



# The Communications Market 2008

## 5 Converging Markets

# Contents

<b>5.1</b>	<b>Converging communications markets</b>	<b>263</b>
5.1.1	Introduction	263
<b>5.2</b>	<b>Content</b>	<b>265</b>
5.2.1	Introduction and structure	265
5.2.2	The growing popularity of online catch-up TV content	265
5.2.3	The problem of unauthorised content sharing	273
5.2.4	The market for digital audio content	278
5.2.5	The market for video content	284
5.2.6	The market for user-generated content	285
5.2.7	The market for news content	291
5.2.8	Internet advertising	294
5.2.9	Conclusion	297
<b>5.3</b>	<b>Distribution and devices</b>	<b>299</b>
5.3.1	Distribution	299
5.3.2	Devices	303
5.3.3	Conclusion	313

## 5.1 Converging communications markets

### 5.1.1 Introduction

The term ‘convergence’ in communications markets is often used to describe the growing tendency for different content formats (audio, video, text, pictures) to reach consumers via a range of digital networks (the internet, mobile infrastructure, satellite, cable, digital terrestrial etc) and consumer devices (PC, TV, mobile etc.) This section looks at what these trends mean for the supply and consumption of communications content and services in the UK.

#### How content gets from creator to consumer

Content can travel in many ways from creator to consumer, and between consumers, but it follows the same general path, set out in Figure 5.1 below. In this report we use this pathway, or ‘value chain’, as our framework for thinking about developments in convergence.

**Figure 5.1 Delivering content and voice services to consumers**



The commentary in this section focuses on:

- **Content** – including the creation and packaging of content types where converging technologies have had a significant bearing (**page 265**).
- **Distribution and devices** – looking at the networks and devices over, and through which, consumers access content (**page 299**).

Each of these two sections groups together data which tell ‘stories’ within the overall framework of the convergence value chain.



## 5.2 Content

### 5.2.1 Introduction and structure

This section examines how converging technologies have reshaped the markets for a range of content types that, directly or indirectly, have a bearing on the industries that Ofcom regulates.

We begin by discussing **the growing popularity of online catch-up TV content** (Section 5.2.2, page 265). We consider the developments leading up to the more widespread adoption of online catch-up services, and analyse how and by whom these services are being consumed.

We then move on to consider the impact that digital networks have had on the distribution of audio-visual content. We discuss:

- **the problem of unauthorised content sharing** across peer-to-peer file-sharing networks (section 5.2.3, page 273);
- **the market for digital audio content** and how it has evolved since the introduction of digital downloads, and more recently online streaming (Section 5.2.4, page 278); and
- **the market for video content** and the share digital networks have of home-film consumption (section 5.2.5, page 284).

Converging technologies have challenged existing content types and brought opportunities to new ones. In this context, we consider:

- **the market for user-generated content** and the levels of engagement, creation, and consumption of it, in particular video sharing and social networking (Section 5.2.6, page 285);
- **the market for news content** and the difficulties facing existing providers relying on a declining source of revenue (section 5.2.7, page 291); and
- **internet advertising** and the growth of search (section 5.2.8, page 294).

### 5.2.2 The growing popularity of online catch-up TV content

#### 2008: the year online catch-up TV began to go mainstream

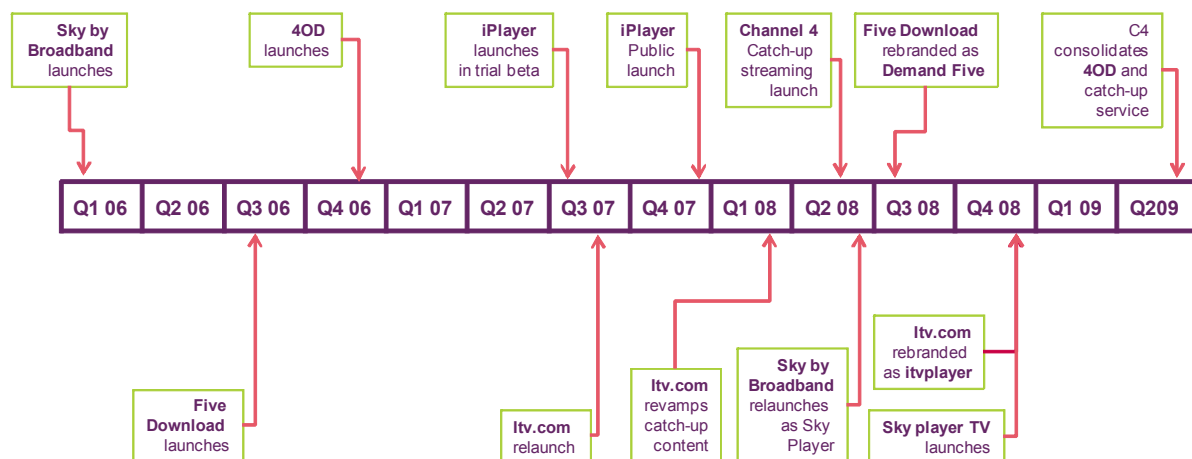
2008 marked the first year that consumers demonstrated a clear appetite to watch long-form television programmes using the internet. All major public service, and some multichannel, broadcasters now offer a comprehensive selection of their channel schedules online, ranging from seven-day catch-up programming to archive material. Consumers can access this content through the internet (using a computer or hand-held device) or in some cases on their TV set, through a cable television or IPTV network.<sup>46</sup>

Figure 5.2 shows a simplified timeline of launches and re-launches of online catch-up TV services by the major broadcasters:

---

<sup>46</sup> Viewers can also access catch-up TV through other means than online, notably digital video recorders (DVRs). We consider this further in section 5.2.2.

**Figure 5.2 Simplified timeline of major online catch-up TV launches**



Source: Ofcom based on broadcaster press releases.

Online catch-up services remained a relatively niche proposition until 2008, when a number of developments combined to improve consumer awareness and create a higher-quality, and more widely available, user experience:

- **Increased availability and take-up of broadband connections** sufficient to stream audio-visual content in real time. Ofcom research into broadband speeds found that average broadband speeds in the UK in April 2009 were 4.1Mbit/s and that 70% of broadband users receive average speeds of more than 2Mbit/s.<sup>47</sup> The BBC recommends a minimum speed of 500kbit/s to use its *iPlayer* and 3.2Mbit/s to use its high-definition *iPlayer* service;
- **New easy-to-use content delivery systems** – initially the BBC and Channel 4 both used peer-to-peer (P2P) applications to distribute content, which introduced a delay in viewing while consumers downloaded programmes. But all the main broadcasters now offer streamed catch-up services, which provide more or less instant access. In addition, in December 2008 the BBC moved the *iPlayer* away from its P2P download distribution model to an HTTP download model (i.e. downloads direct from BBC servers rather than from other users).
- **Widening access** – both the *iPlayer* and Channel 4’s catch-up content were initially unavailable to consumers using either Apple Macs or computers running Linux. However, streamed *iPlayer* content became available for both platforms in December 2007, followed by downloaded content in December 2008. Channel 4 introduced Mac and Linux functionality in April 2009;
- **Heavy marketing and cross-promotional campaigns** from many of the largest UK broadcasters, including the BBC and ITV; and
- **Distribution direct to the television set and to gaming consoles** – customers of Virgin Media, BT Vision and Tiscali TV can now access catch-up content directly through their television set rather than through a computer. In addition, the *iPlayer* is also available via the Nintendo *Wii* and Sony *Playstation 3*, while BSkyB recently announced a deal to make its content available through the Xbox *live* portal from the autumn. Some smartphones such as the *iPhone* can also access the *iPlayer*.

<sup>47</sup> See [http://www.ofcom.org.uk/research/telecoms/reports/broadband\\_speeds/broadband\\_speeds/](http://www.ofcom.org.uk/research/telecoms/reports/broadband_speeds/broadband_speeds/)

Meanwhile, innovation in catch-up TV continues. The BBC was the first broadcaster to launch HD content via its catch-up service in April 2009, when it made the *BBC HD* channel available via the *iPlayer*. And there have been initial steps towards limited service aggregation – in October 2008 BSkyB announced a deal with the BBC to make *iPlayer* content available through its *Sky Player* service. BBC programmes are listed within existing *Sky Player* genres and consumers are then directed to the *iPlayer* website when they click on a programme.

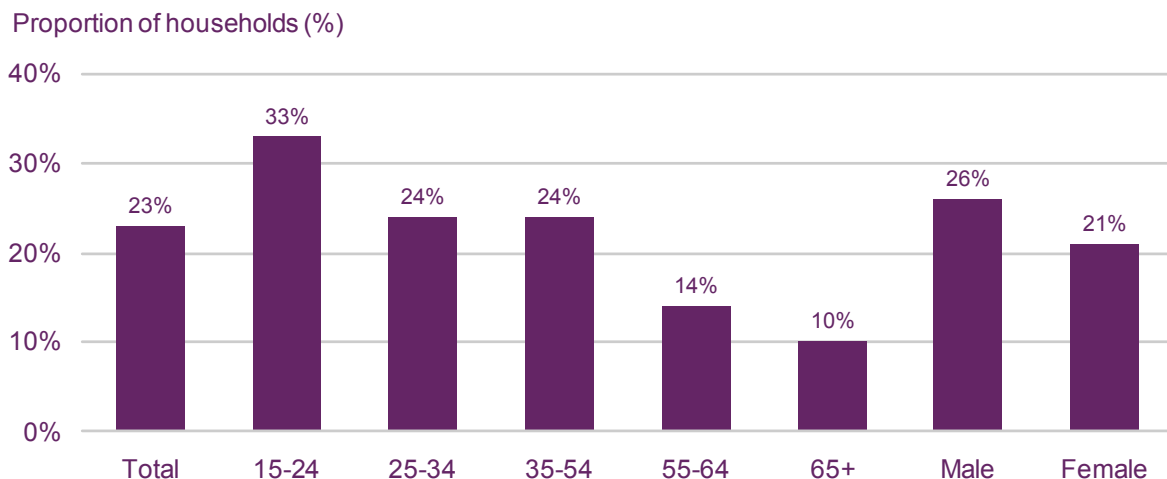
Adoption of online catch-up TV is also increasing internationally. A notable example is *Hulu*, an American service offering free-to-view content set up by NBC Universal and News Corporation in March 2008, which ABC Disney subsequently joined. According to comScore data, Hulu grew from its launch in March 2008 to become the third most popular video site in the US by April 2009. In July 2009 Johannes Larcher, Senior Vice-president International of Hulu, announced that launching in the UK was Hulu’s number one priority.

### Nearly a quarter of households use the internet to watch catch-up TV

Our consumer research (Figure 5.3) shows the growing impact of catch-up TV. Nearly one in four people with the internet at home (23%) claim that someone in their household watches catch-up TV online; this figure rises to one in three among 15-24 year olds. In general younger people and men are more likely to make this claim, possibly reflecting greater interest in, and familiarity with, the necessary technology, although among those aged 65+ the figure still stands at 10%. This may understate the true take-up of catch-up TV, as the data include only content watched online, and not over other platforms.

Despite this, it is important to remember that only a minority of people watch online catch-up TV. The reach of broadcast television is near-universal, while only 23% of adults with the internet (16% of all adults) live in a household where someone uses the internet to watch online catch-up TV. Furthermore, claimed use can differ from actual habits.

**Figure 5.3 Proportion of adults with home internet who watch online catch-up TV**



Source: Ofcom research Q1 2009. QE12 “Which, if any, of these do you or your household use the internet for whilst at home?”.

Base: All adults who have the internet at home (2009, n=2116; 15-24 n=365, 25-34 n=415, 35-54 n=884, 55-64 n=262, 65+ n=189; male n=1025, female n=1091).

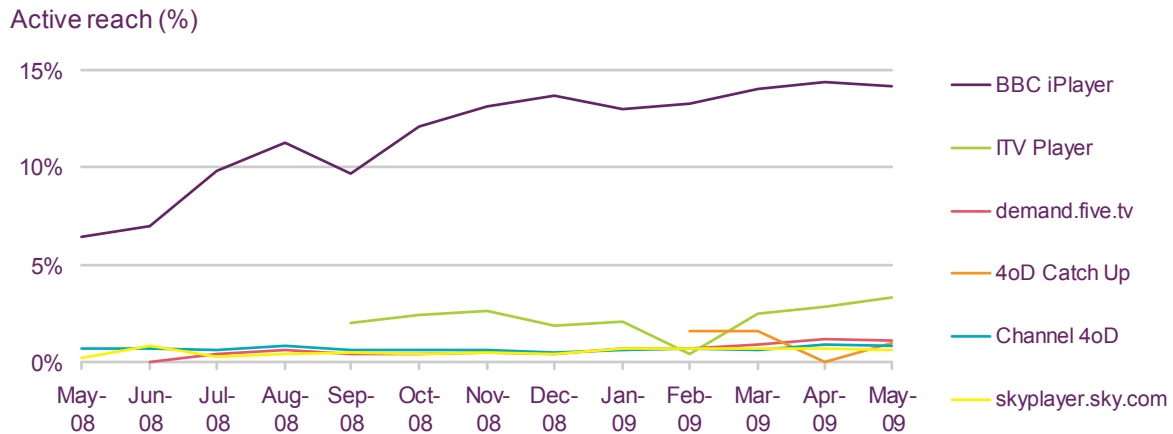
### Most online TV viewing is being driven by the BBC’s *iPlayer*

Audience data from Nielsen Online show that in May 2009 the *iPlayer* reached nearly 15% of active UK internet users, more than double the figure 12 months previously. This was nearly

five times higher than its next largest rival, the *ITV Player* (3.3%), while the reach of the remaining major catch-up TV services stood at around 1% each.

