IDATE
institut
de l’audiovisuel
et des télécommunications

Development of Digital TV in Europe

2000 Report

United Kingdom

Prepared by CDG

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1.UK Digital TV market overview

1.1 Roll-out of digital services

1.1.1 Satellite digital services

SkyDigital, operated by BSkyB, is the service which dominates the digital satellite direct-to-home TV market in the UK and Ireland. Launched in October 1998, SkyDigital reached 3.6 million subscribers by 30th June 2000 compared with 930,000 analogue satellite subscribers. There was record annual growth – with over one million new DTH subscribers in twelve months. This rapid growth in the number of digital subscribers, now 80% of satellite subscribers, led Sky to announce that it would be terminating the analogue service in summer 2001, a year earlier than planned.

SkyDigital subscribers

End- 98	End-June 99	End-June 00
225,000	753,000	3,600,000

The number of digital satellite subscribers looks set to continue to rise rapidly in response to a bold marketing campaign and given low prices to acquire the equipment and basic package. The churn rate for digital is very low at 3.5%. The rise of digital satellite has overshadowed the introduction of digital terrestrial and digital cable.

1.1.2 Cable digital services

The cable companies have continued to consolidate ownership – and there are now just two groups – NTL and Telewest. The cable companies wanted to roll out digital rapidly during 2000. However, the penetration of the digital market has been limited compared with the original expectations. By mid-2000 there were only around 250,000 digital cable subscribers.

The cable companies have been delayed in rolling out their digital services by a number of factors:

- the need to integrate their consolidated businesses: the building the physical infrastructure is complex and costly;
- the intervention of regulators and competition authorities introduced uncertainties as it was not clear for several months whether some deals could go ahead particularly NTL/Cable&Wireless and Telewest/Flextech;
- specifying the complexity of the technology (interactivity, bandwidth etc) before launching full scale;
- problems with set-top box manufacturing.

1.1.3 Digital terrestrial television

The digital terrestrial television (DTT) platform, Ondigital, is owned jointly by Carlton Communications and Granada Media Group. Ondigital had planned to gain 2M (8.3% of households) subscribers within three years – a target which now seems optimistic. The fundamental problem for ONdigital was the 'free' set-top box offer by Sky. Consumers have been persuaded by the greater number of services available on Sky together with the range of premium programming much of which is unavailable on terrestrial.

The penetration of DTT has also been held back by the lack of affordable integrated digital television sets (IDTVs). It had been hoped that consumers would automatically upgrade to digital when they bought a new TV set. However, the set-top box offer has reduced the commercial viability of IDTVs. Digital television in the UK market has been driven by payTV rather than by the TV replacement cycle.

As at 30 June 2000 Ondigital had signed up 774,000 customers, an increase of 15% since March 2000 and a three-fold increase in the year since 30 June 1999.

OnDigital subscribers

Launch to Q1 99	June 99	Sep 99	June 00
110,000	247,000	411,000	774,000

1.1.4 Situation of MMDS

The UK has not adopted MMDS technology as a platform for terrestrial television transmission.

1.1.5 Situation of ADSL

BT has been very active in promoting ADSL and ISDN services. This has been in response to the digitisation of the cable networks. ADSL technology has been rolled out very rapidly. Launched only in spring 2000, by June 2000 ADSL was available at about 500 local telephone exchanges covering around 35 per cent of British homes. BT intends to extend ADSL coverage to half of Britain's homes and businesses by the middle of 2001. The main drawback to ADSL is that its total penetration will be restricted to about 63% of the population. This is due to a physical limit on the distance between a household and a telephone exchange.

ADSL is available on a number of trials offered by the major Internet Service Providers (ISPs). A major attraction is the combination of ADSL with unmetered access for a fixed monthly fee of €80 - €160.

1.1.6 Market development

The UK digital television market is now in the fast growth stage. The pay-TV operators have been focused on selling premium services and connecting as many early households as possible through the offer of subsidised "free" STBs. The overriding priority for the main players has been to leverage the capacity and capabilities of their digital networks to increase their customer base as quickly as possible. Free-to-air digital television has not yet developed as a market given the high price of unsubsidised set-top boxes and integrated digital TV sets.

By the middle of 2000, the total number of digital television subscribers was 4.62 million (19% of TV households). The average number of new subscribers to digital across all platforms was 310,000 per month, with SkyDigital accounting for 250,000 of these.

The development of the digital television market must be seen in the context of a high level of consumer awareness of communications technology. There was an explosive growth in the usage of mobile telephones and the internet. This was spurred by very low prices. A significant milestone was reached during 2000 when over 50% of the population had mobile phones. The majority of the new users take prepaid tariffs where the cost of calls can be controlled. There was also an explosive growth in internet usage. Freeserve led the innovation of free ISPs in 1999 and rapidly became the largest ISP with 1.5 million subscribers. During 2000, the arrival of unmetered tariffs from BT (SurfTime) and the cable companies stimulated internet usage further, particularly for the residential and small business market.

The government has seen the digital television market as crucial to a number of public policy objectives. However, it is still unclear how far a competitive digital pay-TV market will not, in itself, achieve these public policy targets. According to research carried out for the BBC, digital pay television penetration is likely to plateau between 60 – 70 % of TV households. The residue of the population is either uninterested or too poor to afford digital pay television. They are happy with the current 4 or 5 channels they receive. The pay television platforms which subsidise digital receiving equipment, have no incentive to make the subsidised equipment available to such viewers.

Greater competition means more choice. On the other hand, viewers become consumers: they have to take responsibility for choices that regulators and broadcasters used to make on their behalf. Some policy makers argue that there is a problem of digital confusion – something not unique to television but also mobile phones and the internet. Many viewers do not yet understand competing digital propositions and will need time to adjust. They are unaware that some channels are available on all three platforms or – more importantly – that it is possible to get digital television without having to pay ongoing charges. A survey by Sony showed that 48 % of the population do not know what services are available through digital television other than standard, linear television channels. This confusion has resulted in part as a consequence of high spending, high profile marketing and retail campaigns on the parts of the pay television companies. These push the pay television element of digital.

The marketing message for digital tends to obscure the technical proposition (clear widescreen pictures, interactivity) with a commercial proposition (paying for TV) to which most consumers have been resistant for more than a decade. As a result, only 50,000 people have so far opted to go digital for free to air services only and many more have adopted a 'wait and see' approach. Pay-TV overcomes the technical uncertainty: by commiting to a pay offer for one year, subscribers obtain a free set-top-box – an easier choice than the purchase of an integrated digital television set.

Penetration of Digital Pay Services

Name of the service	Ownership	Date of launch	Subscribers (est. 30 June 00)
Sky Digital	BskyB	Oct 1st 1998	3,600,000
Ondigital	Granada/Carlton	Nov 15th 1998	774,000
Telewest	Telewest	Nov 1st 1999	250,000
Total			4,624,000

Sources: BSkyB, Ondigital, Telewest

Media Billings

A clearer picture of the amount of marketing effort by the main television companies may be seen in how much they spent on promoting their services. Sky is by far the most active marketer with ONdigital gaining rapidly. However, the greatest increase in advertising expenditures was by the cable companies NTL and Telewest as they began to roll out their broadband services.

Top Ten television operators adspend: Year on year

£	Advertiser	May '99-Apr '00 Spend	May '98- Apr '99 Spend	(%)
1	BSkyB	41,234,128	49,723,014	-17.1
2	ONdigital	30,289,003	16,762,249	80.7
3	NTL	11,488,437	745,009	1,442
4	Channel 4	8,209,245	8,108,309	1.2
5	UKTV	7,250,101	6,294,924	15.2
6	Flextech	7,076,985	7,372,928	-4.0
7	Carlton	7,071,027	2,415,484	192.7
8	Channel 5	4,195,173	5,108,830	-17.9
9	Telewest	3,394,173	2,244,863	51.2
10	ITV	3,051,252	4,368,482	-30.2
	Totals	123,259,524	103,144,092	19.5

Source AC Neilson, MMS

Investment per subscriber

The push to attract digital viewers - and keep them - has come at a significant upfront cost. In order to discover the total amount of money spent per digital subscriber it is necessary to refer to ONdigital which is the only pure digital television platform. The total cost to each of the two shareholders has been around €660m. This equates to a cost-per-viewer of €1660.

Set-top boxes have been lent to subscribers without charge, premium European Champions' League football matches have been offered at no extra cost, and viewers wanting to end their subscriptions have been offered packages of basic channels for as little as €2 a month.

Digital satellite

SkyDigital was the fastest, most successful digital satellite roll-out in the world. The ‘free’ Digibox strategy has led to Sky capturing and retaining some 80% of the UK digital television market. Sky’s rapid-growth strategy took its competitors by surprise. The cable companies were slow to reply. The problem for OnDigital was that it found it hard to convince customers that terrestrial was a superior payTV offering. Sky offered many more channels and most of the premium content. OnDigital still relies upon Sky’s programming for sport and movies.

The strategy of Sky has been to migrate consumers from their own analogue satellite services over to higher-value digital. This has given Sky a considerable advantage since there is an already existing customer relationship. By contrast, digital terrestrial consumers were in most cases new to both payTV and set-top boxes and had to be persuaded of the benefits.

