and Ofcom, should ensure SwitchCo is an adequately resourced body, which can gain the confidence of all parties. SwitchCo will require funding for running costs, marketing expenditure and consumer support around switchover. Funding could come from a number of potential sources including direct public expenditure, foregone future public receipts from broadcasting activities,



an element of the TV licence fee, or private finance funded by foregone future spectrum revenues.

- 7.46 Government should consult on the precise funding options. Since the economy as a whole is the main beneficiary of switchover, the funding mechanism should not put a disproportionate burden on any interested party. The Government should also consider whether it is possible to include clear financial incentives to implement switchover in SwitchCo's funding formula.



Box 7.1: London's Olympic bid for 2012

One example of a body which is bringing together diverse parties with different interests in a way which is aimed at achieving a specific target is London 2012, a company set up to prepare and submit London's Olympic bid. It was established following an agreement between the Government, the Mayor of London and the British Olympic Association (BOA).

Rationale

After an examination of the costs and benefits of bidding for the Olympic Games, the Government decided that it would back a bid by the British Olympic Association to the International Olympic Committee to host the Games in 2012.

Constitution

A company, limited by guarantee, to prepare and submit the bid, London 2012, was set up following an agreement between the main stakeholders: the Government, the Mayor of London and the BOA. The company was formally established on 19 August 2003. Barbara Cassani, former chief executive of the airline Go, was appointed as Chair of the bid company and the Chief Executive is Keith Mills, the founder of the loyalty schemes Air Miles and Nectar. The board running the company contains two representatives of each of the three stakeholders and also brings together both proven business acumen and sporting achievement.

Funding

The Government decided to fund the bid as a result of the economic and social benefits resulting from hosting the Olympics. London 2012 has up to £20m of public funds available to them for the bidding period. It also aims to secure significant amounts from business and corporate supporters.



Address affordability issues

- 7.47 The previous policy proposals would increase the rate and extent of digital adoption. But even if digital adoption rates are very high, the cost of conversion to digital may remain a significant barrier for some households and risks leaving a few households excluded from television after switchover.
- 7.48 The penetration of digital TV currently rises with household income. Evidence from the Office for National Statistics²⁶ shows that less than a quarter of the lowest income households have access to multichannel TV compared with around 60 per cent of the highest income households. Chart 7.2 shows the penetration of multichannel TV across the income distribution, ranging from the ten per cent of households with the lowest gross incomes (the bottom gross income decile) to the ten per cent of households with the highest gross incomes (the top gross income decile).
- 7.49 One of the original Government criteria for achieving switchover was to ensure digital TV was affordable. Although some households express cost as a barrier for not converting to digital, this may be due to a misapprehension of the actual cost, which is relatively small for the vast majority of households.
- 7.50 If switchover occurred this year, the transitional burden would fall disproportionately on the 30 per cent of households with the lowest incomes: relative to higher income households, they have a lower rate of digital TV penetration; and the cost of a digital set-top box would represent a considerably larger proportion of their annual expenditure. If a set-top box cost £50, Chart 7.3 shows the proportion of each gross income decile's annual expenditure that would need to be spent on a converter box. It shows that the burden of converting households' primary TV sets to digital would represent only 0.5 per cent of annual expenditure for the bottom decile and less than 0.05 per cent of annual expenditure for the top decile.

If switchover occurred this year, the transitional burden would fall disproportionately on the 30 per cent of households with the lowest incomes.

²⁶ Expenditure and food survey, 2002–03

Chart 7.2: The penetration of multichannel TV across the income distribution in 2002–03

Source: ONS

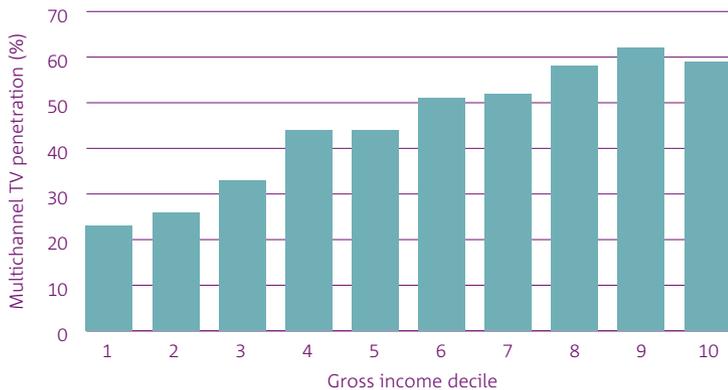
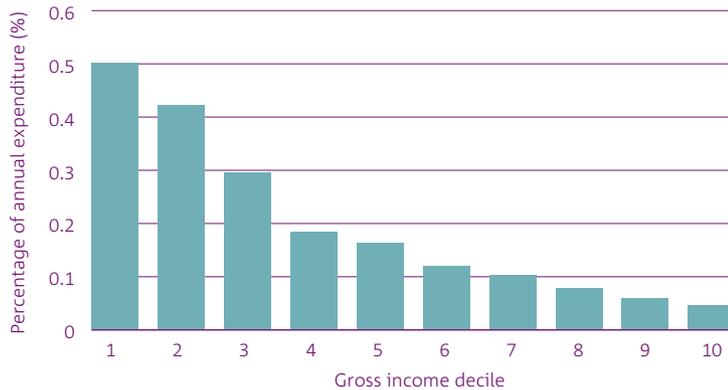