The prominence and success of the *iPlayer* and the *ITV Player* may be related to the strength of the BBC and ITV brands in the eyes of consumers, and the fact that they carry some of the most popular programming shown in the UK. In the case of the *iPlayer* it may also reflect the resources that the BBC has devoted to developing the user experience; for instance, rolling out *iPlayer* content on games consoles and revamping the consumer interface in June 2008.

**Figure 5.4 Active reach of major online catch-up TV services in the UK**



Source: Nielsen Online, home and work.

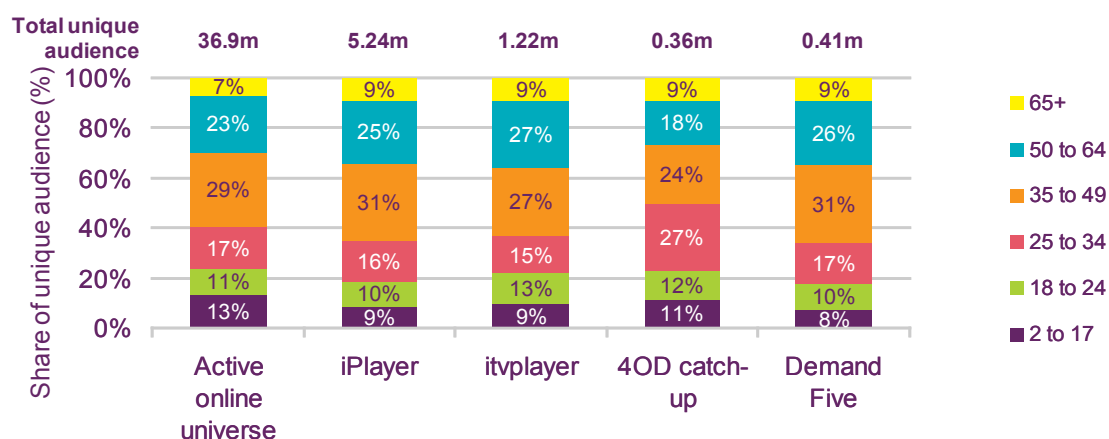
Note: No figure available for 4oD catch-up in April 2009. 'Active reach' is the percentage of all active unique persons aged 2+ who visited the site or used the application. 'Active' is defined as anyone who used an internet-enabled computer within the time period.

### 35% of the unique audience for catch-up sites is typically under 35 – more for 4OD

The age profiles of users of the *iPlayer*, *ITV player* and *Demand Five* are similar, broadly following the breakdown of the UK active online universe, with around 35% of the unique audience for each site aged under 35. Within this there are some small differences; *ITV Player* attracts a slightly larger share of 18-24s, and *iPlayer* and *Demand Five* a little more of the 25-34 group.

But *4OD catch-up*, Channel 4's catch-up offering, has a very different age profile, with nearly 50% of its unique audience under 35, and 27% aged 25-34. This compares with the UK active online universe under-35 figure of 41% and 25-34 figure of just 17%. This difference is likely to be related to the younger age profile of Channel 4, and in particular to the presence of popular programmes aimed at young people and younger adults such as *Hollyoaks*. *4OD catch-up* also has a smaller proportion of users aged 50-64 (18%). This is consistent with a lower than average audience in this age group for Channel 4's linear broadcast offering.

**Figure 5.5 UK audience profiles of PSB catch-up services, May 2009**

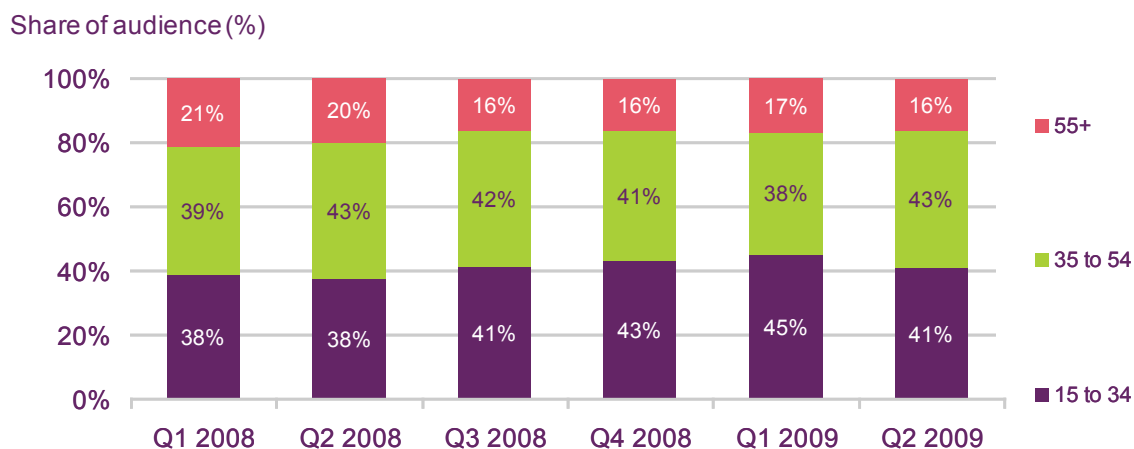


Source: Nielsen Online, home and work, month of May 2009.

Note: Use caution for the 2-17 and 65+ age groups for 4OD catch-up and Demand Five due to low sample sizes. Active online universe = people aged 2+ who used an internet-enabled computer during the period.

Data provided to Ofcom by the BBC show that while there have been some small changes in the age profile of the adult *iPlayer* audience since its launch, the general picture has not changed significantly. The biggest change was the five percentage point drop in share for the 55+ age group between Q1 2008 and Q2 2009.

**Figure 5.6 Age profile of PC *iPlayer* users over time**



Source: BBC.

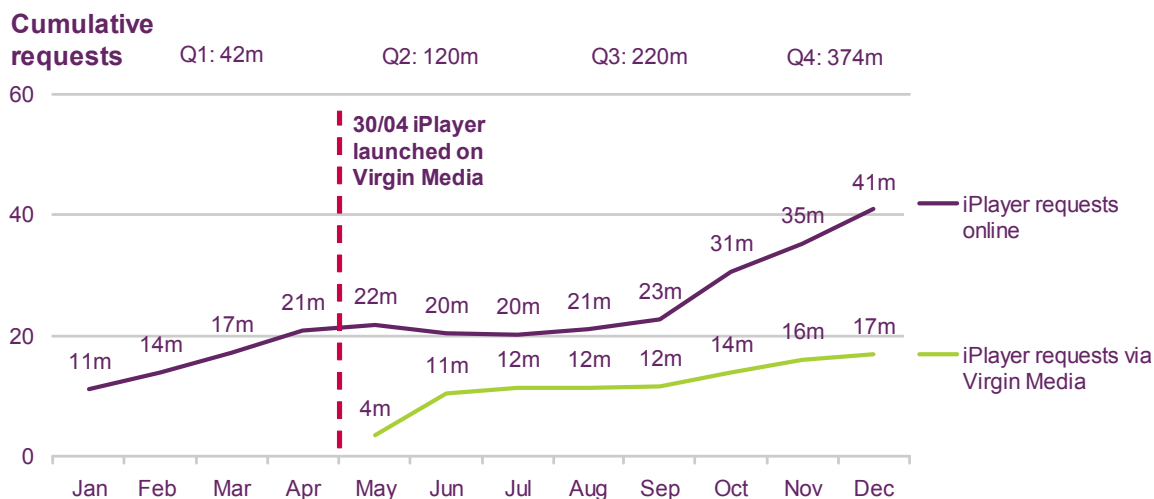
Data provided by the broadcasters indicate that people watch the different catch-up and on-demand services in different ways. (Unlike television audience measurement, these figures are not currently collected and published systematically, so comparisons should be made with caution). One example of this is that the majority of *iPlayer* content is viewed online, while TV is still the main vehicle for 4OD – we now examine this further.

### The majority of *iPlayer* content is viewed online...

In the year after its launch (at the end of 2007) there were an estimated 372 million ‘requests to view’ *iPlayer* programmes (excluding radio programmes), or an average of over 1 million each day. Of these, the majority (around 275 million) were delivered over the internet and viewed over a PC, laptop, TV or hand-held device, with the rest served via Virgin Media (Figure 5.7).

Further BBC catch-up content would also have been viewed on BT Vision and Tiscali TV, but these are not included in the BBC figures below, as these platforms offer only a selection of BBC catch-up programmes, and not the full range of *iPlayer* content.

**Figure 5.7 Monthly requests to view BBC iPlayer programmes, 2008**



Source: Ofcom, based on BBC data.

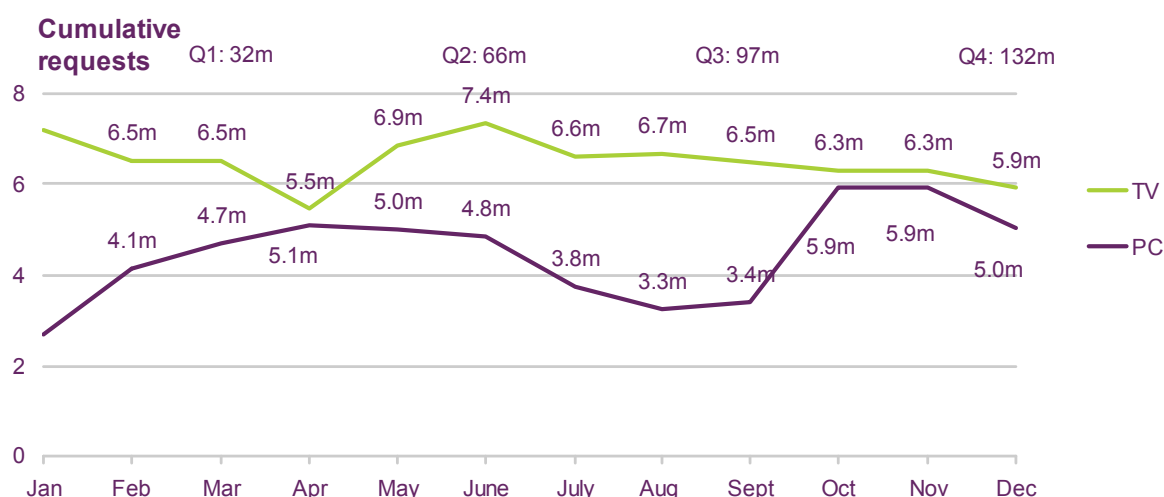
Note: The BBC's *iPlayer* measurement system is not yet audited. It is working towards meeting industry standards for video and audio streaming and downloading. It is constantly working on its measurement systems and reserves the right to augment or change its methodology as the platform develops. Some figures for Virgin Media are estimates. This chart does not include content viewed via BT Vision or Tiscali TV.

**...but consumers appear to view 4OD content more through their TVs**

The *4OD* content proposition differs from the BBC *iPlayer*, which is prevented by the BBC Trust from offering content more than 30 days old online; Channel 4, by contrast, now makes both catch-up (recently broadcast) and some archive content available free-to-view online (see introduction to section 5.2.2).

Figure 5.8 shows the cumulative requests to view *4OD* programming in 2008. In contrast to *iPlayer* content, the majority of *4OD* content is viewed through a TV service rather than online (so the charts are not strictly comparable). This may be partly because Channel 4 persevered with a less user-friendly desktop application model for longer than the BBC. Under this model, users downloaded software to their computers that they used to access and play content, rather than streaming it directly through a web browser. It could also be that the launch of the *iPlayer* on Virgin Media increased *4OD*'s TV views, as consumers looking for *iPlayer* content discovered that Channel 4 programmes were easily available on the same platform.

**Figure 5.8 Cumulative requests to view programmes on 4OD, 2008**



Source: Channel 4

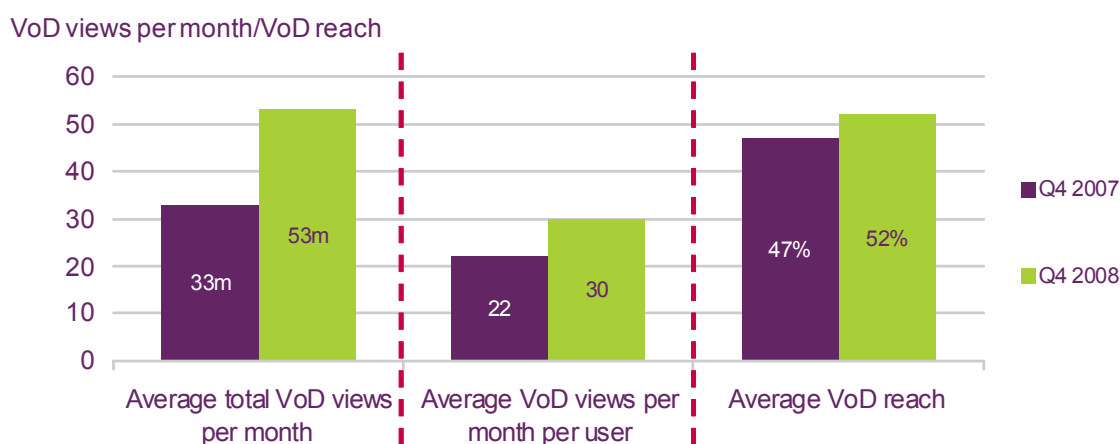
Note: TV VOD includes Virgin Media and Tiscali TV.

While there are differences in the way consumers use the BBC *iPlayer* and 4OD – and how each is used compared to broadcast television – all three are united by a summer lull in viewing. The two online services saw a reduced rate of increase in cumulative requests to view in the summer months of 2008, before growth picked up again in September. This could be a result of people spending more time before the start of the new autumn television season.

### Half of Virgin Media homes now use VoD – and they are using it more and more

With about 3.5 million subscribers (compared to c. 0.4 million for BT Vision and c. 0.1 million for Tiscali TV), many of the people able to access video on demand (VoD) through their television set are Virgin Media subscribers.<sup>48</sup> Data from Virgin Media show that TV VoD reached more than half (52%) of Virgin homes in Q4 2008, an increase of five percentage points on Q4 2007. During the same period the total average number of monthly TV VoD views rose by 20 million to 53 million, driven by the increase in the user base and also by a 30% rise in average VoD views per user, to 30 per month.