The profitable Sky customers were those who joined new as digital subscribers. Customers who upgraded from analogue to digital were a net cost to Sky given the subsidy on the set-top boxes. Since the majority of new subscribers were upgrades, this explains why Sky made a loss on the conversion programme. Sky has gone for a short-term financial sacrifice in exchange for a long-term market dominance.

The strong performance of SkyDigital encouraged Sky to take control of the ‘Open’ interactive platform by securing an 80.1% share through acquiring the stakes of HSBC and Matsushita. The shareholding of BT was diluted down from 32.5%. Open had an uncertain start because it tried to offer a solution for satellite, cable and terrestrial. However, it became clear that the most important outlet for Open would be with SkyDigital. Once Sky took control, the Open system benefited from focusing on the most significant digital delivery system.

Digital terrestrial

The penetration of DTT has been relatively much less successful than for SkyDigital. There are several reasons for this lack of DTT success :

- the ‘free’ box offer

New digital viewers could get a lot more channels for only a slightly higher price The BBC was hampered in its ability to promote free services on DTT. There is virtually no market for free-DTT only services. Furthermore, the DTT set-top box from ONDigital has to be returned after one year, if the viewer does not renew the subscription. In contrast, consumers keep the Sky Digiboxeven if they terminate their subscription.

- absence of IDTVs

This is partly a consequence of the above. The absence of affordable, open-standard IDTVs has been an obstacle to viewers who want to receive existing free-to-air (FTA) services via all access networks. IDTVs have yet to realise the strategic role planned for them by policy makers and some market players. Integrated television sets were suitable for analogue television because the fundamental parameters of analogue broadcasting evolved very little over a long period; however digital TV is very dynamic, characterised by rapidly increasing technical capabilities and a profusion of technical possibilities. The wisdom of integrating decoder technologies with displays so early is therefore debatable.

- reception problems

Terrestrial pay TV multiplexes anyway have more limited coverage than satellite pay TV. Compounding this effect, DTT pay multiplexes have even lower coverage than free-to-air; pay was not expected to be the sole market driver. Also, the technical quality of the DTT service is unfavourable in certain respects compared to satellite or analogue broadcasts. The picture can more often become pixellated or lock up. This had not been anticipated and will need to be addressed. Once analogue transmissions are terminated it will be possible to improve the transmissions, but the problemhas a significant impact today.

Once it became clear that OnDigital was only going to be of limited commercial success, the private television companies Granada and Carlton, joint owners of OnDigital became more focused on their strategies in advertising-supported TV. Given a situation of industry consolidation, each company concentrated on strengthening its terrestrial position. Carlton sought regulatory approval take over United News and Media, which has a large stake in Channel Five (analogue) and also in the SDN multiplex. However, Granada made a successful counter-bid. The situation between these two main players led to considerable uncertainty in the terrestrial market. OnDigital saw a succession of senior executives leave. Several of these went to join new interactive services or internet ventures.

In the first half of 2000 ONdigital was transformed from being a multichannel TV company to one with an interactive platform packed with new media services. It launched:-

- Digital text
- ONmail, Internet email through the TV,
- ONrequest, the impulse Pay per View movie and sports channel (with SDN),
- ONgames2 as well as new game on ONgames1
- ONoffer with special offers from household names.
- Carlton Active, interactive programming and advertisements.
- ONnet (from Autumn 2000) internet access will be available through the TV PC. This will be full Internet access, not the walled garden of other platforms.

ONdigital won from Sky the exclusive rights to broadcast live Football League and Worthington Cup matches from 2001. The deal, in conjunction with ITV Sport, cost €523 million over three years. ONdigital has access to more football hours than on any other platform. These rights, along with the previous exclusive rights to the UEFA Champions League and the ATP Men's Tennis Masters Series, will form the foundation of ONdigital's first premium Sports Channel, to be launched in 2001.

Prepaid payTV created a whole new market for set top boxes, just as it did for mobile phones. ONdigital boxes are also being successfully marketed door to door, through the Internet and through auctions.

The DTT offering is set out in Table A.

Table A: Channels on digital terrestrial television

Multiplex	Operator	Free to air	Subscription	Coverage
1	BBC	BBC1 BBC2 BBC Choice BBC News 24 BBC Knowledge BBC Text BBC Parliament (audio only)		91%
2	Digital 3&4	ITV ITV2 Channel 4 Teletext digital	Film Four*	91%
A	SDN	Channel 5 S4C		90%
B	Ondigital		Carlton Cinema Cartoon Network Sky One British Eurosport Sky Sports1* and 3 Sky Premier*	88%
C	Ondigital		Granada Plus Shop!** UK Gold MTV ON Sport** Sky MovieMax*	77%

Table A: Channels on digital terrestrial television (cont.)

D	Ondigital		UK Style UK Horizons (BBC) UK Play Discovery Kids AM Carlton Food Network Granada Breeze Discovery Wings PM Adult Channel Granada Men & Motors	69%

* Premium channel ** Free bonus channels

Note that this listing is subject to change quite dynamically.

Digital Cable

Digital cable got off to a much slower start than hoped by the cable companies. As with the terrestrial operators, the cable operators were concerned by consolidation issues. NTL took over Cable&Wireless. Meanwhile, Telewest entered into a deal with Flextech, the programming supplier. Telewest was also linked to UPC, the pan-European cable operator via an investment from UGC. Cable operators installed over 5 million telephone lines, a rise of over half a million on the previous 12 months.

By mid-2000, 53 per cent of all homes in the UK were able to take up broadband cable services. Overall cable service penetration rose to 37.3 per cent representing nearly 1 in 5 of all homes in the country. The take-up rate for cable television services fell to 26.1 per cent of homes passed - the first fall in TV penetration since October 1997.

The national pay/basic ratio has fallen to less than 100 per cent for the first time. This is part of a three year decline as a result of subscribers' decisions to take smaller packages. It also reflects the increasing proportion of subscribers who take no premium subscription services but who may choose Pay-Per-View movies instead. This trend is seen clearly in the marketing of digital cable packages. The average revenue per subscriber continued to fall down to €38 per month (including VAT) from €40 in 1999.

Cable penetration

	1 July 2000	1 April 2000	1 July 1999
Broadband homes passed	12,827,054	12,446,100	12,171,351
Homes connected (TV &/or phone)	4,785,956	4,669,707	4,339,326
Cable service penetration	37.3%	36.5%	35.7%
Homes connected (TV)	3,346,811	3,281,042	3,026,731
TV penetration	26.1%	26.4%	24.9%
Cable TV subs as % of TV homes	13.9%	13.6%	12.6%
Pay/basic ratio	97.8%	107.5%	119.0%
Telephone lines installed	5,445,484	5,049,747	4,571,274
- of which residential	4,462,262	4,359,979	3,993,215
- of which business	983,222	653,293	578,059

Source: ITC

Telewest launched its Active Digital service which made significant progress to 250,000 households. Although NTL delayed its launch of digital cable services, it did win the Pay-per-View rights for premier league football which it intends to use to boost its penetration. In order to recover the high cost of these broadcasting rights, NTL will be obliged to offer the rights to the other platforms. As a matter of principle, NTL does not believe that any content should be exclusive to a particular platform. The Joint Venture ITN24 channel is available on all digital TV platforms.

BBC

The BBC has seen its market share continue to be eroded as new services emerge. In the year to June 2000, its average audience share was 38.6% - falling further behind ITV. This trend has provoked considerable rethinking within the BBC. The new Director-General, Greg Dyke, who came from the commercial sector, is intent on bringing about radical change.

Only one new digital channel was launched during the year - BBC Knowledge. The UK's first digital text service was also launched at a cost of €10M. The BBC's total spend on digital services in the year was €345M or 9% of its total expenditure. Of this, BBC Online, the most popular non-portal website outside the USA, accounted for €53M. Digital radio (DAB) continued to be rolled out at a cost of €35M. The total spend in the first three years on all the BBC’s digital services is €700M or 6.5% of income over the period. The 1999 Davies report into the funding of the BBC recommended that there should be a separate BBC licence fee for digital households. However, the Government decided against this measure. Instead the BBC has committed to reducing costs as a way of funding digital.

The BBC announced that it plans to move from essentially a two-channel organisation (with a few extra low-audience channels) to a multi-channel themed service provider. This has brought considerable concern from politicians and traditional viewers. It is feared that with themed channels, eg BBC 1, 2, 3, 4 etc., the identity of the BBC may become diluted.

The key issue for the BBC is how it is to continue to justify the licence fee (currently at €168 p.a.) if it becomes indistinguishable from other service providers. This is in light of the fact that the BBC is no longer able to provide the full range of programming traditionally expected of a national broadcaster. The most obvious example is in relation to sport where the BBC's coverage of major sports has been dramatically curtailed. The BBC failed to obtain the rights to broadcast the highlights of premier league soccer. This was a watershed event which finally demonstrated the demise of the 'general broadcaster' concept. The only significant soccer to be carried on the BBC are the rights it shares with Sky to the FA Cup and England internationals for a 3-year period from season 2001-2 to the close of 2003-4.

