

THE ROLE OF INTEGRATED DIGITAL TELEVISION SETS IN ACHIEVING DIGITAL SWITCHOVER

Nearly everyone watches television. There are over 50 million working TV sets in the UK, every one of which includes an analogue decoder. Perhaps 500,000 of those sets also include a digital decoder, but without change none of the rest will be able to show television programmes when analogue terrestrial transmissions stop. Change can come in two ways: either a digital decoder has to be added to the TV set by plugging in a separate device (a “set top box”) or the old set has to be replaced by one which includes a digital decoder (an “integrated digital television”, iDTV).

This paper explores the role which iDTVs can play in achieving the switchover from analogue to digital broadcasting. It also considers options for accelerating the rate of replacement of analogue television sets with iDTVs, and invites views on the way forward.

Comments on this consultation should be received by 27 September 2002 and should be sent to

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Electronic versions would be appreciated. Responses will be published on the digital television website www.digitaltelevision.gov.uk except where respondents have specifically requested confidentiality. Any confidential parts of a response should be placed in a separate annex, so that non-confidential parts may be published with the author’s identity. If the whole of a response is confidential, including the identity of the respondent, this should be clearly stated. Copyright in responses will be assumed to be relinquished unless specifically retained.

Introduction

1. The Government stated in the White Paper *Opportunity for all in a world of change* published in February 2001 that “our aim is for the UK to have the most dynamic and competitive market for digital TV in the G7, as measured by take up, choice and cost.” It is also committed to ensuring that terrestrial analogue broadcasting signals are maintained until:
 - Everyone who can currently get the main public service broadcasting channels in analogue form can receive them on digital systems;
 - switching to digital is an affordable option for the vast majority of people
 - as a target indicator of affordability, 95% of consumers have access to digital equipment.

When these criteria were first announced in September 1999 the Government said that switchover could start to happen as early as 2006 and be completed by 2010. This remains the case. The Digital Television Action Plan maps the way towards achieving these aims.

2. For the consumer, the issues can be summed up as having services that they want, transmitted to them reliably by one means or another for reception on equipment that they want, is easy to use and can afford. This paper focuses on the last of those elements – the receiver – and in particular on the role that integrated digital television sets might play in achieving switchover.

The receiver market

3. In nearly every home in the UK there is a television set. In the majority of homes there are two or more sets. Then there are televisions in hotels, conference centres, pubs, libraries, schools, prisons, hospitals, places of work. We do not have a firm figure for the total but it seems likely that there are at least 50 million tv sets in use. Every one of those sets is designed to receive analogue terrestrial transmissions and to translate them into pictures on the screen and accompanying sound.
4. Today’s televisions are highly reliable. Most people only replace their main television every 8-10 years, and even then the old set may often be put to use in another room. We can reasonably expect that virtually every set bought today – indeed every set that has been bought since digital broadcasts started in 1998 - will still be in good working order by 2006.
5. When digital television transmissions started, manufacturers produced two kinds of digital receivers. They either put the digital decoder inside the television set, or they produced a box with a separate tuner and digital decoder which could be plugged into any analogue television set. Both products were available when digital services were launched in autumn 1998. But the retail market for those products has not developed.
6. From the start, BSkyB on the satellite platform, ntl and Telewest on the cable platform, and ONdigital – later ITVdigital – on the terrestrial platform chose to provide the option of a set top box as part of their subscription package. This

made sense as a means of helping viewers to take a package of digital services without having to buy a new television. But within a year, BSkyB decided to offer the set top box (and the satellite antenna) “free” within the subscription charge on the basis that they would be able to recover the cost through the monthly subscription payments for packages of services. ONdigital responded by matching the offer. As a result viewers overwhelmingly took up the offer of a “free” set top box. Availability and demand for set top boxes for retail purchase dried up, and few viewers saw a reason to pay the premium required to buy an iDTV.

7. Now, in 2002, the market is changing. Pace has launched its set top box for retail sale, and other manufacturers such as Grundig are following suit. This will give consumers the opportunity to watch the free-to-view digital services for a relatively small initial outlay and without a continuing subscription charge to a pay-tv operator. It will offer an affordable means of watching free-to-view digital services on second and third sets, and may provide a base from which viewers progress to pay services when they wish.
8. Sales of iDTVs are increasing but from a low base. In 2001, Intellect (the trade association which includes television manufacturers) record that 6.3 million televisions were sold in the UK of which 112,000 were iDTVs. In 2000 the comparable figures were 6.2 million sets of which 94,000 were iDTVs. Among widescreen sets (and almost all iDTVs are 28” or larger widescreen sets) iDTVs formed around 6% of sales in 2001. This overall figure disguises two peaks in sales – in April following the launch of the campaign identifying the DVB logo with sets including a digital decoder, and in December when the DVB logo was again promoted and Sony raised awareness with a television advertising campaign for its iDTVs.