**Figure 5.9 VoD use in Virgin Media homes**



Source: Virgin Media, fourth quarter 2008 results press release

<sup>48</sup> Consumers can also watch VoD on their television sets via the Nintendo Wii or Sony PlayStation 3.

## Proposals for the next generation of online TV services

Several of the major broadcasters have sought to capitalise on the success of web-based TV services by developing new proposals seeking to develop the interface with the television set, improve content navigation or offer a 'one-stop-shop' for online catch-up TV content. In particular, two key proposals emerged in 2008 which have sought to move online viewing forward:

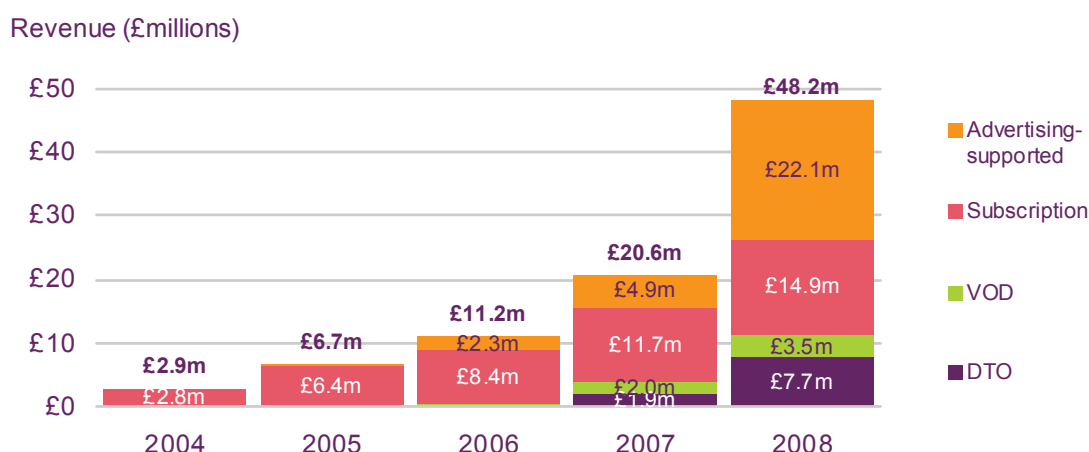
- **Project Kangaroo** – was a proposed commercial joint venture (JV) developed by BBC Worldwide, ITV and Channel 4. It planned to provide a service accessible to any UK consumer with a PC, carrying a broad range of catch-up, archive and other content. The JV partners believed that the service would benefit consumers, in particular, by making it easier for them to find content to watch online. In June 2008 the Office of Fair Trading referred Kangaroo to the Competition Commission (CC), which issued a final report blocking the service in February 2009 on the grounds that it was a threat to competition in the developing VoD market. Ofcom provided the CC and OFT with information and assistance in relation to their investigations. The CC noted that as the parties controlled the vast majority of UK-originated content this would put them in a strong position to restrict competition. The CC also considered that UK viewers might benefit from better VoD services if the parties – possibly in conjunction with other new and/or already-established providers of VoD – competed directly with each other. In July 2009 Arqiva, the transmissions operator, announced that it has agreed to acquire the platform assets of Project Kangaroo.
- **Project Canvas** – is a planned partnership between the BBC, ITV, BT and others to develop an environment for internet-connected television platforms, enabling the delivery of on-demand audio-visual content to television sets in the UK. The BBC Trust is currently reviewing the BBC's involvement in the Canvas proposal and will publish provisional conclusions in autumn 2009.

## Online TV aggregation

Apart from the BBC *iPlayer* (licence fee-funded) and Sky's *Sky Player TV* (subscription, on-demand and ad-funded), a large amount of online catch-up TV is free-to-view and funded by advertisers. The latest industry estimates of the underlying revenue mix for audio-visual content delivered online reflect the importance of advertiser-funded content aggregation.

Screen Digest estimates that online TV services in the Entertainment, News and information, and Sports genres generated revenue of £48m in 2008 (excluding film, film trailers, music, adult content or programmes featured on user-generated content (UGC) sites). Of this, advertising revenue now stands at £22.1m, accounting for 46% of total online revenue, up from £4.9m in 2007.

**Figure 5.10 Total online TV revenue**



Source: Screen Digest media analyst consultancy  
 Note: DTO = download to own. VOD = video on demand.

### 5.2.3 The problem of unauthorised content sharing

The digitisation of vast libraries of content, and the widespread availability of fast broadband networks are changing the ways in which content can be distributed and accessed. Consumers no longer have to purchase a physical disc or book but can instead access digital material online from a multitude of sources (both lawfully and unlawfully) using a number of technologies (such as streaming, direct downloads or peer-to-peer downloads).

In its *Digital Britain* report the Government proposed that Ofcom could have a role in addressing the problem of unlawful peer-to-peer file-sharing in the UK. In this context, the rest of this section provides an overview of unlawful file-sharing in the UK, highlighting recent initiatives to address the issue before looking in more detail at consumer behaviour, using a combination of consumer research and audience data. Subsequent sections look at the markets for audio and video which are particularly affected by unlawful file-sharing.

#### Digital content sharing attracts the interest of the Government's *Digital Britain* report

Unlawful copying and distribution among some consumers affects all sections of the content value chain, and has prompted the Government to examine what might be done to address it. While unlawful copying has existed for some time (e.g. home taping and pirate videos), faster internet connections, greater media literacy, the ability to produce high-quality digital content reproductions and the ease of distributing such content have all coincided with growing public debate on unlawful file-sharing.

It is difficult to quantify the impact of unlawful file-sharing. Some industry representatives believe that it is now the dominant means of accessing content – for example, the International Federation of the Phonographic Industry (IFPI) claims that around 95% of all downloaded music is unauthorised<sup>49</sup>, and an LEK study for the Motion Picture Association put the UK film industry's losses at over \$1bn in 2005.<sup>50</sup> But others put the figure lower, and its scale is likely to vary by content type (audio, film, software, games, audio-visual content etc).

<sup>49</sup> The Digital Music Report 2009, IFPI, <http://www.ifpi.org/content/library/DMR2009.pdf>.

<sup>50</sup> 'The cost of movie piracy', LEK/MPA, <http://www.mpa.org/leksummaryMPA%20revised.pdf>.

A range of initiatives have been pursued by industry and Government to address the unauthorised sharing of content, including educational campaigns, legal action, a memorandum of understanding among key stakeholders, proposed legislation, and legal alternatives to file-sharing.

In July 2008, the Government, leading ISPs, the BPI (the UK record labels' association) and the UK film industry signed a memorandum of understanding (MOU) to work towards reducing unlawful file-sharing. As part of this project the ISPs undertook to send informative letters to consumers suspected of unlawful file-sharing, but was ended on the publication of the interim *Digital Britain* report.

The Government's *Digital Britain* report, published in June 2009 included proposals to give Ofcom a duty to take steps at reducing online copyright infringement, in particular by requiring ISPs to take specified action in relation to subscribers engaging in unlawful file-sharing<sup>51</sup>. The Government is currently consulting on aspects of these legislative proposals.

However, these initiatives are not unique to the UK. One example is the so-called '*Loi HADOPI*' (sometimes referred to as 'three strikes and you're out') in France, whereby those caught repeatedly downloading unlawfully could see their internet connection suspended. The first draft of these provisions was blocked by the Constitutional Court because the penalty would be imposed by a Government agency (HADOPI), not by the judiciary. The Senate then agreed a revised version of the law. This confers the power to order a suspension to a judge, who may decide the case in an accelerated procedure without further investigation, or hold a hearing on the basis of evidence provided to the public prosecutor by HADOPI. This revised law will now be considered by the National Assembly.

A number of new services have launched offering a legal alternative to unlawful file-sharing. Examples include free advertising-supported music-streaming sites such as Spotify and We7, and a deal between Universal and Virgin Media which offers consumers unlimited MP3 downloads from Universal's catalogue (in return for a monthly fee), but threatens temporary suspension of internet access to persistent offenders who unlawfully distribute Universal's material.

### **Copying physical discs and file-sharing used equally by those who regularly copy unlawfully**

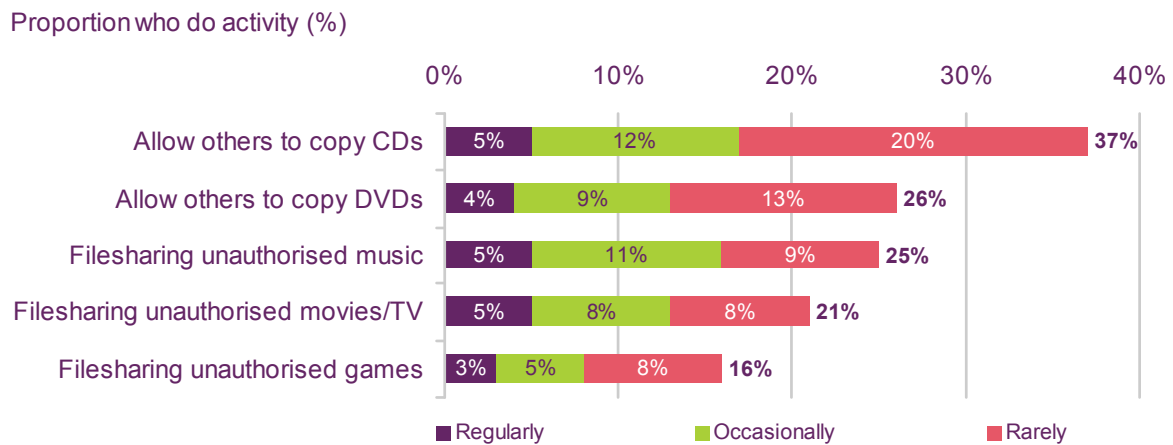
Uncovering attitudes and behaviour towards unauthorised content distribution is difficult, because consumers may be reluctant to disclose activities that they know to be unlawful, and some may not know which services are lawful and which are unlawful. But Entertainment Media Research (EMR) data suggest that concerns over file-sharing need to be seen in context. Among those who have ever accessed unauthorised content, the main method used for both video (26%) and audio (37%) is copying physical discs (Figure 5.11). This is followed by unlawful file-sharing, used by 25% for music copying and 21% for TV programmes and film.

However, if we look only at those people who say they *regularly* copy unlawfully, both copying methods are used a similar amount – implying that disc copying and file-sharing are equally serious concerns. No more than 5% of internet users fall into this camp, according to the EMR data - possibly reflecting a reluctance to admit the full extent of unlawful activities, but also perhaps pointing to a relatively small number of people being involved in high volumes of file-sharing.

---

<sup>51</sup> For a full summary of the proposals see Chapter 4 of the final *Digital Britain* report at [http://www.culture.gov.uk/images/publications/chpt4\\_digitalbritain-finalreport-jun09.pdf](http://www.culture.gov.uk/images/publications/chpt4_digitalbritain-finalreport-jun09.pdf).

**Figure 5.11 Incidence of accessing unauthorised content**



Source: Entertainment Media Research/Wiggin.

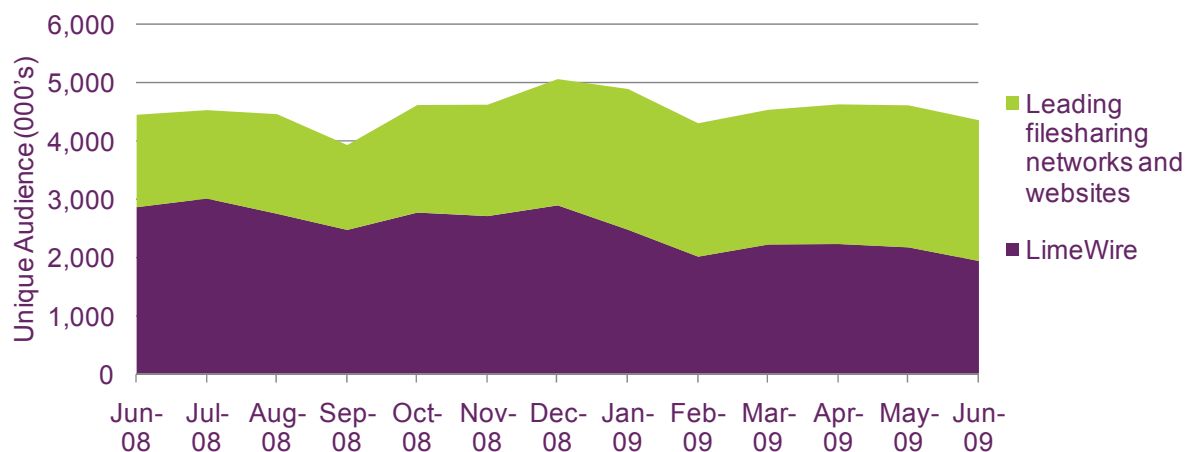
Q: Please tell us whether you do any of these leisure activities? (Base: n=1512).

### Audiences to file-sharing networks have fluctuated

Much of the public debate has focused on unlawful file-sharing as the chief means of distributing unauthorised content, and audio files as the type of content most-frequently shared unlawfully. But it is important to note that the P2P technology behind file-sharing can be used as a legitimate means of acquiring and distributing certain forms of content.

Two of the most popular means of file-sharing in the UK are LimeWire and the BitTorrent protocol. LimeWire is a piece of software which the user installs on their computer and which enables them to search, access, and distribute content, all within the same programme. In contrast, users of the BitTorrent protocol are required to search BitTorrent tracker websites to find content, which they can then access and distribute using one of a number of pieces of software (called BitTorrent clients).