The BBC has emphasised the role of news and current affairs coverage as its unique proposition. Even this area has not been without criticism. The BBC announced it was going to reschedule its peak-time news bulletin from 9pm to 10pm. This is hardly the move of an organisation expected to maximise the number of viewers of news. The Secretary of State for Culture criticised the BBC for this reason. At the same time the BBC has continued to face criticism for the cost of BBC News 24. However, this channel has seen its audience grow as the number of multi-channel subscribers increased.

The government has become more concerned about the strategy of the BBC. The Culture Minister announced that the BBC would have to pass five tests before it could start up any more digital channels or make significant changes to existing services:

- consistency with the corporation's public service role;
- compliance with undertakings on programme content;
- consultation with licence-fee payers;
- added value; and
- likely impact on other services in the market.

SDN

The multiplex operator, SDN, which controls the large coverage Muliplex A, began operating on a commercial basis following the change in ownership which now includes ONdigital, NTL and United News and Media. A proportion of the SDN capacity has been allocated for pay per view services from ONdigital called On Request.

DTT Coverage

More of the population is able to receive digital terrestrial television – increasing up to 92% during 2000. The most significant gaps are in rural Wales and Scotland and the south coast of England. The ITC is driving forward substantial improvements in DTT coverage. The Genesis Project examined scenarios for the extension of DTT coverage to meet the availability test (ensuring 99.4 per cent coverage for the main free-to-air channels after switch-over), and on a timescale compatible with Government expectations.

On DTT, BBC1 is offered as a "local" service of two national, Northern Ireland and ten English regions. This degree of choice is not available on satellite where there are only four regions.

Analogue Closure

The Government has specified three conditions before analogue can be closed:

(i) Under the availability test, all viewers who can receive analogue television now (99.4 per cent) must be able to receive the main free-to-air channels digitally;

(ii) under the take-up test, 95 per cent of consumers must have a digital receiver in the home; and

(iii) under the affordability test the switch to digital must be within reach of people on low or fixed incomes.

The Government has also stated that it expects the tests to be met between 2006 and 2010. There is no national switch-over plan. However, the Department of Culture launched an initiative to generate more public awareness of the issues.

The regulators are concerned that the cost of reception equipment and connecting to a digital supplier should not become a major barrier to migration to digital, particularly for those consumers reliant on public service channels. There is concern about the need to support access for the poorest in society.

In May 2000 there was a joint consultation document issued by the ITC, OFTEL and the OFT at the Government's request. The consultation examined what factors could determine the rate at which the Government's preconditions of affordability and availability for switchover from analogue to digital could be met. It considered how the digital television market could develop in a way which will "not inhibit competition or set unnecessary barriers for consumers to access new services".

The consultation sought to identify and propose solutions to potential barriers to:

- the take-up of digital television for those consumers interested in receiving a wider choice of channels including pay-TV;

- the take-up of digital television for those customers interested primarily in receiving the existing free-to-air public service broadcast channels (BBC1, BBC2, ITV, Channel 4/S4C and Channel 5); and

- consumer access to new services and, in particular, to the Internet and digital TV receiving equipment.

The results of the consultation included several issues which need further consideration before the switch-off:

- will the spectrum be auctioned and, if so, will this impose a cost on TV viewers?
- unavailability of ITV on satellite

- coverage and quality of digital terrestrial transmission
- households have not converted to digital reception equipment
- redundancy of analogue VCRs and the inability to concurrently view and record on different channels. There are in excess of 50 million TVs and VCRs in the UK. If each requires a STB at say £50, the total cost of conversion would be about £2.5bn. New business models for recovering this cost are required. (This is only 10% of the money raised by the telecommunications industry in the recent 3G mobile telephone spectrum auction.)

The ITC has a statutory obligation to reconsider the allocation of UHF channels 35 and 37 to Channel 5 for analogue broadcasting after five years of service. The release of these channels for Single Frequency Networks might provide the basis for at least one nation-wide digital channel for all of the free-to-air transmission at a signal strength sufficient to provide a level of service comparable to that provided by the current analogue transmissions.

1.1.7 Barriers to competition or market development

The main areas involving media regulation outlined in the previous report were:

- programme concentration
- programme and service bundling
- non-supply of programming to satellite and
- ownership of sporting rights.

In the past year, there have been a number of further issues requiring closer regulatory or policy attention.

Corporate Mergers

These have continued to occupy the regulators. The arrival of digital has coincided with the consolidation of the independent television sector and the cable sector. The markets seem to be converging on a situation where the main players are :

- BBC
- A consolidated ITV company
- A consolidated cable company
- Sky

Such an outcome, if desirable, would require changes in legislation and competition policy. There has been considerable debate between the extent to which economic regulation or sector-specific regulation should be applied in these cases.

The practice by platform owners of taking major stakes in other programme providers as part of a carriage deal appears to dampen competition. It is very difficult for those who refuse to give away a stake to obtain carriage on reasonable terms. This is a potential barrier to entry for new services - particularly those which compete directly with a platform operator's service.

High cost of "free-to-air" digital TV

The cost of watching digital television without a subscription is high. The BBC is at the forefront of converting the population over to digital. It is targeting the gap between the digital pay households and the happy-analogue households. This is being done via marketing digital TV as a free-to-view proposition. The BBC is emphasising its new channels as well as widescreen programming. It has taken the lead on widescreen as one of the clearest additional value features of digital TV.

Unfortunately, FTA-only viewing is not offered by ONdigital nor explicitly by the BBC. The consumer must obtain an unsubsidised set-top box from a specialised retailer and a smartcard from the BBC. Apart from the inconvenience, the cost is substantial – up to €480. This is becoming a serious problem if the analogue spectrum is ever going to be released.

The problem is worse on digital satellite where the cost of receiving the FTA programmes is around €644. This arises because of penalties charged – i.e loss of subsidy - for not taking out a subscription to Sky and for not connecting the telephone to the Digibox. This is made up as follows:

Installation (no subscription penalty)	€166
Sky	€254
Marketing Contributions Ltd	€224
Total	€644

"Must carry" obligations

The competition between the platforms has frequently resulted in dissatisfied viewers who cannot get the programming they were expecting. This is illustrated by the cable industry which finds itself under considerable pressure. On the one hand, the BBC wants to insist on public service commitments on cable networks. On the other hand Sky does not want the cable companies to exclude its programming.

Under the 1996 Broadcasting Act, the "must carry" regulations for qualifying services only apply to cable operators. This is felt by the cable operators to depart from the policy of "technology-neutrality" and to favour digital satellite. In effect, the ease of regulating cable operators as compared to a satellite operator puts the former at a potential disadvantage when it comes to imposing "must carry" measures.

There are three major difficulties with implementing "must carry" obligations:

- the problem of deciding which content would be mandatory on networks. Clearly the current analogue FTA broadcasters would be included. However, there is a question over additional services. For example, as more BBC channels are created, why should the cable companies be obliged to carry them for free?
- the issue of who pays for the carriage costs. Whereas the BBC pays a carriage fee for carriage with the Sky satellite channels, it does not pay a carriage fee to the cable operators. The BBC covers its own costs on its terrestrial multiplex.
- the possibility that obligations could extend to non-public service programming. Sky, by insisting on carriage of its programming, could be seen as extending its power over the cable companies.

Theese issues are not easy to resolve. It remains to be seen whether, in a competitive market, the network operators have every incentive to obtain the best quality content.

Witholding content

Withholding key content is a significant problem. ITV has continued to deny Sky access to its popular C3 channel (and its repeat channel ITV2). This has continued to be a major irritation to both Sky and Sky's customers. The regulator has decided not to intervene. The ITV market share has remained strong. However, the ITV companies have publicly committed themselves to negotiating carriage at some stage.

BSkyB has done exclusive deals with a number of pay channels which has essentially prevented them from going on DTT or cable. Although this is understandable in the early years of market start-up, when each platform needs to maximise its unique selling points, going forward it may deprive consumers who have chosen a different platform.

There is effectively a technical restriction imposed by Sky on viewers of non-Sky digital free-to-air satellite programmes. The Sky Digibox could but does not access free-to-air channels e.g. Eutelsat's Hotbird which carries Euronews[1]. There could be a possible tension with theArt

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[1] See for example the two following responses to the ITC consultation on the introduction of digital TV:

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Responses to ITC follow:

Subject: *Digital Television Consultation*

Ms Garrod - I have read the Digital Television Consultation Document on www.itc.org.uk <http://www.itc.org.uk/> and I have the following comment:

Currently I receive Sky analogue services, but I also enjoy receiving foreign television via Astra 19e and also the Hotbird Satellites at 13e. In order to switch to digital and still receive the same channels, I would be forced to buy two digital boxes - one for Sky Digital and one for free-to-air digital. This is due to two reasons: a) the Sky boxes are not suitable for reception from other satellites and b): Sky will not make their CAM accessible to other manufacturers of digital boxes (such as Nokia). To receive my current analogue services I needed to only purchase one box and obtain a viewing card from Sky. I believe that Sky,s monopoly in this area should be addressed as part of the consultation. If the government wants everyone to take up digital television it should be made as easy as current analogue reception.

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From: John Lynton

Date: 20 Jul 2000

ITC/OFTEL CONSULTATION PAPER - May 2000

Areas of concern:

4(a) of the TV Standards Directive 95/47, which requires all decoders to pass free-to-air signals.