The consumer perspective

9. To watch digital services the viewer needs a digital decoder. That decoder can either be included inside a television set, or it can be in a separate box. Whichever way it is packaged, the (MPEG2) decoder is the same. This applies to all platforms – cable, satellite, terrestrial, and transmission over the telephone network – although, because each platform uses a specific variant of the DVB standard for its front end (tuner etc), a separate set top box is required for each. These standards have been stable since 1998.
10. The consumer wishing to gain access to digital TV services can choose to buy or hire an iDTV or use a set top box in conjunction with an analogue TV or monitor. The relative merits of each approach depend very much on the digital services desired, the receivers already in the consumer’s home, and the availability of equipment on the market. A comparison between the two approaches is given below.

IDTVs	Set Top Boxes
<i>Advantages</i>	<i>Advantages</i>
Relies on standard television housing	Small enough to be used with most existing tv sets
Uses same remote control for analogue and digital services	Can be used with analogue TV sets and any monitor with a suitable connector
Gives better picture quality/ reliability than STB + analogue TV	Cheaper than an idtv
<i>Disadvantages</i>	<i>Disadvantages</i>
Current sets too big for many rooms	Requires own housing, tuner, cabling and power supply
High price	Needs own remote control in addition to that for television
Can be difficult to upgrade software	STB + TV uses more energy than TV alone

11. There is a second set of issues which relates to the way that different platform operators have chosen to market their services. There were at one time iDTVs on the market with the satellite front end but at present there are none. No sets with cable front ends have been produced. In practice all iDTVs provide terrestrial reception only and the range is currently limited to large widescreen sets. This contrasts with the situation for set top boxes where versions for all platforms are in production. Free-to-view set top boxes are currently available for satellite reception and for terrestrial reception. There are currently no free-to-view cable or DSL services available.
12. Consumers choosing subscription services are offered different packages. Their ability to receive the services for which they have subscribed is controlled by a conditional access system. Access to some free-to-view services may also need to be controlled where the distribution means would otherwise allow the service to be received by those who have no right to view, or by those to whom the broadcaster has no right to deliver the service. For example, the right to view certain sporting events is negotiated between broadcasters (such as the BBC) and the event's rights holder but transmission over a third party's network (such as a satellite operator) requires that there is some means of limiting access to that broadcaster's viewers. It is possible to produce iDTVs and set top boxes that include the conditional access decoding system for any of the platforms. However, the iDTVs currently on the market which incorporate a conditional access decoding system are all terrestrial-only. Furthermore, the only plug-in conditional access module available for iDTVs is also for terrestrial pay-TV.
13. Consumers will benefit from competition on price and in innovation. The UK market for digital receivers, still less than four years old, has plenty of scope to develop with a range of set top boxes and of iDTVs with different features and spanning a wide price range. As other countries in Europe launch and expand their digital television services, the market for receivers including digital decoders is expected to expand enormously. Manufacturers will increasingly produce goods to suit the European market and will be less swayed by the particular

structure of the UK market. It seems reasonable to expect that iDTVs for the satellite platform will become available, and possibly for cable.

The manufacturers' perspective

14. The UK leads Europe in the roll out and take up of digital television. This means consumers in the UK are already enjoying the quality and variety of digital television services to a higher degree than other Europeans. It also means that broadcasters in the rest of Europe are closely observing the progress of the UK broadcasters. Pay tv operators are looking to find the winning approach of maximising revenue from customers, and seeking to avoid becoming overly reliant on the provision of subsidised receivers. (There are parallels here with the mobile market).
15. The indications are that a retail market will develop across Europe in both iDTVs and in set top boxes. This presents manufacturers with a significant opportunity to work within the single European market to produce digital products. But they face a dilemma: with analogue-only sets selling so well, particularly high margin widescreen sets, should they switch into iDTVs?
16. There is no call at present for digital-only sets. Analogue terrestrial transmissions are available over virtually the whole of the UK and continue to be used extensively even in digital households. Many digital viewers will revert to analogue from time to time, if only to record a programme on the (analogue) VCR. Because the digital decoder in iDTVs is an additional feature, rather than a replacement, it adds to the cost of manufacture. Typically the digital+analogue equivalent of an analogue-only model currently costs around £100 more. Partly this reflects the poor economies of scale in the relatively low numbers of iDTVs produced and could be expected to diminish rapidly if production switched out of analogue-only into digital sets.
17. Manufacturers share with retailers the wish that when a product is sold, it stays sold, and does not get returned as faulty or unusable. Because the iDTVs currently available have a terrestrial decoder, any problem with the digital terrestrial coverage can render the digital side of the set unusable. As terrestrial coverage improves in extent and reliability, the problem of returns due to coverage limitations should dwindle. For now many manufacturers prefer to focus on analogue sets that stay sold.
18. But manufacturers are developing their investment plans for the future. Some have said that if they knew that from a certain date there would be no more analogue terrestrial transmissions, then they would produce sets with digital decoders to bridge the transition. It is perhaps worth noting that Italy has indeed produced legislation requiring analogue terrestrial transmissions to stop by 31 December 2006, but the market has not yet responded in any noticeable way.
19. Since switch-off is likely to happen at different times across Europe, some manufacturers have also suggested that they would find it helpful for a date to be set after which only sets including a digital decoder could be sold. They argue that such a date should be set in law so as to avoid some manufacturers choosing