**Figure 5.12 Unique audiences of leading file-sharing sites and networks**



Source: Nielsen Online

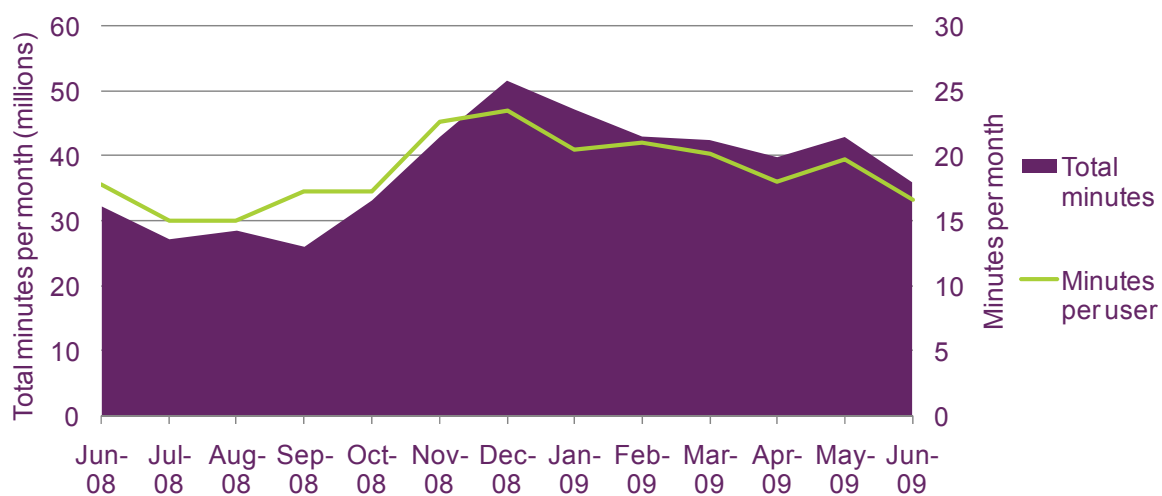
Notes: (1) The unique audience of leading file-sharing networks and websites represents the number of users who have done at least one of the following: visited one of the five leading BitTorrent trackers; used one of the four leading BitTorrent clients; used Limewire.

Data from Nielsen Online show that the unique audience of leading P2P software and websites used for file-sharing has fluctuated throughout the year, but in June 2009 was very much the same as in June 2008 (-2%). However, the means by which users share files is

changing; in June 2008, LimeWire was used by 2.9 million file-sharers but by June 2009 the LimeWire unique audience had fallen by almost a third to 1.9 million file-sharers (Figure 5.12).

Figure 5.12 shows that an increase in the number of BitTorrent users is taking up the slack created by the decline in popularity of LimeWire for file-sharing. Between June 2008 and June 2009 the total amount of time spent by file-sharers on five of the leading BitTorrent tracker websites increased by 11.5% to 36 million minutes a month. However, the average time spent in a month by a user on at least one of these websites has declined in the same period by 7%, to 16 minutes 40 seconds. The time spent browsing for content on BitTorrent tracker websites displays a seasonal pattern, with more browsing occurring during winter months, peaking at Christmas time, with the least amount of time spent during the summer months, especially in July and August (Figure 5.13).

**Figure 5.13 Time spent on leading BitTorrent trackers**



Source: Nielsen Online

Notes: (1) Tracker websites used here are The Pirate Bay, Mininova.org, isoHunt, TorrentReactor, and Torrentz. (2) Data in this chart only includes BitTorrent trackers and is incomparable with data in Figure 5.12.

However, the data in Figure 5.12 do *not* represent the total number of people engaged in unlawful file-sharing, because:

- it is impossible to tell what people actually use these sites and applications for – as people can use them for entirely legal purposes; and
- unique audience data tracks the number of unique users who access a site or application online. It does not track intensity of use – many people may click through once and never return; and

**File-sharers claim that price and choice are the main reasons they download content unlawfully**

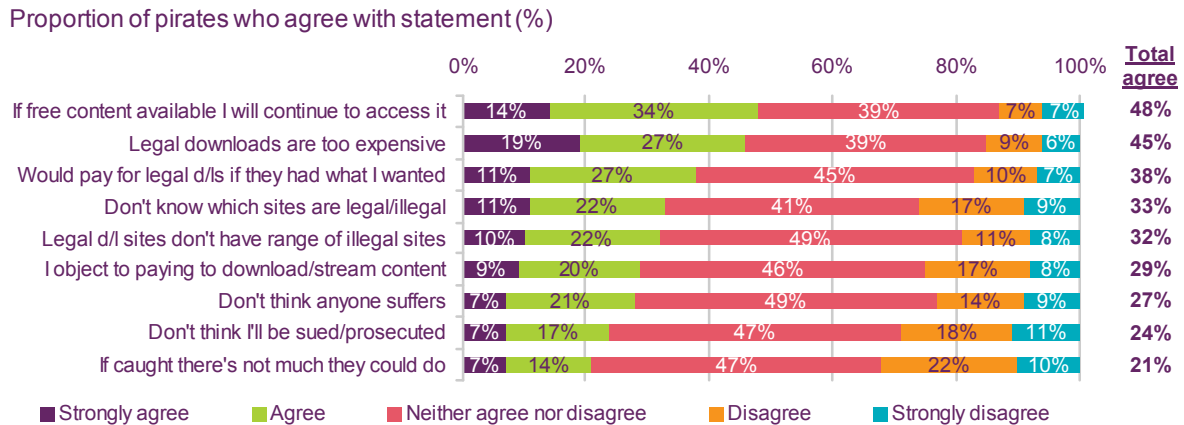
Entertainment Media Research found that nearly half (48%) of those who engage in unlawful file-sharing content copying said that they would continue to access ‘free’ content for as long as it is available, and 45% thought that legal downloads are too expensive.

Choice was the other main issue cited by people who access unauthorised content in the survey. Thirty-eight per cent said they would pay for legal downloads if legitimate sites had what they wanted, while 32% complained that legal sites did not have the same content

range as illegal sites. It is also worth noting that a third (33%) of people who access unauthorised content say that they don't know which sites are legal and which are illegal.

Nevertheless, it can be difficult to establish the real reasons behind consumer behaviour since surveyed opinions do not always reflect actual conduct, especially around a contentious issue like unlawful file-sharing.

**Figure 5.14 Attitudes towards unauthorised content**



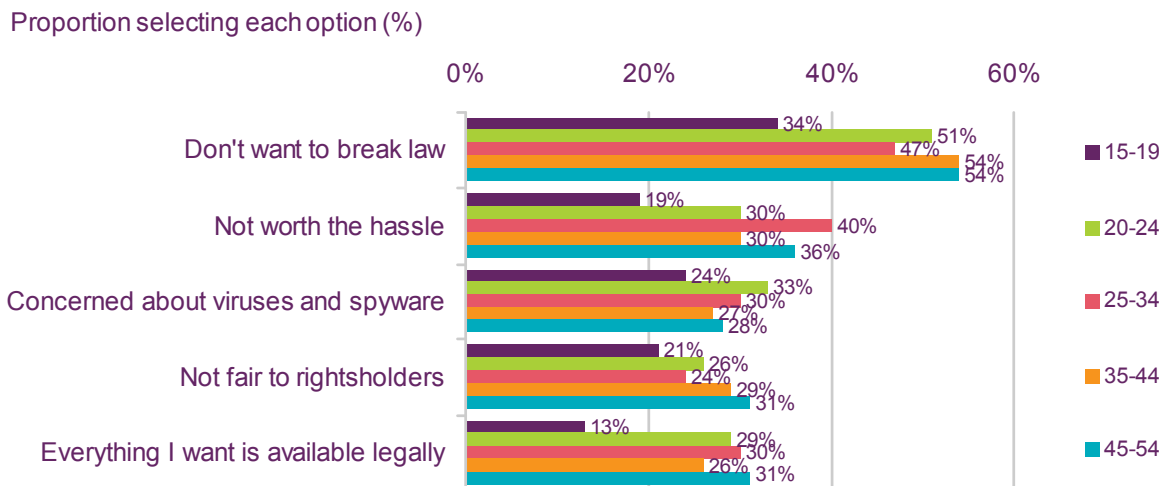
Source: Entertainment Media Research/Wiggin.

Q: Please tell us whether you do any of these leisure activities? (All pirating content, n=595).

**Wishing to abide by the law is the main reason people don't access unauthorised content...**

Further data from Entertainment Media Research show that the reason most commonly given for not copying content unlawfully (Figure 5.15), is a desire not to break the law – cited by half of those who don't do so, although this fell to 34% among 15-19 year olds. Younger people were also less likely to say that all of the content they want is available legally (13%).

**Figure 5.15 Top five reasons why people don't access unauthorised content**



Source: Source: Entertainment Media Research/Wiggin.

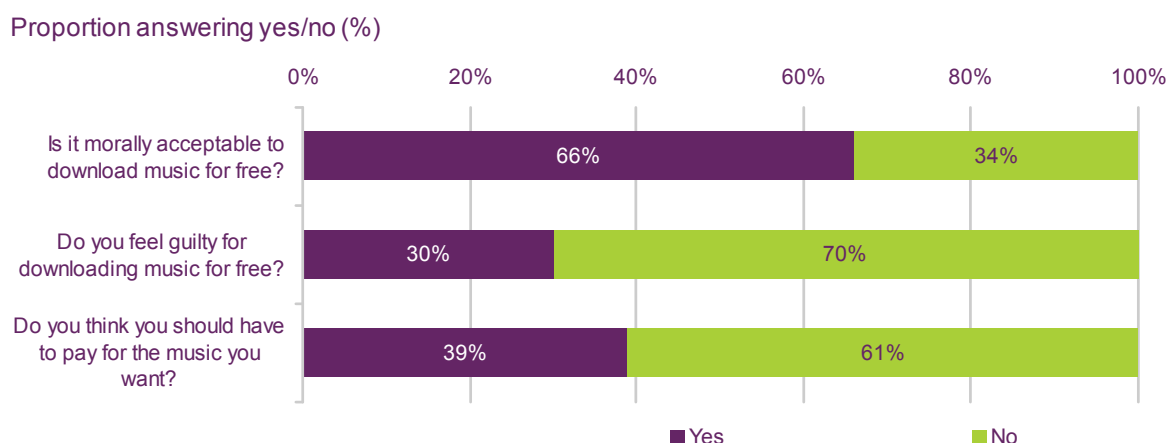
Q: Why do you not engage in online piracy? Please select all that apply. Base: all who don't pirate (n=917).

### ...but younger people have fewer scruples about accessing content for free

A survey conducted by Human Capital provides further evidence of the attitude held by younger people towards the availability of music content; it suggests that two-thirds of 15-24s think that downloading music for free is “morally acceptable”; while only four in ten believe that they should have to pay for the music that they want.

It is not clear whether this age group will continue to hold these opinions as they grow older – this may be a generational rather than a cohort effect. But it is possible that the content industry might respond to this, as Spotify has done, by developing legitimate but free-at-the-point-of access download or streaming services.

**Figure 5.16 15-24s’ opinions on music content**



Source: Youth and Music survey 2009, Human Capital/Marrakesh Records.

Base: All 15-24 year olds (n=1026).

Note: Excludes those who did not express an opinion.

#### 5.2.4 The market for digital audio content

The music industry has been particularly affected by changes in modes of content distribution and consumption. In the context of the role that the Government has asked Ofcom to play in negotiations over unauthorised downloads of audio-visual material, and our wider interest as the regulator of the networks over which digital music content flows, we now set out an analysis of the market for digital music.

##### Accessing digital audio content

Digital audio content is available in a variety of ways. Three of the most common include:

**direct downloads** – full track downloads from pay-per download sites such as *iTunes*, *eMusic* or Amazon, or subscription services such as *Napster*;

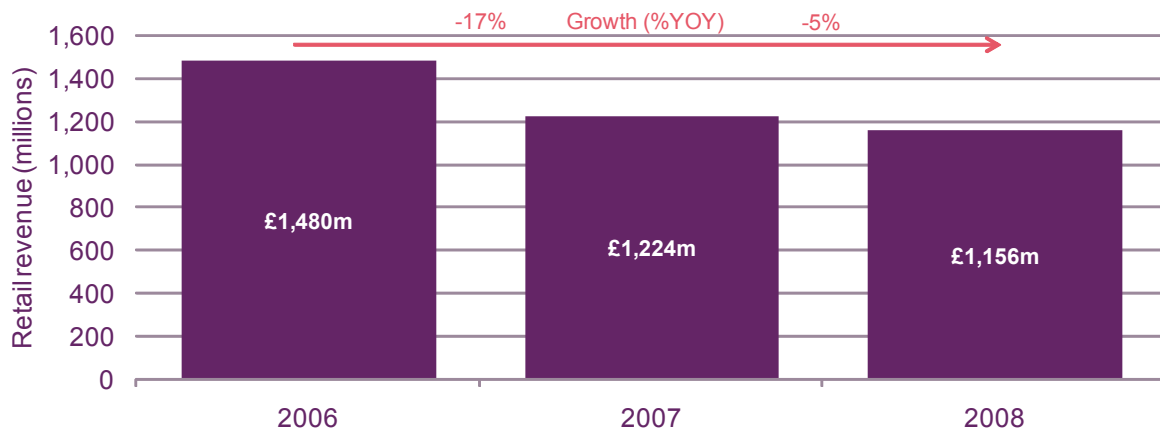
**peer-to-peer (P2P) downloads** – peer-to-peer file-sharing technologies include protocols, software and websites which enable users to download, among other things, audio content from one or a number of individuals simultaneously. Equally, these technologies enable the user to upload such content to other users on the same P2P network; and

**online streaming** – music streamed directly over the internet in a browser (for example *We7*) or through a downloadable application (like *Spotify*). The content can be free-to-listen and supported by advertising, or accessible on a subscription or one-off fee basis.