ONdigital has withheld football rights from Sky and cable. OnDigital €500M for the live rights to show Nationwide League football having already secured the Worthington Cup and UEFA Champions' League. Whilst these are not the most important football rights they are being used as a key tool by ONdigital to build up market share.

Non-interoperability of interactive services

The interactive services available from the different service providers are not compatible with each other because operators are using different and incompatible APIs. This has hindered the development of interactive content except within a platform. Consumers must take whatever interactive services their platform operator can offer. For example, the BBC failed to broadcast an interactive version of Wimbledon due to incompatibility with Sky. This is expected to be a continuing problem that will be manifested in many sports events e.g. PPV football and Formula 1. This incompatibility reduces the degree of innovation in interactive services since the market will be fragmented.

TV guide

Each of the digital platforms provides an onscreen TV guide. These are simple to use albeit not very elegant. The guides must not discriminate against information providers, in order to comply with legal requirements[2]. Several broadcasters are unhappy with how this rule is working out in practice. The guides are indexed by channel or genre rather than by programme. This means that viewers must know the broadcaster or genre before they can look for a particular programme. This is seen to detract from the principle that undue prominence should not be given to the platform operators' own programmes.

Advertising restrictions relaxed

The ITC agreed a series of relaxations to its rules on advertising breaks which will provide ITV with additional revenue to invest in programmes. These changes include an addition of

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---existing:

1 . Sky refuse to activate the DISEqC command within the Digibox hardware by over-the-air software download.

This prevents user-friendly access to other platforms like Eutelsat's Hotbird which have many free foreign and general interest channels (ie EbS, Euronews, Fashion TV).

The commercial threat to Sky is minimal as only 50 free non-Sky channels can be stored on the digibox.

In apartment buildings, there are ways of partly overcoming this lack of switching for now but the single unit homes, the vast majority, lose out. The latter will need to acquire new antennas but it is technically possible within the 90 cm planning exemption limit.

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These are only claims and have not been investigated by the regulator. There are probably a number of defences amongst which could be:

1) which are the relevant Free To Air channels? - is it obligatory to be able to carry FTA channels originating from another country?

2) there is a capacity limit on the number of channels that the Digibox can handle - is it a breach to give preference to some channels over others? This point has also arisen in respect of the first generation Electronic Programme Guide where complaints were made that not all channels could be accommodated.

[2] Code of Conduct on Electronic Programme Guides, ITC,1997.

2.5 minutes to the limit on advertising over the hours from 6pm to 11pm, but the total limit of advertising each day will remain unchanged. The changes will also apply to Channels 4 and 5. The limits on advertising on Channels 3, 4 and 5 remain significantly stricter than those required by the European Directives on Television without Frontiers.

1.2 Details of services

The main platforms have focused on the most popular channels that increase their audience share. These channels are to be found across all delivery platforms with few exceptions. Given that taking out a subscription is cheaper than going for free-to-air digital, the chief decision facing the viewer is which package to select. For similar prices satellite and cable can deliver many more channels than can digital terrestrial.

Free to air services

All digital platforms offer as free-to-air channels:

- BBC1
- BBC2
- BBC News 24
- BBC Choice
- BBC Knowledge
- BBC Parliament (audio)
- C4
- C5

To obtain these and the other, platform-dependent free services, it is necessary to have a free-to-air (or non-pay) card in order to decrypt the broadcasts. The BBC supplies these cards free, provided that the identification number of the receiver is quoted.

Pay services

The basic entry level for digital television is €11 for all platforms. This enables viewers to get the free-to-air services together with some ‘free bonus’ channels. Further channels are divided into categories to facilitate consumer choice. The pricing is structured so that the incremental cost of a channel declines rapidly. There has been a trend towards smaller package sizes on terrestrial and cable, but most satellite subscribers take the full package at €53 per month.

Premium pay services

In order to view the highest priced channels it is necessary to subscribe to the more basic packages. The most valuable payTV broadcasting channels in the UK, appearing on all platforms are:

Sport:

- Sky Sports 1
- Sky Sports 2
- Sky Sports 3

Film

- Sky Premier (Film)
- Sky MovieMAX
- Film Four

Pay per view

All the PPV offerings are Near Video on Demand (NVOD). Sky Box Office offers up to 20 recently released films each starting as often as every 15 minutes. ONdigital launced its PPV service, On Request.

The most significant PPV innovation has been for the cable operator NTL. It won the pay per view rights for premier league football. This will be the first major sports service to be offered in this way.

Interactivity

In September 1999 the Open interactive service was launched through the Sky Digibox. Open’s business model is to secure exclusive arrangements with major retailers in each market category. It generates revenues through a combination of site fees and transaction-related fees.

It met with immediate popularity. In its first two months it achieved 200,000 email users as well as 73,000 banking users and 60,000 users of its interactive services e.g. games. By Christmas, Open had processed 130,000 orders and received one million online entries for game-related prizes. By mid-2000 the service had 1.6 million users per month, with 11% of UK satellite homes having purchased something though it.

Open's success has been achieved with limited technology compared with what the cable operators can offer. Open is essentially a closed system in respect of what consumers are able to access. Content is limited to a `walled garden' of services developed specifically for Open with retailers like Woolworths and Dixons. The interactivity is achieved through the public telephone network. The potential is there to upgrade Open to ADSL.

BSkyB has committed to invest a further €415m in Open until 2002, when it is expected to break even, in addition to the €660m or so that has already been invested. Sky plans to link the interactive services more closely to its regular pay-TV channels. Despite the potential for interactive services, the number of companies using it as a distribution channel is limited. One reason is that it involves forging a partnership with a service provider on an exclusive basis. By contrast, the Internet is an open platform.

In June 2000, the Telecoms regulator Oftel ruled that Sky was in a dominant position and so would have to make the set-top boxes available for home banking and e-commerce companies. This was an extension of the “open access” regulations from television to interactive services. Sky can charge for this access but at a "reasonable" level and comparable with the prices to its other group companies. About half a dozen companies are thought to be in negotiations with Sky about starting services.

Internet

The government sees digital television as one of the mechanisms by which the population can access the internet. The Prime Minister announced a goal of universal internet access by 2005. A third of households have PCs and 50% of the UK population has ever used the internet. The BBC has set a high standard with its website which provides excellent content. The website contains one million web pages and achieved 177 million page hits per calendar month up to March 2000. The BBC is concerned to ensure that its web content can be reformatted so that it can be displayed on any device.

All the digital platforms now offer email. ONdigital and Sky Digital do this by providing a proprietary client to their own email service ONmail and Talk21 respectively. The cable companies offer email as part of their bundle of services.

The main debate in implementing the internet through the television is how open to offer access to the World Wide Web. In general, access has been limited to a small number of sites i.e. walled garden access. This has not proved to be too much of a barrier so far. TV may be more suited to targeted content that is easily accessible to the viewer.

The cable companies have promoted the joint access of TV and full web browsing. These can either be implemented as separate services (i.e. digital TV and internet for a PC) or else integrated into the DTV service. In this latter case, a walled garden approach is used.

OnDigital launched OnNet which permits access to the web which involves reformatting the pages for display on a TV set. The service comprises a portal, designed by BBC Resources, with several content layers. ONnet is mainly targetting households which do not have a home PC. The technology, developed by Netgem, allows viewers to click straight through to the Internet. It uses a small, sleek box. From its content zones ONnet will provide one click access to the websites of some of the country's biggest household names. On the commercial front, partners already include Abbey National, Bigsave.com, BlueSq, Cahoot, Co-op Travel, Iceland and thomascook.com. As well as these signed partners, ONdigital is in detailed negotiation with nearly 100 others. ONnet is also breaking new ground by linking the broadcast stream directly to the Internet. Crosslinking allows an icon to be broadcast during a programme or an advertisement. One click on the icon will take the viewer straight to the website of the programme or advertisement.

There are also a number of consumer electronics companies that provide a link from the internet to the TV set including Bush, Web2U and Websurfer. So far these have not gained much market share since the platform operators have dominated the market with their proprietary solutions.

1.2.1 Number and type of services

There have been less than ten new channels created for digital TV. Some of these were created by the ITV companies for DTT since they did not want to rely upon the Sky stable of channels; the BBC created others as part of its public service remit. Most of the channels being shown on digital satellite already existed in analogue format. Many of the apparently new channels are really re-edited versions of existing channels, or repeats.

Subscribers are encouraged to commit for a period of time in order to get them familiar with the platform and payTV. The programmes are divided into basic and premium packages. The basic packages are priced competitively. Total cost to the consumer rises considerably once they obtain any of the premium channels. All subscribers have access to pay-per-view programming.

Digital Terrestrial

The original free-to-air line-up of channels has been maintained (Table A above). Table B below gives a description of the DTT offering according to the type of services. Digital terrestrial offers 30 channels although some channels occupy different day-slots so it is possible to count a few more than this number. Nearly all of these channels are also carried on SkyDigital. The ITV and ITV2 channels, which carry the popular C3 programming such as Coronation Street, are not available on satellite.

All of the channels are British in content. One channel, S4C is dedicated to Welsh programming 12 hours a day. S4C2 carries live broadcasts from the Welsh Assembly. The Eurosport Channel is the British version.