to continue to sell analogue-only sets at lower prices. Since the analogue standard would continue to be lawful in order to support analogue broadcasts until all broadcasters and administrations were prepared to switch off, there would continue to be a potential market for analogue sets. With a date after which only sets including digital decoders could be sold, manufacturers could switch production to iDTVs with confidence. Arguably the choice of date would not be critical – it could be several years in the future. But the certainty of the change would underpin the investment by the manufacturers. However there are risks to intervening in the market by setting such a date, particularly if this tends to favour one market model or the technology choice made by one operator over another.

20. It is in the interests of the European market for manufacturers based here to develop products for the digital age. The global market for products using DVB technology is already very large. If all products which include a PAL or SECAM decoder had in addition to include a digital decoder, the premium for providing this additional facility - for televisions of all sizes and VCRs - should drop rapidly. Consumers could end up paying less for their digital receivers than if the market was left to develop undisturbed. This assumes that manufacturers of iDTVs would pass on the cost savings through reduced prices to consumers, but it is possible that they would wish to keep prices high to signal that iDTVs (or at least widescreen iDTVs) were premium products.
21. There is a possible danger in focusing on the products with which we are currently familiar – iDTVs and set top boxes. The shape of televisions is changing, with flat screen displays and plasmas becoming more available. A growing number of people watch digital television through their PC by putting a graphics card (for terrestrial, cable or satellite) in the PC and viewing on the monitor. Our aim is to encourage the market to be dynamic and competitive, and to avoid taking steps that would deter innovation or add to cost.

The bigger picture

22. In the UK we have the basis for a dynamic and competitive market. We have three competing platforms (cable, satellite and terrestrial) with a fourth – DSL – beginning to make a mark. We have competing programme makers and broadcasters. We have a choice of free-to-view and pay-TV services. We have a number of manufacturers producing a range of iDTVs and set top boxes (including personal video recorders) supplied through various retail outlets as well as available direct from broadcasters.
23. Critically we have all this while analogue terrestrial services are still available. BSkyB have now switched off their analogue services but operated both analogue and digital for three years. The cable companies are managing switchover to their own timescales. And for terrestrial the public service broadcasters have been simulcasting their services since 1998 and will continue to do so until the Government decides that the analogue services can cease.
24. This means that free-to-view consumers in the UK can make their decision to switch to digital services when they decide that the digital content is something that they want. They do not lose the (analogue terrestrial) free-to-view services

which they are used to, and the additional digital services provide an incentive to switch. When the criteria set in 1999 have been met, the Government can decide whether analogue terrestrial transmissions should stop. The switchover process is essentially market driven.

25. This will not be the case in a number of other countries. Some do not have sufficient available UHF spectrum to simulcast analogue services in digital format. These services will not be able to be provided as digital terrestrial services until switching off the analogue services frees up spectrum. Without a simulcast capability (and without a sufficiently attractive additional bouquet of digital-only services) consumers have very little incentive to buy a terrestrial iDTV (or a terrestrial set top box). But without digital services being readily available to *all* the TV sets and VCRs used in the home, it would be very difficult to switch off the analogue terrestrial broadcasts (unless an administration was prepared to rely on cable and satellite services).
26. In all European countries, sales of analogue-only sets currently continue to massively outstrip the sales of iDTVs. In all countries this is likely to make switchover more protracted and expensive. In some countries it is likely to prevent switchover for the foreseeable future.