## Digital downloads begin to stem the decline in UK music sales

The total retail value of music sales continued to shrink in 2008, but at a declining rate. Screen Digest data reveal a 5% reduction in the retail value of music sales between 2007 and 2008 (Figure 5.17). This is substantially less than the 17% drop recorded between 2006 and 2007, helped by a slowdown in the decline in sales of physical music, offset by accelerating growth of digital music sales (Figure 5.18).

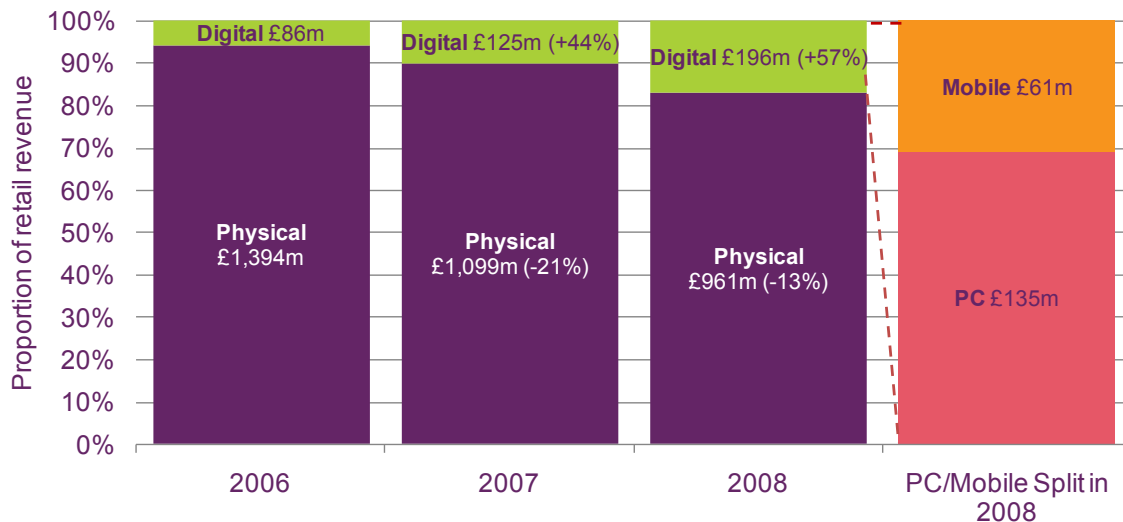
**Figure 5.17 Value of retail music sales in the UK**



Source: Screen Digest

The mobile platform continues to play an important role in stimulating digital music sales. In a year that saw the launch of Nokia's *Comes With Music* and the *iPhone 3G*, a third of digital music purchases were made over a mobile device during 2008, broadly in line with 2007 (Figure 5.18).

**Figure 5.18 Physical and digital proportions of retail music sales in the UK**

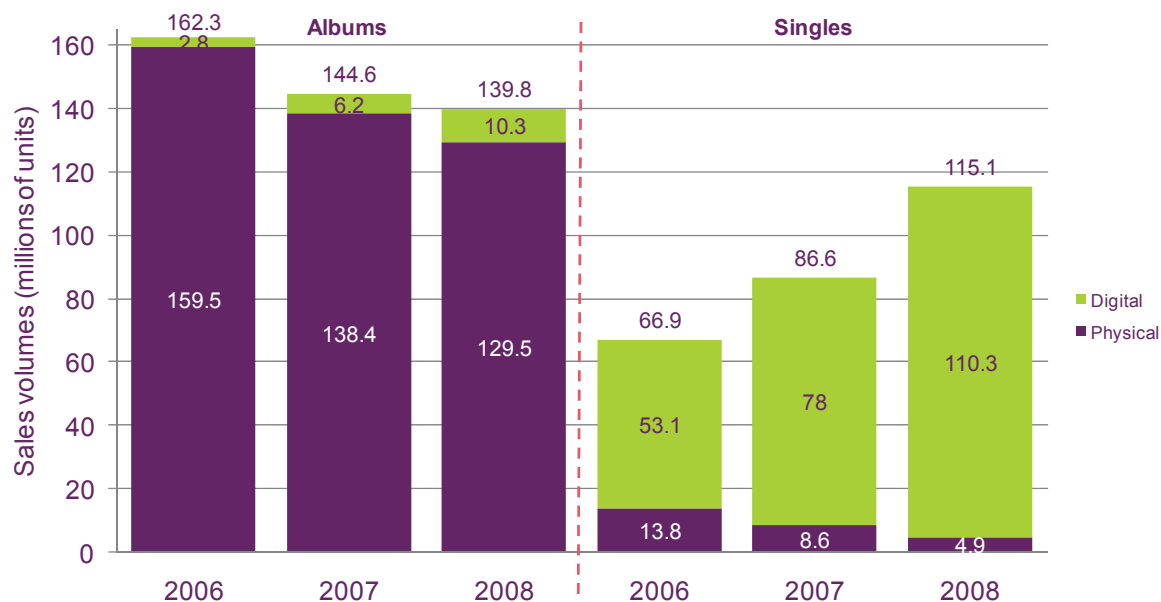


Source: Screen Digest

Physical album sales continued to decline, but at a much slower rate, down by less than 10 million units in 2008 compared to more than 20 million units in 2007. Digital album sales went up by over 4 million, which helped stem the overall decline in album sales to less than 5 million units.

Digital distribution also helped fuel the growth in singles sales, which rose 33% year-on-year - physical sales now make up only 4% of the singles market. With album sales declining and singles sales growing rapidly, albums and singles are now beginning to head towards sales volume parity.

**Figure 5.19 Music sales by volume, 2006 - 2008**



Source: Entertainment Retailers' Association yearbook 2009.

In 2008 consumers had more choice than ever before in the range of online stores from which they can download digital music, as Play.com, Tesco Digital, and Amazon all launched download services. And there has been innovation in pricing structures and purchase options, driven partly by partnerships between download stores and rights owners; Spotify announced in March 2009 that it had partnered with 7Digital to offer pay-per-download music, and in June 2009 Virgin Media announced a service which will offer unlimited downloads and streaming from Universal Music's entire catalogue. Virgin Media also plans to offer an 'entry-level' service for consumers who may not want an 'all you can eat' product; Sky mooted a similar offer with Universal in July 2008 but further details have yet to appear.

However, Apple's *iTunes Store* remains the largest digital music retailer in the UK, and according to the BPI's annual statistics report accounted for 72% of all singles sales, and three-quarters of all digital albums sold in the UK. In January 2009, Apple announced that it would remove digital rights management (DRM - see *The end of DRM* section below), and introduced a new, tiered, pricing structure for single track downloads. These had historically been priced at 79p but now cost 59p, 79p or 99p, allowing record labels to charge a premium for the most popular 'must have' purchases.

## The rise of DRM-free digital music

The launch in 2008 of big brand-name digital music stores like Amazon, Tesco Digital, and Play.com all without digital rights management (DRM) software was the start of a shift towards DRM-free music amongst digital retailers. DRM-free music also appeared in the 'all you can eat' model of music consumption when Datz.com launched the *Datz Music Lounge* as a challenger to Nokia's *Comes With Music* unlimited music offering.

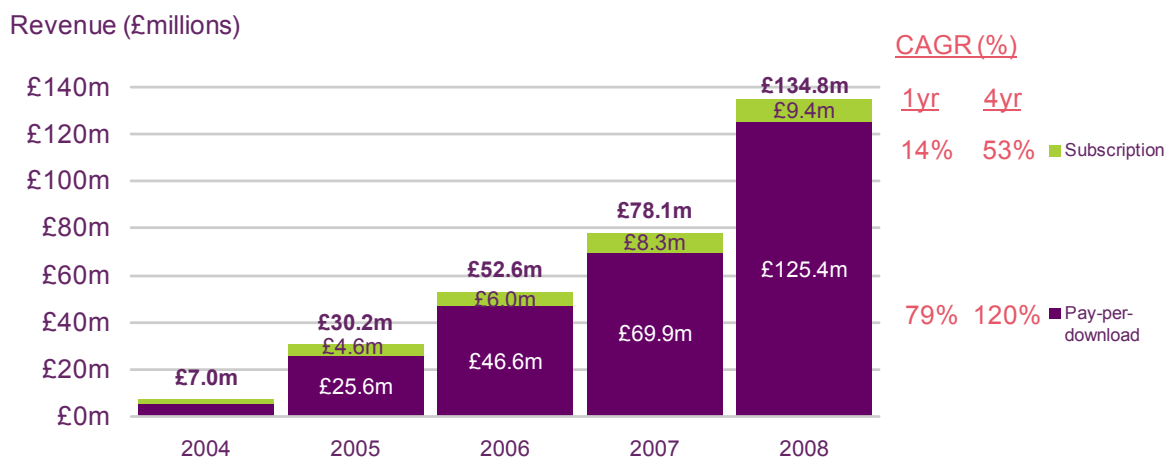
However, the biggest shift towards DRM-free digital music occurred on 6 January 2009, when Apple, as the largest digital music retailer in the UK, announced that it had come to an agreement with the four major record labels - Universal Music Group, Sony BMG, Warner Music Group and EMI, as well as thousands of independents, to offer all music at the *iTunes* store DRM-free. Prior to this, Apple had had a deal with EMI, but with the new industry-wide initiative in place, more than 10 million DRM-free tracks now are available from the *iTunes* store.

The removal of DRM from Apple's music library means that music purchased from *iTunes* can be played on any digital music player and not just Apple's *iPods* and *iPhones*. In its annual summary of the recorded music and music publishing industries Enders Analysis commented that "the removal of DRM will improve the state of competition in the market for permanent downloads, since all stores become player-agnostic and all players become store-agnostic"<sup>52</sup>. Nevertheless, DRM is still seen by many as a possible enabler of future business models.

### Pay-per-download remains most popular revenue model for music online ...

Music revenue from pay-per-download and subscription download-to-own services totalled £134.8m in 2008, a 73% year-on-year increase. Pay-per-download sites such as *iTunes* and 7Digital generated the vast majority of this revenue (£125.4m). Subscription services such as *Napster*, which offer either unlimited or a fixed number of downloads in exchange for a monthly fee, generated £9.4m, up by 14% but continuing to fall as a proportion of total revenue.

**Figure 5.20 Online music revenues**



Source: *Screen Digest*

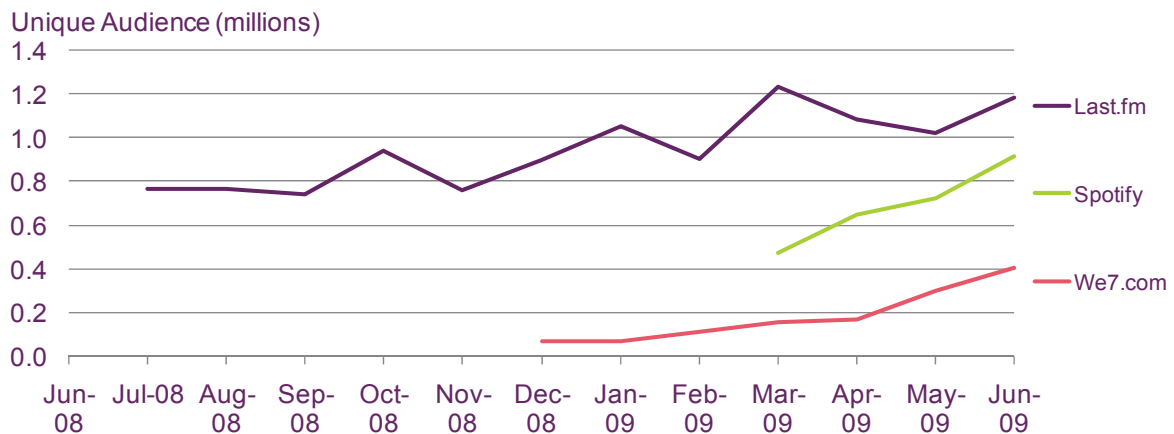
Note: does not include revenues from ad-supported streaming sites.

<sup>52</sup> Enders Analysis, "Recorded Music and Publishing", 4 June 2009

...but online streaming services emerge as an alternative...

Ofcom analysis based on Nielsen audience data (Figure 5.21) reveals *Spotify's* rapid ascent during 2009, entering in March with three times the unique audience of competitor *We7* and growing at an average of 25% per month to June 2009. However, *We7* is rising strongly, with average growth of 38% a month over the same period. *Last.fm* remains the most popular free-to-listen music streaming service in the UK and has seen its unique audience rise by 48% in the last 12 months.

**Figure 5.21 Unique audience of UK free-to-listen music streaming services**



Source: Nielsen Online

Note: Due to a change in methodology, use caution for comparisons pre-October 2008.

### The UK's free-to-listen online streaming services

Free-to-listen online streaming services such as *Last.fm* and *We7* have existed for several years. *Last.fm* was founded in 2002 as a music recommendation service and personalised internet radio station. In January 2008 *Last.fm's* business model evolved by allowing users to stream each track up to three times. Users of the premium subscription service pay a £3 monthly fee to remove advertisements from the website and to use other advanced features.

*We7* was launched in April 2007 as an advertising-funded music download service, but announced a switch of focus to a music streaming model (underpinned by advertising) in October 2008. Tracks from all four major labels (Universal Music Group, Sony BMG, Warner Music Group, and EMI) can be accessed within the internet browser (without the need for a download or registration) and feature short 5-10 second 'blipverts' before the start of each song.