Digital teletext has been launched on BBC and commercial TV. However, the service is not yet fully developed.

The introduction of Internet and interactive services provides ONdigital with opportunities to increase average subscriber revenue levels. Every IDTV that is sold - even to non-subscribers - represents a potential customer for ONdigital's Pay per View and interactive services.

Table B : Digital Terrestrial Channel Types

Channel type	Number in type	Comments
Free to view	12 (13 incl alternatives)	Based on the existing terrestrial broadcasters. Includes digital teletext.
Free Bonus channels	2	One Home Shopping Channel and one channel for sport or exclusive programmes. Need to be a subscriber to the Primary channels.
Primary channels	12 (16 incl alternatives)	Mainly programmes sourced by Carlton and Granada. A ‘best of’ BBC adds quality. MTV, Sky One and Cartoon Network extend the range. Eurosport – British version. Discovery added to give more substance.
Premium channels	5 (Sky Sports 3 is free with Sky Sports 1)	Top sports channel from BSkyB plus two leading BSkyB film channels – Premier and MovieMax. Film Four also.

Digital Satellite

SkyDigital offers the widest array of channels to the UK audience. The full list is set out in Table C below. There are 78 separately identifiable channels – an increase of 20% since 1999. In addition there has been an increase in the number of one-hour offset programmes (ie repeats one hour later). There was not a corresponding increase in subscription prices.

Viewers must decide between six Entertainment Packages. These range from Value Pack with five digital channels (cheapest €12 p.m.) via the popular Family Pack (mid price €22 p.m.); to everything comprising Family Pack plus all the premium channels (most expensive €53 p.m.).

The vast majority of Sky's analogue satellite customers have already migrated across to the digital satellite platform. Sky Digital has more than 3.4 million subscribers. By contrast, the number of analogue subscribers has continued to fall from a peak of 3.58 million in March 1998 to just 1.4 million two years later.

The transition to digital-only satellite channels has also commenced as Sky decided not to continue leasing two analogue transponders. The first channels to transfer completely to the digital satellite were:

- Sky Cinema and Sky Travel (still available to analogue cable);
- Adult Nightly service - Playboy TV/The Adult Channel Nightly;
- analogue satellite broadcasts of Sky Box Office Events.

SkyDigital has devoted Premier Widescreen to films with widescreen aspect ratios. There are two home cinema experiences per evening per 'screen'. The Sky Box Office carries occasional events such as a boxing match but the main focus is on near-video-on demand films. There are 48 'screens' with a choice of up to 30 of the latest films each month. Start times can be as frequent as every 15 minutes. A new channel SkySports.comTV comprises sports news and information and indicates the cross-over between internet and television content.

In June 2000 Sky News launched the world's first interactive TV news service, letting digital satellite viewers call up on demand additional video coverage, graphics and text of news, sports, weather, finance and showbusiness reports.

Table C : Digital Satellite Channel Types

Channel type	Number in type	Comments
Non-subscription	13	Based on the existing terrestrial broadcasters. Six channels from the BBC. C4, C5. Two from S4C (Welsh). No ITV (C3). Also includes CNN International, Money Channel, and Rapture.
News	3	Sky News (free), Bloomberg, CNBC, (BBC News 24 is available with the non-subscriptions.)
Entertainment	9	Sky One, Bravo, Challenge TV,Granada Plus, UK Gold 1 & 2, Paramount Comedy Channel, Tara, Sci-fi, Hallmark, UK Drama
Documentaries	10	Five Discovery channels (one +1), History, National Geographic (+ 1), UK Horizons (BBC), [.tv], A1
Sport	3 (inc one audio)	SkySports.comTV, Eurosport (UK), Talk Sport (radio)
Lifestyle	8	Living, Discovery Home & Leisure, UK Style, Sky Travel, UK Arena, Granada Men&Motors, Granada Breeze, QVC (free)
Kids	5	Fox Kids (+1), Nickleodeon (+1), Nick Jr, Cartoon Network (+1), Trouble,
Music	10 (inc one audio)	Four from MTV, two from VH-1, The Box, UK Play, Kiss, Music Choice (DAB-S)
Premium movies	13 + PPV	5 Premier channels (inc one widescreen), 5 MovieMAX channels, Free bonus : 2 Sky Cinema (classics), Free bonus : Disney (can also be separately purchased) Sky Box Office (NVOD pay per view).
Stand-alone premium Channels	4	Film Four (€10 per month) MUTV (€8 per month) Music Choice Extra (€8 per month) (Digital Audio) Disney Channel (€8 per month)

1.2.2 Details of the DTV offers

Special offers

All digital platforms have special introductory offers for new subscribers as set out below.

Service	Introductory offers
Ondigital	Rental of set-top box included in subscription i.e. box is 'free' All 12 primary channels for price of 6 in first three months - €16 pm Required aerial 'upgrades' at fixed price of €64 No connection charge
SkyDigital	Free 'Digibox' providing Interactive Discount Contract is signed for 12 months requiring connection to telephone. Installation fees of €64 payable. N.B. No obligation to take SkyDigital to benefit from this offer but then installation fee rises to €160.
Telewest	€15 per month to include payTV, telephone, STB, internet access
NTL	€16 per month to include payTV, telephone, STB, internet access

The SkyDigital set-top box offer is primarily financed by British Interactive Broadcasting which is the consortium formed to offer interactive services under the trading name Open. There is no obligation to use the Open interactive services. The Digibox reverts to the subscriber after 12 months. This contrasts with the 'free' ONdigital set-top box which is conditional on taking out a subscription and is returnable if a subscription lapses after a year.

ONdigital pre-paid packages have been available since the end of 1999. For an upfront cost of €165 subscribers can access all the free BBC and ITV digital channels plus six out of a selection of pay television channels such as the music channels MTV and UK Play, Sky One or UK Gold. OnDigital has also made their subscription available on internet auctions (qxl.co.uk) where a pre-paid box can be obtained for as little €120 covering a full year subscription. In this cases, the consumer installs the box themselves.

DIGITAL TERRESTRIAL

There are 12 free-to-view channels. To obtain them it is necessary to obtain a set-top box at an unsubsidised price – which is typically around €550-€650. Since the introduction of the 'free' set-top box, the major retailers have not offered the full-price free-to-air set-top box which is now only available from more specialist retailers. As a result, the take-up of free-to-air digital has been very limited.

Most viewers choose to take one of the basic price packages from the payTV supplier ONdigital. The set-top box is supplied free and must be returned in the event of ceasing the subscription. It may therefore be regarded as rented equipment. Subscribers are free to choose exactly the channels they want to watch. They can change a channel free of charge after viewing it for 30 days.

Basic price packages from Ondigital

Channels	€ per month
Basic entry : 1 Primary channel, Shop !,	11
Any 6 Primary channels + Shop +OnSport1	17
All 12 Primary channels + Shop +OnSport1	20

The premium channels may be obtained individually according to the following scheme :-

Digital terrestrial premium pricing scheme

Channels	€ per month
Film Four	10
Any 1 Sky Premium channel	19
Any 2 Sky Premium channels	24
All 3 Sky Premium channels	29

The top package, which costs €44 per month, includes: Carlton Cinema, Cartoon Network, Sky One, Eurosport; Sky Premier, Sky Sports 1 and Film Four. In addition, ON Request expands consumer choice with PPV films.

There are special pricing arrangements for those viewers who live in areas where they are unable to receive all the terrestrial multiplexes. If they cannot receive six primary channels they may instead receive a combination of primary and premium channels.

Digital Satellite

SkyDigital has continued to simplify the package offerings. The vast majority of subscribers take the Family Pack – comprising 52 channels. In addition there is a high take-up of premium channels: almost 60% of Sky digital DTH subscribers continue to take all Sky's premium channels. The exact line-up varies frequently.

Package	Channels	€ per month
Basic minimum	6 channels: Sky One, Sky News, Discovery Home&Leisure, Bloomberg, QVC, Music Choice	12
Value Pack Popular Mix Knowledge Lifestyle Entertainment Kids	The above and 11 more channels taken from one of a themed group.	16
Sky Family Pack (52 TV channels 11 audio channels)	9 Non-subscription 4 News 9 Entertainment 9 Documentaries 8 Lifestyle 4 Kids 9 Music	22
Premium themed package Sky Sports World Sky Movie World	Family Pack above plus : Sky Sports 1, 2, 3, Extra Premier(5), MovieMax(5), Cinema(2), Disney	 45 45
Maximum Sky Offering Sky World	Sky Family pack + Sports + Movies	53

Summary Of Digital Paytv Offers

From the foregoing pricing structures it is apparent that SkyDigital provides a more economical opportunity than Ondigital for a household wishing to have multi-channel television. The absence of ITV has not had a noticeable impact on sales of digital satellite.

Summary on Digital PayTV offers

	Minimum Price €pm	No. channels *	Average price per Channel €pm	Maximum Price €pm	No. Channels	Average price per channel ** €pm
Ondigital	12	14	0.8	58	31	1.9
SkyDigital	12	16	0.7	61	58	1.1
Telewest	15	12	1.25	61	58	1.1
NTL	16	12	1.25	61	58	1.1

* including free services ****** including Film Four, excluding MUTV

1.3 Operators and market structure

In general there is a considerable amount of both competition and co-operation in the television market. From the various arrangements, it is clear that only a few companies will emerge as the leaders in the field. Whether this is an inevitable aspect of media convergence or simply the result of normal competition is an open question.