Chart 7.3: The distribution of the transitional costs of switchover in 2002-03

Source: Ofcom calculations based on ONS data





- 7.51 These typical transitional costs would be affordable for the vast majority of households and need not be a great barrier to switchover: the cost of a basic converter box in 2004 is already less than half the cost of the annual TV licence fee; the relative burden is likely to fall over time as the price of converters drops; and digital penetration is likely to rise significantly before switchover. Some households, however, will face a higher burden if, for example, they need to install a new aerial or a satellite dish after switchover to receive an adequate digital picture.
- 7.52 However, by the time of switchover, a residual affordability problem is all that is likely to remain for the initial conversion of households' primary sets to digital TV. A wider number of households will need to convert secondary sets and video recorders. Any financial support would reduce consumer resistance to switchover although decisions on financial support need not be taken immediately, since the design of any appropriate financial support would depend on the nature of the transitional costs at the time of switchover. The experience of Berlin suggests that the costs of any financial support need not be high.
- 7.53 To avoid the danger that households might wait until the last minute in the hope of receiving financial support, any scheme should be available to all qualifying households rather than just the remaining analogue households. The Government should therefore consider the costs and benefits of offering limited financial assistance to particular groups, similar to the free licence fee scheme for over 75s.

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Seeking permission to use cleared spectrum to the greatest benefit

- 7.54 The UK's strategy for the TV spectrum should be to seek full protection of the UK's digital television switchover plan. It should also seek to protect future UK use of the released spectrum and any additional interleaved spectrum which is viable after switchover.
- 7.55 If a relaxation in the definition of uses for the TV spectrum can be agreed at the 2007 and 2010 World Radiocommunications Conferences, it is possible that released spectrum could be used for a wider variety of services than are currently envisaged. This would result in greater efficiency of spectrum use and higher rates of economic activity. However, there is considerable uncertainty in whether any changes will be agreed within this timetable.
- 7.56 After a firm timetable for switchover is set, Ofcom may decide to delay the licensing of this spectrum until international agreement can be obtained to more flexible use of the spectrum. The trade-off is that any delay would potentially maximise the benefits to the UK, but early licensing of the spectrum for broadcast services would guarantee economic use of the released spectrum as quickly as possible.



Summary of obstacles and policy recommendations

7.57 Table 7.1 summarises the obstacles to switchover, the proposed policy solutions to each obstacle and a list of indicators to analyse progress.

Table 7.1: Summary of obstacles to switchover, proposed policy solutions and indicators of progress

Obstacle	Policy recommendations	Indicators
Consumer take-up	<ul style="list-style-type: none"> • Greater certainty over switchover timing • Improve access to free-to-view digital TV • Provide information and advice to consumers • Address affordability issues 	<ul style="list-style-type: none"> • Active consumer resistance measured at five per cent of households • Ofcom forecast of 78 per cent digital penetration by 2010 • DTT coverage rate before switchover • Number of outstanding analogue devices to be converted • Proportion of new TV sales which are digital • The existence of a clear timetable for switchover
Broadcaster incentives and obligations	<ul style="list-style-type: none"> • Greater certainty over switchover timing • Use the regulatory framework to help drive switchover • A move from planning to implementation 	<ul style="list-style-type: none"> • The existence of a clear timetable for switchover • Regulation to focus incentives for switchover • Broadcaster commitment to switchover • Firm plans in place for digital transmissions • On-screen marketing for digital services secured
Free-to-view digital TV	<ul style="list-style-type: none"> • Use the regulatory framework to help drive switchover • Improve access to free-to-view digital TV 	<ul style="list-style-type: none"> • DTT coverage levels before and after switchover • Availability and marketing of free-to-view satellite services for all public service broadcasters
Timing issues	<ul style="list-style-type: none"> • Greater certainty over switchover timing • A move from planning to implementation 	<ul style="list-style-type: none"> • A clear timetable for switchover • The establishment of an implementation vehicle for switchover
Implementation of switchover	<ul style="list-style-type: none"> • Greater certainty over switchover timing • A move from planning to implementation 	<ul style="list-style-type: none"> • The establishment of a body solely committed to achieving switchover • A detailed and active plan to implement switchover • A firm and credible timetable of switchover
International agreements	<ul style="list-style-type: none"> • Seeking permission to use cleared spectrum to the greatest benefit 	<ul style="list-style-type: none"> • Agreements secured on the use of the TV spectrum after switchover

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