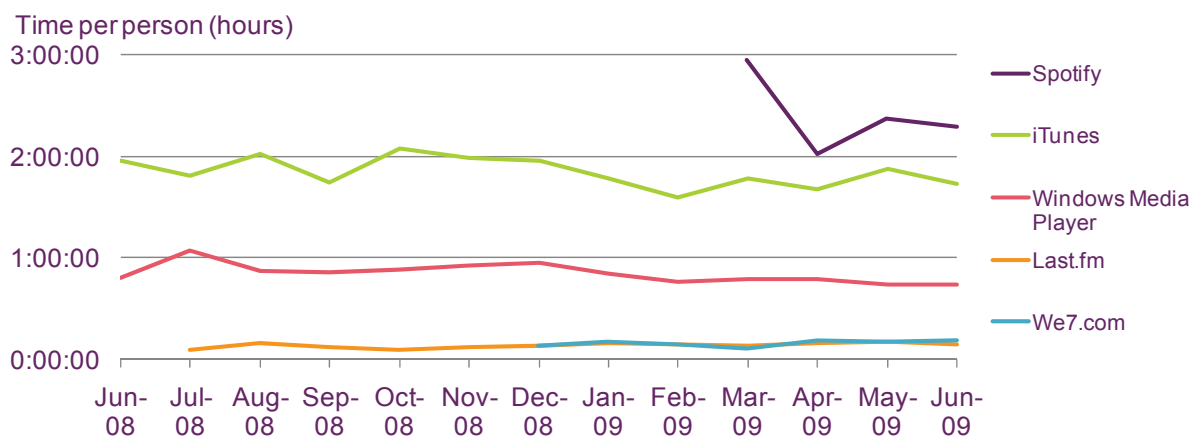
The most recent addition to the roster of UK free-to-listen music streaming services is Swedish start-up *Spotify*, which launched its subscription service in October 2008 after announcing a deal with the four major record labels. In February 2009 the ad-supported free version of *Spotify* was released from public beta trial phase and opened up to everyone in the UK. Unlike its competitors *We7* and *Last.fm*, *Spotify* is not a browser-based service and requires users to install a downloaded application on their computer to stream music<sup>53</sup>. The free version of *Spotify* features 30-60 second audio advertisements about three times an hour, while the premium version at £9.99 a month removes the ads and offers content before its public release and exclusive competitions. Users of the free version can also purchase a £0.99 day-pass to remove adverts.

<sup>53</sup> The *Last.fm* player is a client version of the *Last.fm* service, and this user experience is replicated on the *Last.fm* website.

While the number of people using free-to-listen music streaming services has risen over the past year, the majority of digital music listening on the PC occurs offline. In June 2009 *iTunes* and *Windows Media Player (WMP)* (the two main applications through which consumers can listen to digital music stored on their computer’s hard drive) attracted unique audiences of 7.1 million and 14.2 million respectively. In this context these figures show the number of people who opened and ran these applications on their computers and do not necessarily represent a connection to the internet or a website. The unique audience figures of *iTunes* and *WMP* far outweigh the number of users engaging with online music streaming services. *Windows Media Player* is the default media player, bundled with Microsoft’s operating system, while *iTunes* is required for those who own an *iPod* or *iPhone*.

Nevertheless, while *Spotify*’s audience might be smaller (although growing fast), the amount of time that its users spend on it is growing rapidly and is now higher than that of either *WMP* or *iTunes*. Over the past year the average user spent 1.5 to 2 hours per month on *iTunes*, while the comparable figure for *WMP* fluctuated between 45 minutes and an hour. But in *Spotify*’s first full month after public launch users spent nearly 3 hours on the service, and since then the average time spent has stabilised at around two hours 15 minutes. Users of free-to-listen streaming websites *Last.fm* and *We7* use these music services for around 10 minutes per month (Figure 5.22).

**Figure 5.22 Time spent using selected music services and media players**



Source: Nielsen Online.

Note: (1) Due to a change in methodology, use caution for comparisons pre-October 2008. (2) Data are unavailable for We7.com between Jun-08 and Nov-08, and for Last.fm in June-08, because of insufficient sample size. (3) Data are unavailable before Mar-09 for Spotify because the service had not yet fully launched. (4) *iTunes* and *Windows Media Player* can be used to play media other than music.

It is important to stipulate that Nielsen Online’s methodology only counts genuine time spent on an application when it is ‘in focus’. This refers to the application to which keyboard and mouse activity is directed; only one application can be in focus at a time<sup>54</sup>. Furthermore, if the user remains inactive for 30 minutes or more the time accrued to the application ‘in focus’ is discounted to one minute after the last-recorded activity.

Because listening can occur while an application is ‘out of focus’ and because prolonged periods of inactive ‘in focus’ activity are discounted, the time spent on the media applications and music streaming websites, shown in Figure 5.22, does not represent actual time spent listening to music; it is likely to significantly understate it. But Figure 5.22 is useful in that it shows the time spent browsing, searching, and compiling music playlists, either on the music

<sup>54</sup> Nielsen Online, “FAQ: NetView “Time Spent” Metrics”,

services or on media players. Longer periods of time spent on media players like *iTunes* and *WMP* suggest greater engagement with applications than with web-based streaming services like *We7* and *Last.fm*. *Spotify*, however, attains greater engagement than either offline media players or web-based streaming services.

#### ...and raise questions of access and ownership

The early success of *Spotify* has raised questions about the way people will consume music in the future. By providing unlimited access to music, rather than ownership, it offers a new way for many people to listen to the content they like. But it remains to be seen whether this unlimited access model will complement or replace the existing download model in the consumption of digital music. Is the model of free unlimited access to music sustainable, and is it one which consumers will choose in addition to, or substitution for, ownership?

Music licensing is an important cost element for services such as *Spotify*. Rates for online music streaming services fell in May 2009 after PRS for Music (the organisation that collects artists' performance royalties in the UK) announced a reduction in the minimum payment per streamed track. Advertising revenues form an important revenue stream for some free-to-listen streaming services. But with advertising markets under pressure, industry players are also exploring other revenue opportunities such as premium service subscription providing advert-free and higher-quality streaming, or new mobile services. For example, *Spotify* announced in May 2009 that it is currently developing applications for mobile devices, access to which will be limited to premium subscribers.

### 5.2.5 The market for video content

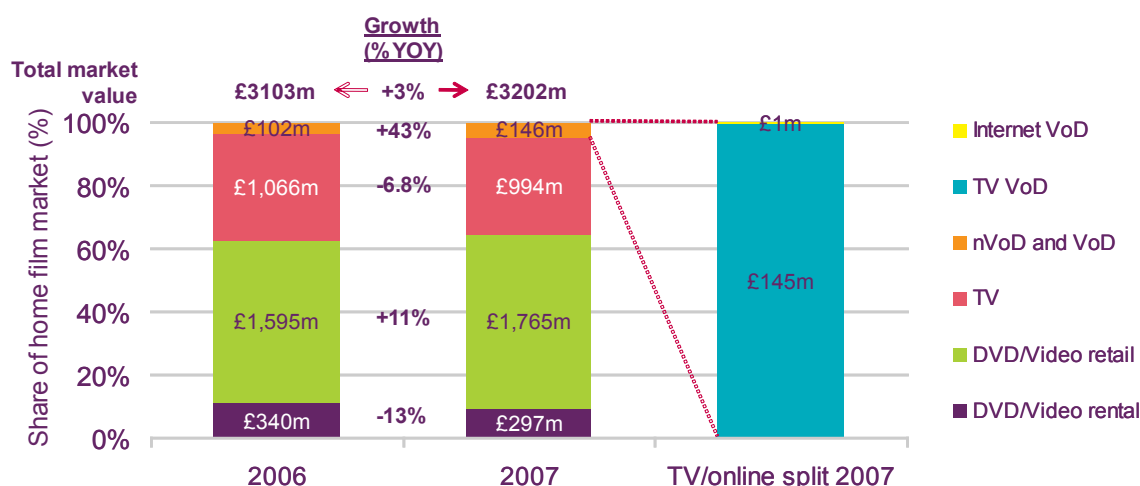
Developments in the online film and video markets have a bearing on the markets for traditional broadcast based audio-visual content to the extent that they offer consumers new ways to access content.

The widespread adoption of multichannel TV, the launch of free-to-view film channels and the growing availability of broadband speeds of 2Mbit/s and over, enable films to be accessed from a number of different sources. And certain categories of films are increasingly available on demand, with established near-video on-demand services (nVoD or pay-per-view) such as *Sky Box Office* now joined by 'true' video on demand (VoD) provided by cable/IPTV operators (such as Virgin Media or Tiscali TV) and over the internet from providers such as *iTunes* and *LoveFilm.com*.

But nVoD and VoD only make up a small part of the home film market, according to the UK Film Council, accounting for £146m or 4.5% of the total revenue generated in 2007, up by 43% year-on-year. Internet-based VoD generated just £1m (Figure 5.23). This may be because:

- the market for online film VoD is still in its infancy and consumers may not yet be used to downloading film content;
- without a fast broadband connection downloading film content can take a significant amount of time;
- given the typical length of films, some consumers may prefer to watch film content in their living rooms; and
- some online revenues may be lost to unauthorised downloads and streams.

**Figure 5.23 Share of home film market, 2006-2007**



Source: UK Film Council/Ofcom based on Nielsen EDI, MRIB, BVA, Official Charts Company, Attentional, Screen Digest, RSU Analysis.

Note: 'TV' is the market value of film content shown on pay-TV, terrestrial TV and free multi-channel TV. Pay-per-view is included in 'nVoD'.

### 5.2.6 The market for user-generated content

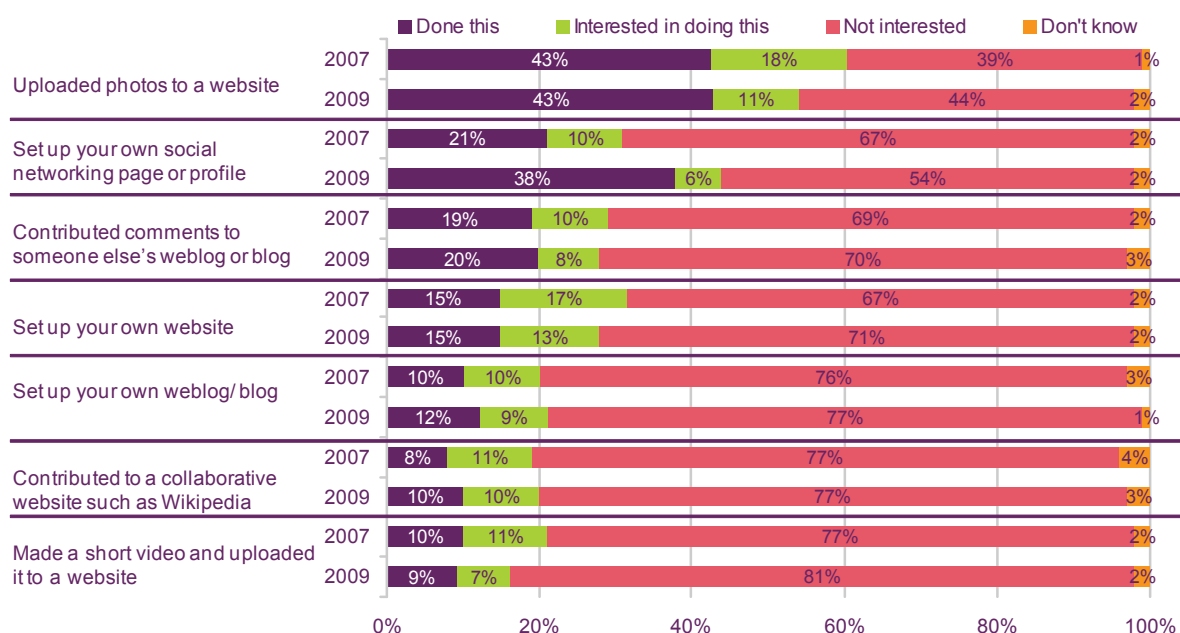
The growth of user-generated content (UGC) has led to the availability of new content types (e.g. peer-review websites like Yelp.co.uk) and has encouraged a number of interesting new consumer behaviours. But it has also led to concerns about navigation, content quality, safety online and wider issues of media literacy that fall within Ofcom's statutory remit.

UGC takes a variety of forms, but commonly includes blogs, photos, videos, audio, applications and web pages. Some UGC websites specialise in a particular type of content (for example Flickr, which is dedicated to photos and photo-sharing) while others allow the aggregation of several different content types (social networking sites and blogs are a good example of this).

#### Apart from social networking, engagement with UGC is changing little

Our research shows that only a minority of people engage with most types of UGC. The most popular activity is uploading photos to a website, which 43% of internet users claim to have done, while 38% have set up a profile on social networking sites such as Facebook and MySpace. We found only marginal increases from 2007 in the number of people saying they had tried most UGC activities, and a drop in their level of interest in trying them in the future – suggesting that the novelty factor has worn off. It is worth noting that social networking sites increasingly encompass several of the categories of UGC in the chart below.

**Figure 5.24 Levels of interest in, or engagement with, user-generated content types**



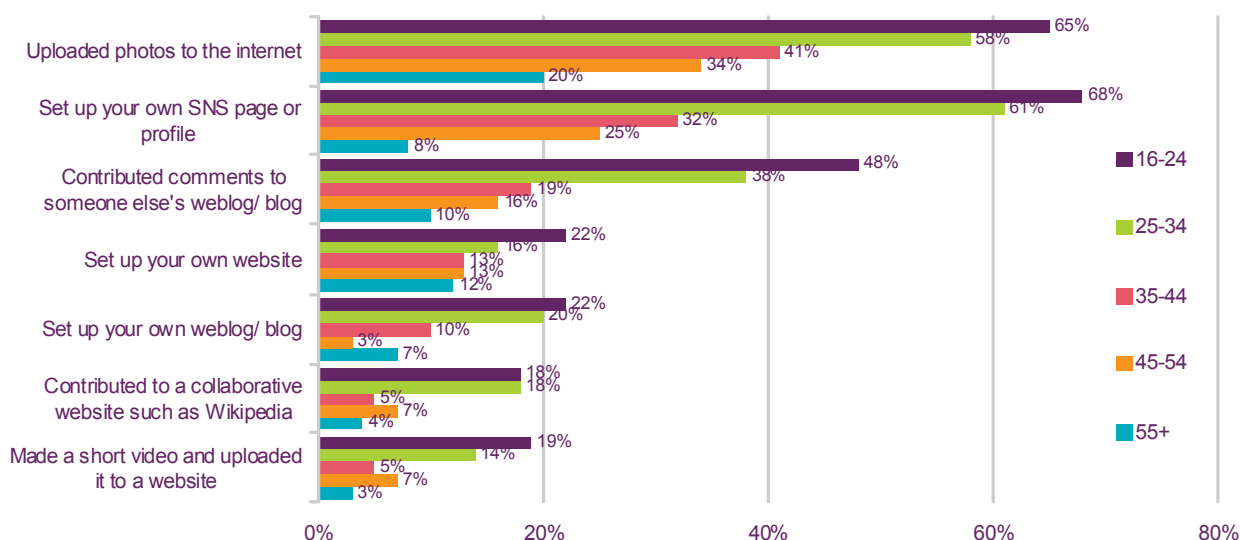
IN23A-I – I'm going to read out a number of things people might do online. Please tell me for each one I read out if you've done it, or you'd be interested in doing it, or not interested.