Options for achieving the aims for digital television using iDTVs

27. We can achieve analogue switch-off in the UK without taking any specific action on iDTVs. However by encouraging sales of televisions that already include a digital decoder we may be able to reap the benefits of switchover sooner. Digital broadcasting uses the radio spectrum more efficiently than analogue broadcasting, freeing up spectrum for more services (broadcasting or otherwise) potentially of benefit for both consumers and producers. Our ability in the UK to use the spectrum freed up by switching off analogue television is likely to be enhanced if other European countries also free up that spectrum. The UK therefore has an interest in taking any measures that not only facilitate the take up of digital services in the UK but also across Europe.
28. There are different ways in which it might be possible to encourage the buying of iDTVs across Europe and in the UK so as to promote the take-up of digital television.

Concordat between manufacturers

29. There are more than a dozen manufacturers of television sets currently selling in the UK market. A number have said that it would make sense for them to stop making large widescreen analogue-only sets in the next two years. This would free up production lines to manufacture iDTVs in numbers that would reduce significantly the cost difference between an analogue-only set and an iDTV of similar specification. If manufacturers see this as the logical way forward, a concordat between them might give them the confidence to do so. Any such agreement, if it prevented, restricted or distorted competition, might infringe competition law but could still be permitted if it brought wider benefits. Manufacturers have not indicated that they have any plans in the near term for

producing small iDTVs, so it is likely that any agreement would only apply to widescreen sets, at least initially.

30. Any concordat would have to comply with Competition law. The Competition Act 1998 and Article 81 of the EC Treaty prohibit agreements between undertakings that have the object of preventing, restricting or distorting competition. It is a matter for the Office of Fair Trading or, in the case of agreements which affect trade between EU member states, the European Commission, to determine whether an agreement infringes the Competition Act or Article 81, respectively. If it does, the OFT or European Commission, as appropriate, can grant an exemption where it can be shown that the agreement contributes to improving production or distribution, or to promoting technical or economic progress, and allows consumers a fair share of the resulting benefit, provided that all restrictions it contains are indispensable and that the agreement does not eliminate competition in respect of a substantial part of the products concerned.

Possible advantages:

- Consumers intending to buy a widescreen television would not pay for a set which could not receive broadcasts after analogue switch-off without a further purchase
- Consumers who had not been attracted to the digital free-to-view services at the time of purchase could receive them whenever they wished
- Manufacturers could invest with greater confidence in production of iDTVs and would no longer have to run analogue-only lines
- Retailers would no longer have to carry stock of both analogue-only and iDTV sets and explain the difference between them, potentially confusing purchasers
- UK economy would benefit from increased take-up of digital reception: more consumers would be ready to take digital services and the access criterion for analogue terrestrial switch-off would be met earlier
- Could be achieved as soon as manufacturers were prepared to make agreement (no legislation or regulatory approval required)

Possible disadvantages:

- Consumers who buy widescreen televisions would have to pay more even in areas where no digital free-to-view services are available at the time
- Manufacturers face risk from companies not party to the concordat undercutting prices with analogue-only sets
- If aware of the policy, consumers might adjust their purchasing pattern of sets leading to a surge in analogue purchases

Ensuring TV receivers include a digital decoder

31. The Government has set the aim of having the most dynamic and competitive market for digital TV in the G7 because it believes that this is in the interests of the UK as a whole. Similarly it has set criteria which must be met before the analogue terrestrial transmissions can be switched off on the understanding that there are significant economic and social benefits from being able to reuse the spectrum currently supporting analogue television. The Digital Television Action plan provides for a cost benefit analysis to examine these.