1.3.1 Concentration of the pay-TV market

Each of the delivery systems has seen significant consolidation over the past year. The major transactions which have transformed the television market following regulatory review include:

- Commercial broadcasting: Granada/United News & Media
- Content/distribution: Flextech/Telewest
- Cable distribution: NTL / CWC
- Sport: Sky/Sports Internet Group

The premium sports programming rights remain largely under the control of BSkyB. All the terrestrial companies have been active in securing sports programming (ITV –Formula One Grand Prix; C4 – Test Match Cricket; C5 – European Football; OnDigital – UEFA cup). Conversely, the sports leagues and clubs have been keen to offer exclusive rights to broadcasters.

Interactive Television Production

The previous report examined the impact on independent production and concluded that digital has not significantly improved the position of independents compared to the broadcasters. Essentially this is because the bargaining power of the producers remains inferior to the broadcasters. There are signs that this imbalance may be changing in favour of the independent producers in one key area – interactive content. This is an area in which the appropriate skills are in short supply and where there are many opportunities to come up with original and creative ideas. A significant development was the announcement by NTL in March 2000 of the Digital Content Fund. This promises to invest £25 million over five years in interactive television programming. The BBC has also been active in authoring new interactive content but, as with Wimbledon tennis, has found the fragmented interactive TV market a barrier to launching new programme formats.

THE MAIN PLAYERS

The most important broadcaster of digital TV is the BBC. The next most important broadcaster is Sky. It has driven the take-up of digital as part of its core corporate philosophy. The leading commercial TV company is Granada following its acquisition of United News & Media. The leading cable company is NTL following its acquisition of Cable & Wireless.

BBC

The BBC has the largest expenditure on both digital broadcasting and the internet. The BBC offers five main channels free to air: BBC1, BBC2, BBC Choice, BBC Knowledge and BBC News 24. In addition there is a parliamentary channel which is audio only, and BBC Text. These channels are available to all digital viewers in the UK. The BBC has been actively promoting digital on all platforms and has not favoured terrestrial. Its 'BBC Digital' logo has been instrumental in increasing awareness of the technology shift.

The BBC focus on digital has led to some criticism that it is thereby diverting funds from core programming. Whilst this may be true from an accounting perspective, it was inevitable that incumbents such as the BBC would lose some valuable broadcasting rights as more money entered the industry via payTV. As part of its response the BBC has increasingly entered into joint ventures to deliver quality programming e.g. it combined with Discovery and Flextech in joint programming ventures.

BSkyB

Sky has achieved nearly 9 million subscribers. Each Sky user generated an average revenue of €476 in the year to the end of June 2000. On average, digital subscribers produced revenues of €500 each. However, the cost of upgrading to digital has meant that it lost €436 million in the year to end-June 2000.

The domination of the digital pay television market is set to continue after it again won the principal FA Premier League contract. This comprises 66 live matches each season for three years from the start of the 2001-02 season. ONdigital and the cable companies are therefore still reliant on Sky for their premium programming.

The provision of channels to terrestrial and cable is a profitable activity for BskyB since they do not directly incur the costs of establishing the customers, especially the cost of the set-top boxes. Sky is able to maximise the coverage of its channels over all delivery platforms whilst only needing to control satellite. However, since the cable and terrestrial operators need to pay a large margin to Sky they tend to prefer to promote their own premium channels. Thus, the revenue which Sky gains from satellite is much greater than that from cable and terrestrial.

Subscribers to Sky Channels

	Opening as at 30/6/99	Q1 As at 30/9/99	Q2 As at 31/12/99	Q3 As at 31/3/00	Q4 As at 30/6/00
Digital	753,000	1,279,000	2,065,000	2,751,000	3,583,000
Analogue	2,707,000	2,303,000	1,901,000	1,405,000	930,000
DTH	3,460,000	3,582,000	3,966,000	4,156,000	4,513,000
Cable	3,189,000	3,325,000	3,306,000	3,211,000	3,122,000
ONdigital	204,000	363,000	527,000	647,000	740,000
Eire	589,000	591,000	605,000	609,000	613,000
Total	**7,442,000**	**7,861,000**	**8,404,000**	**8,623,000**	**8,988,000**

Sky DTH Subscribers

1999/2000	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Year
	3 m to 30/9/99	3 m to 31/12/99	3 m to 31/3/00	3 m to 30/6/00	12 m to 30/6/00
Opening	3,460,000	3,582,000	3,966,000	4,156,000	3,460,000
Net additions	122,000	384,000	190,000	357,000	1,053,000
Closing	3,582,000	3,966,000	4,156,000	4,513,000	4,513,000
Churn (YTD)	14.2%	11.9%	12.7%	10.5%	10.5%

Sky digital additions

1999/2000	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Year
	3 m to 30/9/99	3 m to 31/12/99	3 m to 31/3/00	3 m to 30/6/00	12 m to 30/6/00
New	244,000	455,000	316,000	388,000	1,403,000
Transitions	287,000	341,000	398,000	477,000	1,503,000
New as % of gross additions	46%	57 %	44%	45%	48%

Granada

Granada Media is a substantial, integrated content creator and broadcaster. It produces content for UK and international audiences which is distributed by both third party and proprietary distribution routes, including free to air and payTV, digital TV and the internet.

The Company is organised into four integrated business units and two major joint ventures:

- Granada Creative, one of Europe's largest programme production companies supplying programming content in the UK and internationally;
- Granada Broadcasting, which owns broadcasting licences accounting for 33 % of the advertising revenue generated by the ITV Network in 1999;
- Granada Broadband, a new media business with interests in eight channels on pay television platforms and a range of internet ventures;
- Granada Enterprises, the commercial arm exploiting the value of Granada Media's production and broadcasting assets;
- ONdigital, Granada Media's 50 % equity share of the DTT operator; and
- Box Clever, Granada Media's 50 % stake in the UK's largest consumer television rental business.

Content Creation

Granada Creative comprises all of Granada Media's UK and international content creation activities. Granada Creative makes approximately 6,000 hours of original television programmes, feature films and TV movies annually. It sells its original programmes in more than 120 countries around the world; including the most popular UK soap opera, Coronation Street. It comprises

- 11 different production operations including three UK television production companies; four overseas television production companies based in Australia, the US, Germany and Hong Kong; an international feature film and TV movie business; and a worldwide distribution company;
- the UK's largest commercial production group, making over 30 per cent. of the UK's highest rating programmes in 1999 and producing for all of the UK's major broadcasters;
- It has a programme library of over 60,000 programme hours and several hundred programme formats; and
- It owns 50 per cent. of the largest production company in Australia. It has reinforced this investment by taking a 10.4 per cent. stake in Seven Network, one of Australia's leading broadcasters.

Granada Media intends to expand its television production operations both in the UK and overseas. It will also continue to invest in developing new programme formats which may be exploited internationally whilst also extending its strategy of creating and acquiring original production companies in selected key markets. Where appropriate, investment in production companies will be supported by investment in local commercial broadcasters.

Free to Air Broadcasting

Granada Broadcasting consists of all Granada Media's UK free to air broadcasting operations.

- Granada Media holds four of the 15 ITV regional licences: Granada (North West of England), LWT (London weekend), Yorkshire (North of England) and Tyne-Tees (North East of England) and has interests in three others. Together, these regions cover 47% of the UK population;
- ITV is one of Europe's most popular commercial television channels and the UK's most popular television channel, commanding a peak-time UK audience share in 1999 of 38.8 %, nearly four times that of its nearest commercial rival, C4; and
- Granada Media achieved advertising sales of €1 billion (including Border's advertising sales) out of the €3.15 billion in advertising revenue raised by ITV in 1999 and continues to experience solid revenue growth.

New Media, Pay Television, Internet and Broadband

Granada Broadband has been set up to exploit the growing demand for new media content in the pay television, internet and emerging broadband markets. Granada Media's content creation skills, the power of its programme brands, and its access to key talent, position it well to create strong content packages and to realise significant value from these new activities.

Granada Media has already used its content in a range of new media activities. These include:

- eight channels on pay television platforms covering genres as diverse as comedy, football, home shopping, lifestyle and classic archive broadcast; and
- interests in a range of internet ventures including G-Wizz, a free Entertainment ISP and portal; PowerChannel Europe, providing subscribers with internet access andemail via free TV internet boxes; and the UK version of Ask Jeeves, a popular search engine.

Granada Media has identified certain key areas that it believes offer significant new media opportunities:.

- Education. Granada Learning already supplies approximately 92 % of the 32,000 schools in the UK with interactive learning materials and printed revision materials, specialist educational software and test and assessment products;
- Sport. Granada Media has relationships with Manchester United Football Club and Liverpool Football Club, two of the UK's most successful football clubs. Granada Media has a 9.9 % stake in Liverpool Football Club, manages its commercial interests and is developing a range of affinity based content for its international fan base; and
- Health. Granada Media is currently developing a comprehensive health package, which will be fully integrated across television and on-line services for consumers and health professionals.