Base: All who use the internet at home or elsewhere (1723 in 2007, 580 in 2009)

Source: Ofcom media literacy research, fieldwork carried out by Saville Rossiter-Base in April to May 2009

Unsurprisingly, younger people were most likely to have engaged in creative UGC activities such as contributing to blogs or setting up websites.

**Figure 5.25 Experience of creative activities, by age**



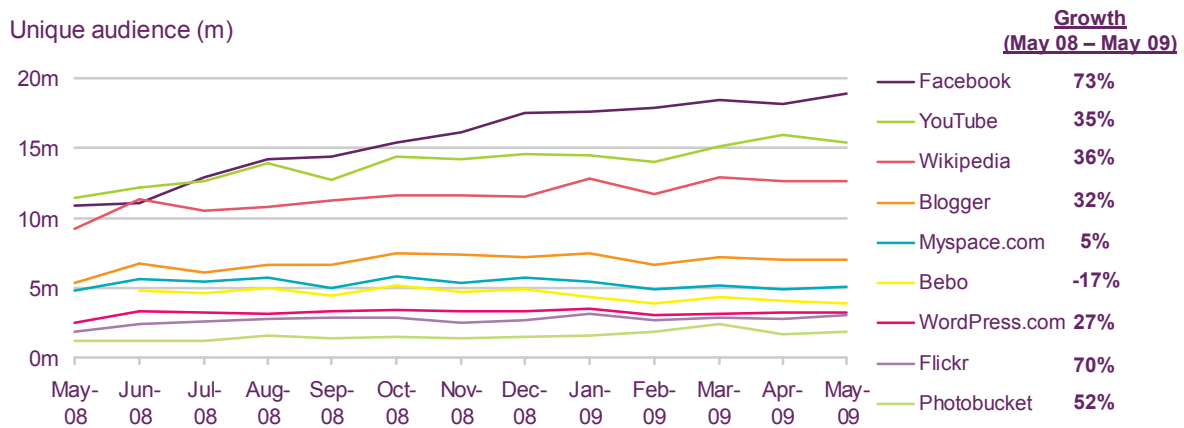
IN23A-I – I'm going to read out a number of things people might do online. Please tell me for each one I read out if you've done it, or you'd be interested in doing it, or not interested.

Base: All who use the internet at home or elsewhere (580 aged 16+, 92 aged 16-24, 105 aged 25-34, 149 aged 35-44, 111 aged 45-54, 123 aged 55+).

Source: Ofcom media literacy research, fieldwork carried out by Saville Rossiter-Base in April to May 2009.

According to data from Nielsen Online (Figure 5.26) some user-generated content sites are growing significantly, with Facebook in particular having overtaken both YouTube and Wikipedia in the last year as the site with the greatest number of unique users each month. However, most of the leading UGC communities appear to have stabilised with between 1 – 5 million users.

**Figure 5.26 UK visitors to user-generated content sites**



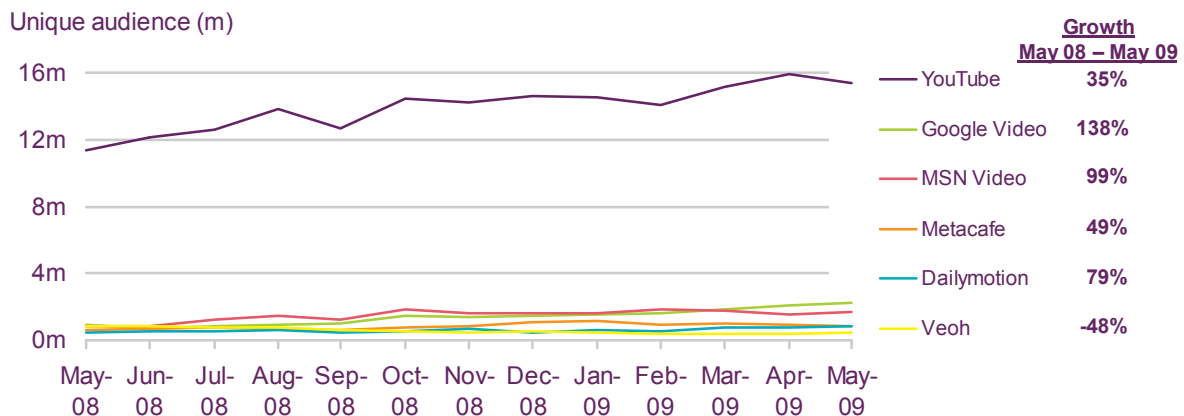
Source: Nielsen Online.

Note: Due to a change in methodology, use caution for comparisons pre October 2008. Bebo growth is from June 2008.

### Video-sharing services

Video-sharing services aggregate video content, and let users stream clips free of charge. They are predominantly concerned with short-form content, although increasingly it is possible to find some longer-form content too. YouTube (owned by Google) is easily the most popular video-sharing service, with a unique audience of just under 16 million in May 2009, up 35% on the same period last year.

**Figure 5.27 UK unique visitors to selected video-sharing sites**



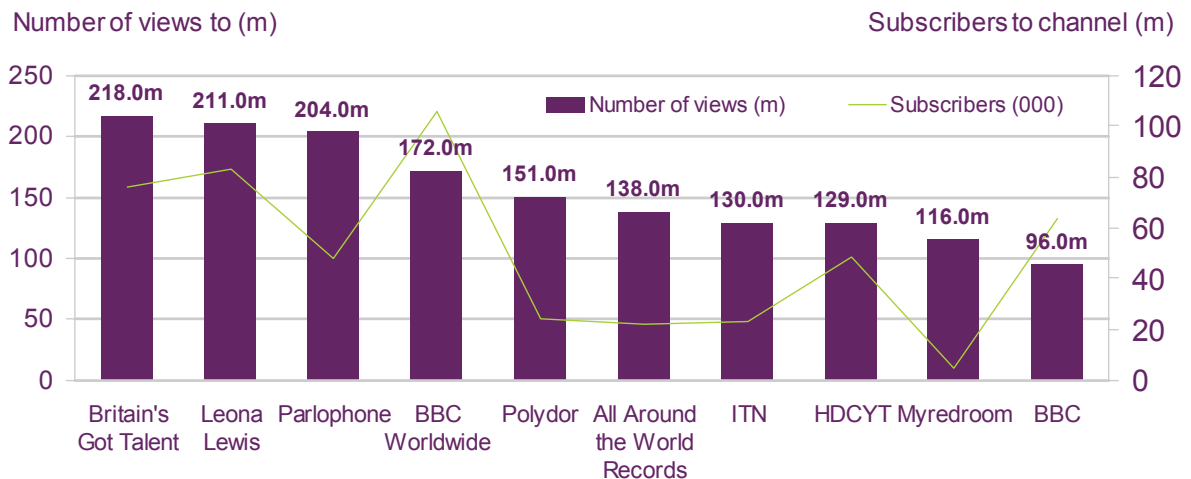
Source: Nielsen Online.

Note: Due to a change in methodology, use caution for comparisons pre October 2008. Annual growth calculated from May 08 – May 09.

YouTube is often characterised as a user-generated content site. But like several other video-sharing sites, it also includes a large amount of professionally-produced content, made available by studios, music labels and other content providers.

Figure (Figure 5.27) shows the top ten YouTube channels in the UK by number of views. All but two are channels owned by well-established content providers, and a large proportion of their content consists of music and other entertainment videos. A large number of channel views do not appear necessarily to lead directly to more subscribers – BBC Worldwide is only the fourth most popular channel but has easily the largest number of subscribers (people who elect to ‘follow’ certain channels by receiving notifications of new videos).

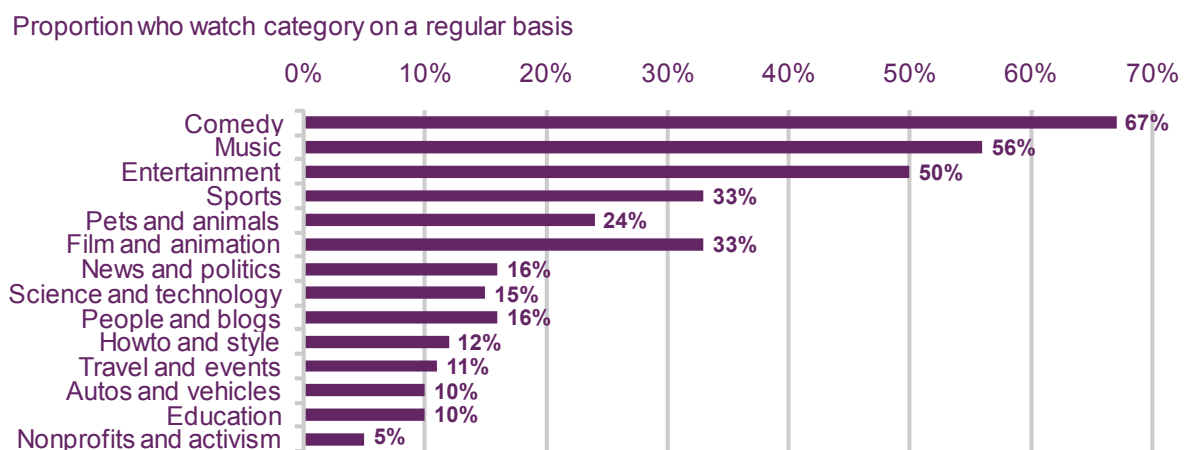
**Figure 5.28 Popularity of YouTube channels in the UK**



Source: YouTube statistics 22 June 2009

Consumer research from Entertainment Media Research suggests that Comedy is the most popular video category on YouTube, watched by two-thirds of users on a regular basis. Music and Entertainment are watched by over half.

**Figure 5.29 Most popular YouTube categories**



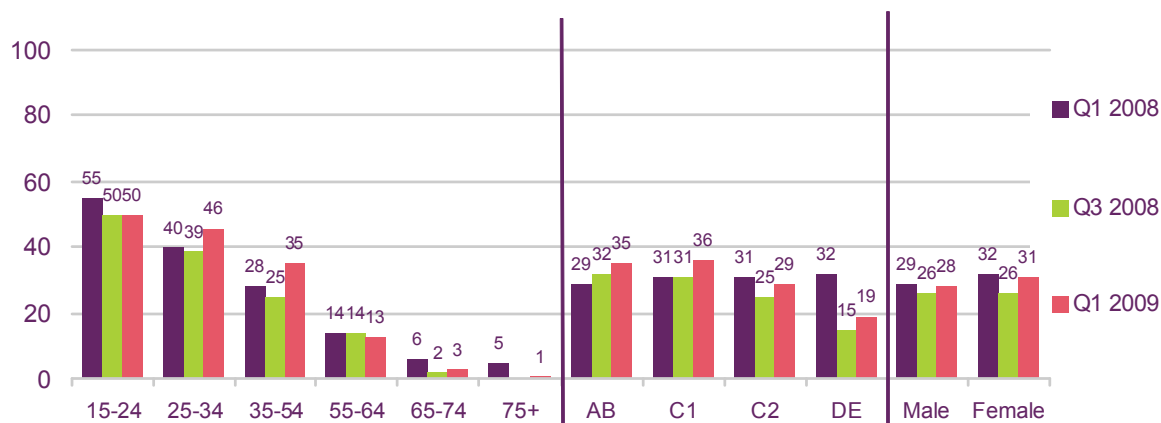
Source: Entertainment Media Research  
Base: all UK YouTube users (n=660).

### Social networking maturing: metaphorically and literally

Social networking has been one of the fastest-moving stories in digital communications in the past four years, following the emergence of mass participation sites such as Facebook, MySpace and Bebo. But as the social networking phenomenon has begun to mature, it has started to develop in a different way.

In particular, social networking appears to be growing more popular among older age groups. The proportion of 25-34 year olds claiming to have a profile grew by six percentage points in the year to Q1 2009 to 46%, and among 35-54 year olds by eight percentage points to 35%. Conversely, there are signs that use of social networking sites may already have peaked among younger adults, with the proportion of 15-24 year olds with a profile down five percentage points over the year. However, it is important to note that our data doesn't include children aged under 15, who will make up a substantial proportion of users. And the proportion of the AB socio-economic group claiming a profile has risen (up from 29% to 35%) while there was a substantial drop among DEs from 32% to 19%.

**Figure 5.30 Proportion of adults who access social networking sites on the internet at home**



QE12: Which, if any, of these do you or members of your household use the internet for while at home?