32. Some players in the digital television industry have suggested that taking steps to increase the number of digital televisions in use by ensuring that all, say, wide screen sets include a digital decoder could be a legitimate means of bringing forward those benefits. But such a move would only work if
- it had the full agreement of the manufacturers
 - the price reduction achieved by the economies of scale of producing only iDTVs and not the analogue-only equivalents as well were substantial
 - it did not distort the market between platforms
 - it was pan-european.
33. The only lawful way for sets (of any category) to be made to include a digital decoder is for this to be applied across the EU. Article 15 of the new Framework Directive allows the European Commission to make proposals for common use of standards, and, where interoperability is not assured, to mandate them. If the Commission were persuaded that such a measure was proportionate and non-discriminatory, they could require that from a certain date all receivers including a PAL/SECAM decoder must also include a DVB decoder. Such a measure would affect VCRs and all sizes of TV set. Variations of this basic proposal, limiting its impact but achieving some of the aims, could:
- allow for implementation at different times in different Member States (recognising the different states of development of the digital television market and the lack of any harmonised date for achieving analogue switch-off), or
 - restrict application to television sets above a certain screen size (as has happened before with other regulations concerning tvs).
34. Competition is generally more effective than regulation in ensuring that markets work properly. Any intervention by means of a European-wide requirement for all televisions (or all televisions of a certain size) to include a digital decoder would have to be proportionate to the anticipated benefit. This highlights the question of the value which the EU places on facilitating access for its citizens to education, information and entertainment through digital television. It also stimulates the debate about the value which the EU believes could be gained for its economies from the early reuse of spectrum currently used for analogue television.
35. To meet the non-discrimination test, any rule requiring the inclusion of a digital decoder would have to be done in such a way as not to favour any one platform over any other. Across Europe the importance of cable, satellite and terrestrial varies widely between Member States. Although in the UK only iDTVs with terrestrial front ends are currently available, it is quite reasonable to expect that iDTVs with satellite or cable front ends will be produced for other markets and become available for sale in the UK. In any event, the only receivers affected by would be those that would otherwise have a terrestrial analogue reception capability only. The use of set top boxes with TV sets would not be affected.
36. It is open to the Commission to make a proposal at any time that all sets contain a digital decoder. Discussion and agreement could take at least 12 months. The date or dates for implementation would form part of the discussions but would need to allow manufacturers sufficient time to make the change.

Possible advantages:

- Consumers intending to buy a widescreen television would not pay for a set which could not receive broadcasts after analogue switch-off without a further purchase
- Consumers who had not been attracted to the digital free-to-view services at the time of purchase could receive them whenever they wished
- Manufacturers could invest with greater confidence in production of iDTVs and would no longer have to run analogue-only lines
- Retailers would no longer have to carry stock of both analogue-only and iDTV sets and explain the difference between them, potentially confusing purchasers
- UK economy would benefit from increased take-up of digital access: more consumers would be ready to take digital services and the UK access criterion for analogue terrestrial switch-off would be met earlier
- Can create market conditions for switch-off across Europe, thereby increasing the utility and value of released spectrum
- It could stimulate the market across Europe for a range of ancillary digital products, including in-home network devices and personal video recorders, as use of digital services increases

Possible disadvantages:

- Consumers could have to pay more for a receiver even in areas where no digital free-to-view services are available at the time
- Some consumers, principally in countries where analogue transmissions are not switched off within ten years of the end of the sale of analogue-only sets, could pay for a digital decoder which they never use
- Regulation may affect market in unforeseen and unhelpful ways
- Regulation may increase demands for similar steps with other standards where case is less justified
- Goes against principle of reducing regulation and market intervention

Comments sought

37. There is a wide range of issues that relate to promoting effective competition in the provision of digital receivers. It may well be argued that it is difficult to focus on one sector of the market – iDTVs – without considering others, such as set top boxes. It is also difficult to look at the retail market, now and in the future, while much of the provision of digital decoders is bound up with subscription services from vertically integrated players. Some might also reasonably argue that it is premature to consider steps to accelerate take-up of digital services, and ultimately the end of analogue terrestrial transmissions. We are going to undertake a cost benefit analysis which will look at the case for acting to accelerate switchover but this will not be available until spring 2003.

38. The purpose of this consultation is to structure a debate on the role of iDTVs in achieving switchover. There are issues for Europe as a whole, as well as for the UK. We wish to be clear about what steps might be both practical and effective so that we can act swiftly and appropriately if action is supported by the cost benefit analysis. In the meanwhile, manufacturers can continue to develop their plans for investment informed by this ongoing debate.

We would welcome your answers to the following questions:

Q1 To what extent do you think consumers can benefit from having digital decoders included in television sets? Are some consumers, such as those with disabilities, particularly affected?

Q2 How far do you think iDTVs can contribute to encouraging take-up of digital services?

Q3 How far do you think iDTVs can contribute to reaching the point at which analogue terrestrial transmissions could be switched off in the UK? And in the rest of Europe?

Q4 How might we ensure that any proposal to make sets contain a digital decoder did not favour one platform over any other?

Q5 How might we ensure that any proposal to make sets contain a digital decoder was neutral with respect to the market models and technical choices made by individual service providers?

Q6 If there was a proposal to make sets contain a digital decoder, what conditions should apply? For example, should the proposal apply only to sets of a certain size, or including certain features, or from a certain date? Should it include all receivers (including VCRs) with a PAL or SECAM decoder?

General comments, particularly on possible effects on our aim for the UK to have the most dynamic and competitive market for digital TV in the G7, are also welcome.