Granada Media expects all these businesses, in addition to other new media opportunities, to create formats that can be sold internationally or jointly developed with overseas partners. It intends to use its content creation strength to create a number of alliances with broadband and multi-access platform providers.

Granada Enterprises

Granada Enterprises operates across Granada Broadcasting, Granada Creative and Granada Broadband to exploit the commercial value of Granada's creative content and broadcasting assets. Granada Enterprises does this in two ways:

- It offers advertisers a range of marketing services with which to promote their brands and services, which includes television airtime sales; sponsorship, co-production opportunities, licensing, publishing, merchandising and interactive and on-line advertising; and
- It manages book publishing, video licences, music products and publishing, and merchandise licences for most of Granada Media's creative output.

Box Clever

Granada Media will own 50 % of Box Clever Technology Limited ("Box Clever"), which will be the UK's largest consumer television rental business. Box Clever was created by the merger of Granada's and Thorn UK's consumer rental businesses, subject to regulatory approval. Box Clever accounts for 7% of the total market for televisions supplied in 1999. Currently, 2.3 million customers representing approximately 10% of homes in the UK rent approximately 3.3 million units. Box Clever has a strong nationwide high street shop chain, with products targeted at a new generation of customers wanting access to new technology. It also has 41 distribution/service centres and four call centres located throughout the UK to give full support to its customer base. Box Clever is the only national high street outlet specialising in TV and TV-related technology. The price and accelerated obsolescence of new technology has created a significant opportunity for Box Clever by offering consumers the traditional benefits of rental with a new flexibility to upgrade to new equipment on a regular basis.

Cable

NTL and Cable & Wireless have completed their merger and reach 230,000 digital homes combined. Telewest has 156,000 digital customers.

The relative TV shares of the dominant cable companies as at July 1st 2000

MSO	Homes passed	Homes connected	TV penetration rate %	Pay/Basic ratio %
Telewest	4,455,546	1,122,106	25.6%	105.1%
CWC	4,297,721	933,010	21.7%	118.4%
NTL	3,732,104	1,233,373	33.0%	73.6%

1.3.2 Agreements between satellite operators, cable operators and DTT operators

Programme supply deals

BSkyB has the central role of premium programme provider to satellite, cable and terrestrial. The fundamental type of agreement between the parties is the programme supply deal. This is designed to improve the penetration of Sky channels and to guarantee content for the relevant network. The key elements of such a deal are illustrated by the agreement between Sky and NTL which is still subject to regulatory approval.

- NTL to carry all Sky's main channels for five years
- Wholesale pricing structure for supply of Sky's channels
- Mutual commitment to offer new services, including interactive services and pay-per-view sports events

Conditional Access Charges

Oftel was concerned to ensure that comparable broadcasters purchasing comparable services should pay comparable prices. Sky (via the subscription services company SSSL) has published a series of indicative charges for Conditional Access Agreements of three to five years duration as follows:

Category of Broadcaster	Charge Per Customer
Automatically Entitled(encrypted non pay services)	£0.20 per month
Pay Per View: Sports	£2.00 per buy
Pay Per View: Other	£0.60 per buy
Subscription: Premium Sports	£2.50 per month
Subscription: Other	£1.50 per month

1.4 Technical issues

The major technical issues regarding the launch of digital television have been resolved. There are now emerging a second-generation set of issues to do with promoting digital television to all the population. These come down to finding a cheap way to get digital receivers built into TV sets, ensuring that reception equipment is not tied into a particular broadcaster and addressing the special needs of large sections of the population.

Integrated digital TV sets

IDTVs can be acquired at a reasonable price if they are subsidised by BSkyB or ONdigital. Some IDTVs now come preloaded with 6 primary ONdigital channels. However, these contain proprietary embedded CA technology and, as part of the deal, the consumer must subscribe to their pay services. Furthermore, the IDTVs do not always contain all the features that are offered with a set-top box. The crucial problem arises because retailers are selling analogue widescreen television at reduced prices. Although prices for IDTVs are coming down, it is cheaper to convert to digital widescreen with a free set-top box and analogue widescreen TV. Currently there is a premium of about €160 for a 28" digital widescreen TV when compared to a comparable widescreen analogue set.

As part of its multiplex service licence condition, ONdigital has made its conditional access technology available in a common interface module in May 2000. The Conditional Access module (CAM), little more than the size of a credit card, is inserted in an open-standard IDTV and gives access to the customer's choice of six of ONdigital's primary channels at no extra cost to the price of the IDTV. The ONdigital CAM[3] will not immediately support the full range of interactive services. However, it is planned that it will be upgraded within a year. This may mean that, in the short-term, a set-top box remains the more attractive option.

More promising for the future, the BBC is working, along with ONdigital, to develop a device for cheap reception of free-to-air digital terrestrial television. This will enable existing analogue TV sets to received digital signals without having to sign up for a payTV contract.

Decoder issues

Platform operators have not made interoperability easy. Essentially the problem arises as there is no regulatory requirement for a common interface module for set-top boxes. Cable and satellite operators are not at present required to support detachable conditional access modules for their own systems.

An open-standard API has now been adopted by the DVB. Open standard APIs are critical for the development of enhanced TV services, especially interactive services. A licensing regime still needs to be developed for proprietary APIs in the UK market. Interactive return path services, which are not embedded within television programmes, do not currently fall within the scope of the Conditional Access Regulations. Although OFTEL gives them regulatory protection through the Access Control Regulations, these apply only to dominant operators.

The 1997 Code of Conduct published by the ITC requires the EPG provider to give due prominence to the public service channels (BBC1, 2, ITV, Channels 4 and 5, and S4C). In practice, these channels have been isolated on the Sky EPG listings. For the viewer to find any linked channel (e.g. ITV2) requires looking down the complete channel listing. In effect, the EPG owner is able to give themselves a ranking advantage whilst staying within the law.

Digital decoder systems

Digital Service	Conditional Access system	Application Programming Interface
SkyDigital	Videoguard (NDS)	Open TV
Ondigital	Mediaguard (SECA)	Mediahighway (SECA)
Telewest	Telewest	Liberate

[3] Conditional Access Module i.e. the device which plugs into the set-top box which carries the decoding functionality for payTV.

Special needs

Public service broadcasters have an obligation to address the special needs of the deaf and hard-of-hearing, and the blind and partially-sighted. This is done through the provision of ancillary services such as subtitling, signing and audio description. These services can be provided using DVB standards.

Only the DTT box is DVB-compliant in respect of subtitling using DVB standards. The satellite Digibox and digital cable boxes do not carry DVB-compliant subtitles. If public service broadcasters want to extend their analogue and DTT commitments to the cable and satellite platforms, they have to make unnecessary adaptations.

1.4.1 16:9 Widescreen

Widescreen broadcasting has seen a transformation since DTT was launched. The public sees widescreen as a legitimate choice for hardware purchase. The BBC, ITV and Channel 4 are the most active in their commitments to widescreen programming. These services consistently achieve the highest audiences. The terrestrial free-to-air broadcasters have made the greatest investment in widescreen broadcasting. Beyond this, widescreen output elsewhere is very limited: with the exception of some widescreen films; virtually all of the subscription channels continue to broadcast in the familiar 4:3 aspect ratio.

The BBC broadcasts some 60% of prime time programming in 16:9 full screen on their digital services on all platforms. Figures from ITV and Channel 4 are similar and these channels are about to start broadcasting all their advertisements in full screen widescreen. Important as these figures are in themselves, they are greatly strengthened by the nature of the programmes being made and broadcast in 16:9. These now include the high audience and the prestigious programmes shown at peak time. Programme makers and broadcasters know that this is a major attraction for their viewers and that widescreen is a strong differentiating factor for their services. It shows that they are more than just "more of the same" These channels are committed to an increasing amount of full screen widescreen programming and it is these programmes that attract the major audience figures.

During 1999, 48 per cent (and 62 per cent of new make) of peak-time digital output on BBCs One and Two was broadcast in widescreen, and the BBC target for 2000 is 55 per cent. ITV broadcasts only slightly less in widescreen, Channel 4 currently broadcasts less than 50 per cent of peak-time programming in widescreen. Channel 5 does not currently broadcast in widescreen but has plans to do so.

Other channels such as Carlton Cinema and some of Sky's film channels are broadcast in widescreen. This activity strengthens the public perception that digital is widescreen. This is a major positive situation. Widescreen programmes can only be seen in full on digital services.

800,000 16:9 sets were sold in the UK in 1999 and the Widescreen Forum estimates a figure for 2000 of 1.6m, i.e. 60% of main set sales. This represents a growth rate of 275% per annum. A widescreen set is typically purchased alongside a free set top box. Nearly all IDTVs are widescreen. There is a wide price range. The main difference in prices is often due to other features like surround sound and 100Hz anti flicker picture processing.

This success is mainly due to the broadcasters and receiver manufacturers supporting widescreen digital services. This success of widescreen has been made possible by the adoption of a number of policies by broadcasters and receiver manufacturers:

- Programmes are commissioned in widescreen, with instructions from the broadcaster to protect the 4:3 viewer. In general this means small compromises in picture framing by the director.
- The common picture source for digital and analogue simulcasts is full screen (i.e. non letter-box) 16:9.
- The analogue service is fed with either a 4:3 version or more commonly a 14:9 version of the programme, via an electronic format converter. This gives the analogue viewer with a 4:3 set a slight letter-box effect and does not give rise to complaints.
- Viewers with digital widescreen sets or set top boxes attached to widescreen sets view the full width and height picture.
- Viewers with set top boxes and 4:3 sets select to view 16:9 programmes either in letterbox form or with the centre portion filling their screen.
- A form of data known as the Sequence Header accompanied by Active Format Descriptors is transmitted with the picture. This works with the set top box or widescreen digital set to ensure that all programmes can be viewed at the correct geometry.

1.4.2 Portable reception

Currently 45 per cent of the 5 millions TV sets sold annually in the UK are small screen (14" or similar) portables. The terrestrial networks suitable for portable reception have been rolled out and the plans are in place to complete national coverage. However, the practical problem for portable reception is that most digital households use set-top boxes. Whereas the TV sets may in principle be portable, the fact that they are attached to a set-top box restricts that portability. The most important factor which would promote portable reception would be the introduction of small screen IDTVs. So far IDTVs have been large screen.

Almost half of TV set sales are of portables. In many homes even the “main” set is not connected to a roof top aerial. In the absence of a change in consumer habits, switch-over will not be achieved in all areas. This is a classic “chicken and egg” situation. Analogue cannot be switched off without satisfactory portable digital reception. However, until analogue is switched off, it will not be easy to increase the power of DTT transmissions. Portable reception requires either increased power or else more rugged transmissions (ie using a lower bit rate). In-home networks (eg wireless) will help deliver portable reception, but are unlikely to reach the mass market for several years.

1.5 Conclusions

- The subsidised set-top box offers and promotions by BSkyB and ONdigital have undoubtedly kick-started the digital market, but they have also shaped it in ways that were not foreseen by policy makers and free-to-air broadcasters. Digital television is currently perceived to be a pay-TV offering. Until viewers can easily access free-to-air services in digital without being tied in to a subscription, it is likely to be difficult to persuade a significant minority of analogue terrestrial viewers to make the change. The BBC has a crucial role to play in getting the population to change over to digital.

- The UK is being rapidly transformed from a terrestrial, free-to-air market to a majority satellite/cable pay-TV market. The implications this has for public service broadcasting are not yet fully understood but it is clear that many challenges lie ahead for the BBC – not least the issue of continuation of the licence fee in the medium term.

- Sport, particularly football, continues to be the main driver of pay-TV services. All the pay-TV and commercial broadcasters have secured the broadcast rights to key sports events and other popular programming. Withholding content from another digital platform is a feature of the competitive market which many viewers find irritating.

- Digital television is seen as the way to deliver the internet cheaply to millions of people. Whilst this is a virtuous public policy aim it involves compromises – only a limited number of websites are made available and the users may be locked in to a particular service provider

- The (late) arrival of digital cable has stimulated the penetration of digital television as each of the platforms competes for market share. BT has been prompted to launch ADSL as a response to the broadband threat.

- The television market is converging down to four main groups: public service, commercial, satellite pay and cable pay. There is still scope for further consolidation.

2 Key figures for the UK market

2.1 Country fundamentals

	1993	*1994*	*1995*	*1996*	*1997*	*1998*	*1999*
Population (millions)	58.2	58.4	58.6	58.8	59.0	59.2	59.5
Households (millions)	22.9	23.2	23.9	24.1	24.3	24.5	24.6
GDP (in Euros billions)	996.4	1004.0	1062.2	1096.6	1134.6	1227.4	1427.8

2.2 Equipment

As of 31 of December	*1993*	*1994*	*1995*	*1996*	*1997*	*1998*	*1999*
TV households (millions)	22.2	22.4	23.4	23.6	24.0	24.2	24.3
TV households (% of total households)	*96.9%*	*96.6%*	*97.9%*	*97.9%*	*98.3%*	*98.8%*	*98.7%*
TV Households with 2 TV sets or more (millions)	11.5	11.6	12.6	13.5	14.1	15.6	18.5
TV Households with 2 TV sets or more (% of TV Households)	*51.8%*	*51.8%*	*53.8%*	*57.2%*	*58.8%*	*64.3%*	*76.0%*
TV Households with 16:9 Television sets (millions)	0.028	0.053	0.088	0.11	0.25	0.318	1.118
TV Households with 16:9 Television sets (% of TV Households)	*0.1%*	*0.2%*	*0.4%*	*0.5%*	*1.0%*	*1.3%*	*4.6%*
VCR Households (millions)	17.0	17.9	18.6	19.2	19.9	20.2	21.0
VCR Households (% of TV Households)	*76.6%*	*79.9%*	*79.5%*	*81.4%*	*82.9%*	*83.4%*	*86.6%*
Digital STB Households (millions)	0	0	0	0	0	0.3	2.8
Digital STB Households (% of TV Households)	*0%*	*0%*	*0%*	*0%*	*0%*	*1.2%*	*11.4%*
IDTV[4] Households (millions)	0	0	0	0	0	0	0
IDTV Households (% of TV households)	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
Digital Households[5] (millions)	0	0	0	0	0	0.3	2.8
Digital Households (% of TV households)	*0%*	*0%*	*0%*	*0%*	*0%*	*1.2%*	*11.4%*

[4] Integrated Digital TV Set

[5] Sum of Digital STB homes and digital IDTV Households

2.3 Television market estimates

Millions Euros	*1993*	*1994*	*1995*	*1996*	*1997*	*1998*	*1999*
Analogue TV Market							
Licence fees	2526.2	2628.0	2732.0	2875.0	3017.0	3232.5	3978.4
Advertising[6]	2849.1	3107.0	3367.0	3598.0	3997.0	4717.4	6899.7
Subscription[7]	1003.4	1066.9	1539.3	1990.2	2464.9	2828.9	2023.4
Total analogue TV	6378.70	6801.9	7638.3	8463.2	9478.9	10778.8	12901.5
Digital TV Market							
Licence fees	0	0	0	0	0	0	0
Advertising	0	0	0	0	0	15.0	271.5
Subscription	0	0	0	0	0	9.4	1646.7
Total digital TV	0	0	0	0	0	24.4	1918.2
TV Market							
Licence fees	2526.2	2628.0	2732.0	2875.0	3017.0	3232.5	3978.4
Advertising	2849.1	3107.0	3367.0	3598.0	3997.0	4732.4	7171.2
Subscription	1003.4	1066.9	1539.3	1990.2	2464.9	2838.8	3941.6
Total TV market.	6378.70	6801.9	7638.3	8463.2	9478.9	10803.7	15091.2

[6] Including advertising on cable and satellite channels
[7] Subscription to basic cable and pay-TV

2.4 Details of the subscription-TV market

Cable

	1993	*1994*	*1995*	*1996*	*1997*	*1998*	*1999*
Home passed (millions)	2.9	3.6	5.6	7.3	10.7	11.9	12.7
of which digital[8] (millions)	0	0	0	0	0	0	.05
Home passed (% of TV households)	*13.1%*	*16.1%*	*23.9%*	*30.7%*	*44.6%*	*49.2%*	52.1%
of which digital	0	0	0	0	0	0	50.0%
Analogue Basic Subscribers (millions)[9]	0.7	0.8	1.4	1.7	2.4	2.8	3.2
Digital package subscribers (millions)	0	0	0	0	0	0	0.05
Analogue Basic Subscribers (% of TV households)	*3.2%*	*3.6%*	*6.0%*	*7.2%*	*9.9%*	*11.7%*	*13.2%*
Digital package subscribers (% of TV households)	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	0.2%

Satellite

	1993	*1994*	*1995*	*1996*	*1997*	*1998*	*1999*
Satellite households[10] (millions)	2.7	3.1	3.6	4.1	4.2	4.4	4.8
Satellite households (% of TV households)	*12.2%*	*13.8%*	*15.4%*	*17.4%*	*17.5%*	*18.0%*	*19.9%*
Satellite subscribers[11] (millions)	2.400	2.700	3.100	3.400	3.600	3.508	4.066
Satellite subscribers (% of TV households)	10.8%	12.1%	13.2%	14.4%	15.0%	14.5%	*16.7%*
of which digital (millions)						0.225	2.065
of which digital (% of TV households)						*0.9%*	*8.5%*

[8] Homes passed with access to digital services
[9] Subscribers to the lower level of service
[10] Households equipped with a dish
[11] Households subscribing to a pay package

Terrestrial TV

	1993	*1994*	*1995*	*1996*	*1997*	*1998*	*1999*
Analogue Pay-TV services							
Pay-TV subscribers (millions)	0	0	0	0	0	0	0
Pay-TV subscribers (% of TV households)	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
Digital TV services							
Homes covered (millions)	0	0	0	0	0	16.0	17.5
Homes covered (% of TV households)	*0%*	*0%*	*0%*	*0%*	*0%*	*66%*	*72%*
IDTV households (millions)	0	0	0	0	0	0	0.02
IDTV households (% of TV households)	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
Pay-TV households (millions)	0	0	0	0	0	0.07	0.552
Pay-TV households (% of TV households)	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*2.3%*