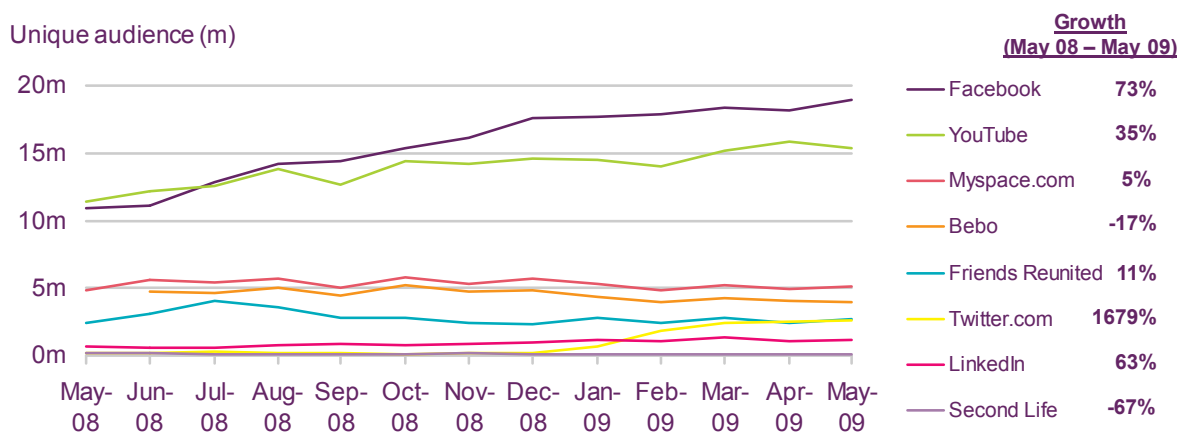
Source: Ofcom technology tracker, Q1 2009

Base: All adults aged 15+ (n = 5812 Q1 2008, 1581 Q3 2008, 6090 Q1 2009)

### Audience growth continues, but popularity is beginning to plateau

Data from Nielsen Online show that unique audiences to a number of social networking sites continued to grow last year, although not at the high historic rates of 2006 and 2007. We have already looked at the huge growth at sites like Facebook and YouTube, but there are also increases at some of the smaller and niche sites. LinkedIn, a site primarily used for business networking, saw its audience rise by 63%. But even more rapid was the growth of microblogging site Twitter, which now reaches 2.6 million users.

**Figure 5.31 UK unique audiences of selected member communities**

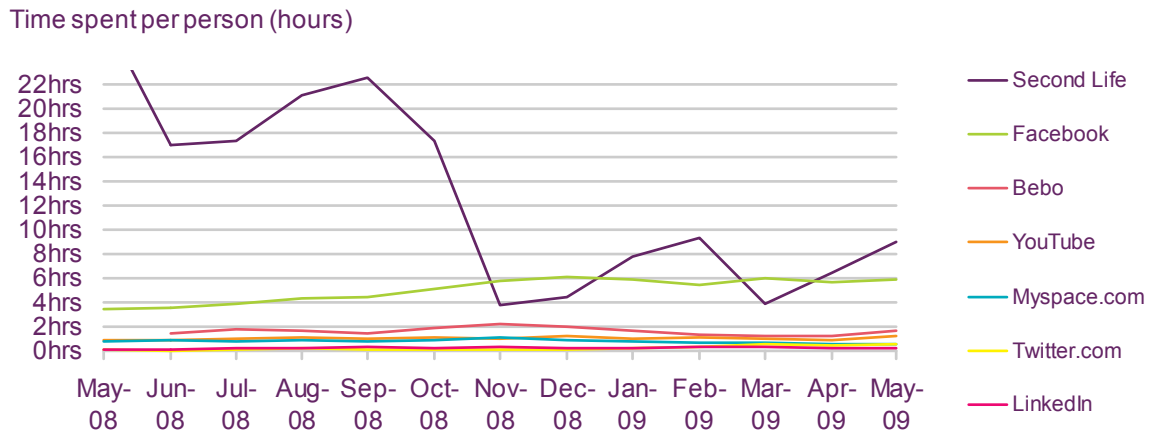


Source: Nielsen Online.

Note: Bebo growth is measured from Jun 08 – May 09.

Unique reach is only one measure of social network site popularity. Time spent on each site is as relevant - and is dominated by two sites. The average user now spends nearly six hours on Facebook each month, having grown from under four hours in May 2008. But the biggest change was for virtual world website, Second Life, whose users now spend an average of nine hours per month on the service, down from a recent high of nearly 28 hours, suggesting perhaps that part of the initial interest was driven by the novelty factor.

**Figure 5.32 Time spent online, per UK user, on selected member communities**



Source: Nielsen Online.

Note: Due to a change in methodology, use caution for comparisons pre October 2008.

### Twitter: from the Hudson River to the streets of Tehran

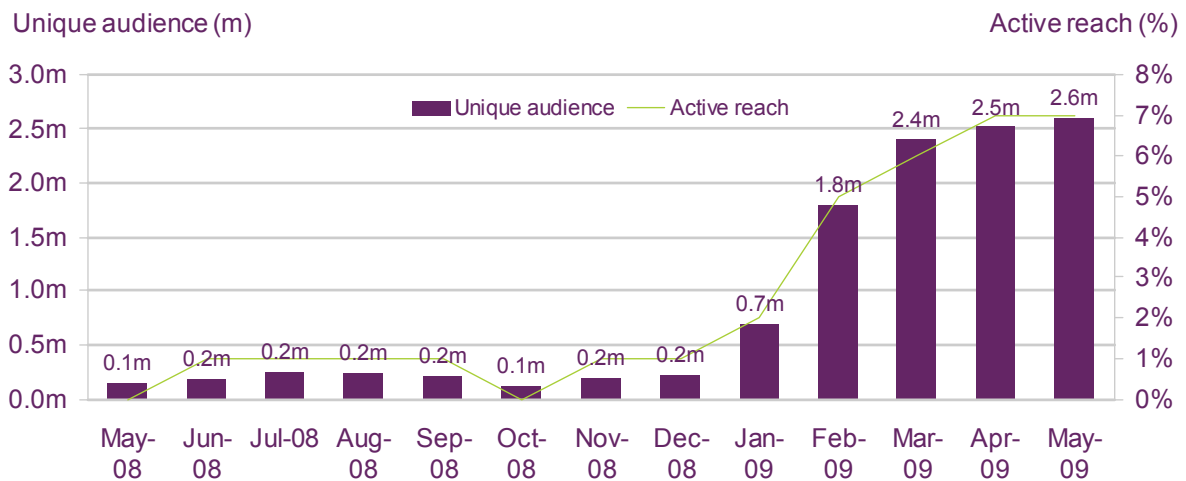
One of the most talked-about social networking developments of the past year has been the rise of the 'microblogging' service Twitter. Twitter enables users to post messages (or 'tweets') of 140 characters or less to their profiles and attach so-called 'hash tags' to their tweets to make them searchable. 'Tweets' can also be sent as mobile phone text messages.

Perhaps the most striking feature of Twitter was its almost overnight growth at the beginning of 2009. One possible reason for this is the role the site played in reporting the ditching of US Airways Flight 1549 in the Hudson River in January 2009. The first person to report the accident was a bystander who posted a photograph on Twitter of the aeroplane floating in the river. Subsequently many networks and news agencies picked up the story.

Since then the media have reported on the role of Twitter in other events including elections, breaking news stories and the recent disturbances in Iran. Although growth continues, Nielsen Online has reported that the number of users who abandon Twitter and its related applications after just one month (or its 'attrition rate') is around 60%.<sup>55</sup>

<sup>55</sup> [http://blog.nielsen.com/nielsenwire/online\\_mobile/update-return-of-the-twitter-quitters/](http://blog.nielsen.com/nielsenwire/online_mobile/update-return-of-the-twitter-quitters/).

**Figure 5.33 Unique audience and active reach of Twitter**



Source: Nielsen Online.

Note: Due to a change in methodology, use caution for comparisons pre October-2008.

### 5.2.7 The market for news content

Newspaper groups face similar challenges to some broadcasters, both relying on an advertising pool which is declining at present, and seeking to establish effective distribution models which maximise the benefits of the internet. The analysis below sets out a brief overview of recent trends relating to the provision of news content.

#### Newspaper advertising revenue fell in 2008

National, regional and local newspapers create, generate and gather content and aggregate it into branded print copies, podcasts, video streams and websites. Their business models are underpinned by a mixture of cover price revenue, display advertising (including colour supplements) and classified advertising.

The newspaper industry generated £4.1bn in advertising revenues in 2008, accounting for 25% of all UK advertising expenditure (Figure 5.34). In nominal terms this was down by 10.2% from 2007 and nearly £1bn lower than its 2004 peak of £5.1bn.

The reduction in revenue fell disproportionately on local newspapers. While national newspaper advertising revenue was down 6.6%, an average annual reduction of 1% since 2003, the decline among local press reached 15.8% on 2007 (and 5% average annual losses since 2003). This reduction is all the more significant because local papers rely more heavily on advertising than national papers; advertising makes up 44% of national revenues and 79% of local revenues.

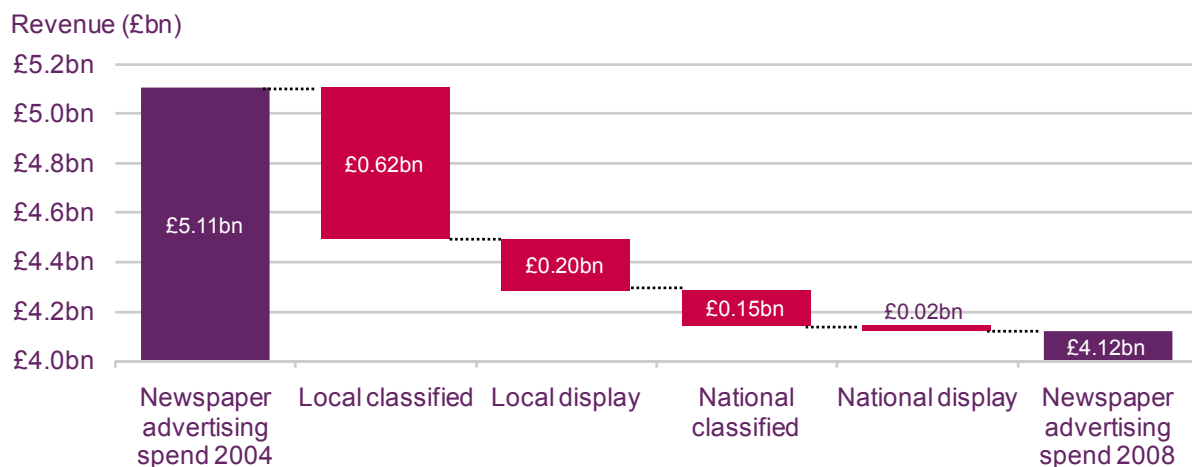
**Figure 5.34 National and regional newspaper advertising revenue**



Source: The Advertising Association/WARC ([www.warc.com](http://www.warc.com))  
 Note: All figures are nominal

As a result of these declines, regional newspapers' share of total newspaper revenue dropped by three percentage points to 56% in 2008. Figure 5.35 shows how the decline in classified advertising in local newspapers makes up the bulk of the reduction in newspaper advertising spend in recent years, accounting for a drop of £615m since 2004. This is more than the decline in all the other components combined.

**Figure 5.35 Changes in components of newspaper advertising revenue**



Source: The Advertising Association/WARC ([www.warc.com](http://www.warc.com))  
 Note: All figures are nominal.

Part of the decline in newspaper ad revenues may be explained by the recession, but the falls started before the current economic downturn, with wider structural change resulting from:

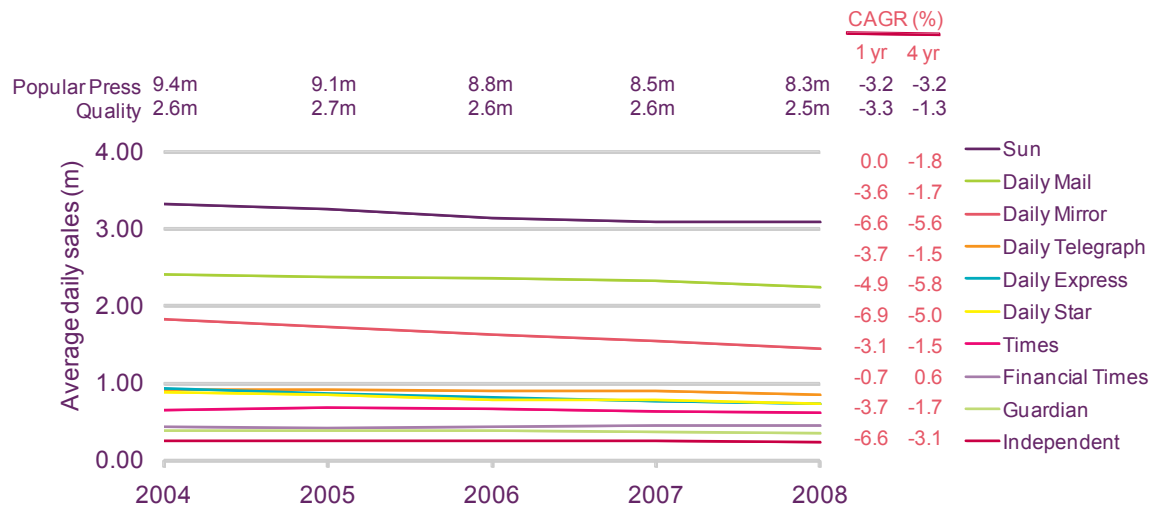
- the migration of classified advertising to the internet;
- changing consumer behaviour; and
- declining newspaper circulations.

Taken together, these changes have put a severe strain on some newspapers' business models.

## National newspaper circulations declined steadily in 2008

Newspaper reading is no longer a routine national pastime. Over the past four years circulation figures of the popular press have fallen on average by 3.2% per annum, while 'quality' newspapers have fared better, but still experienced average reductions of 1.3% per annum. And there are few winners – the circulation of all major UK newspapers fell in 2008 except *The Sun* (which was flat), and over four years only *The Financial Times* increased its readership.

**Figure 5.36** Circulation of national newspapers



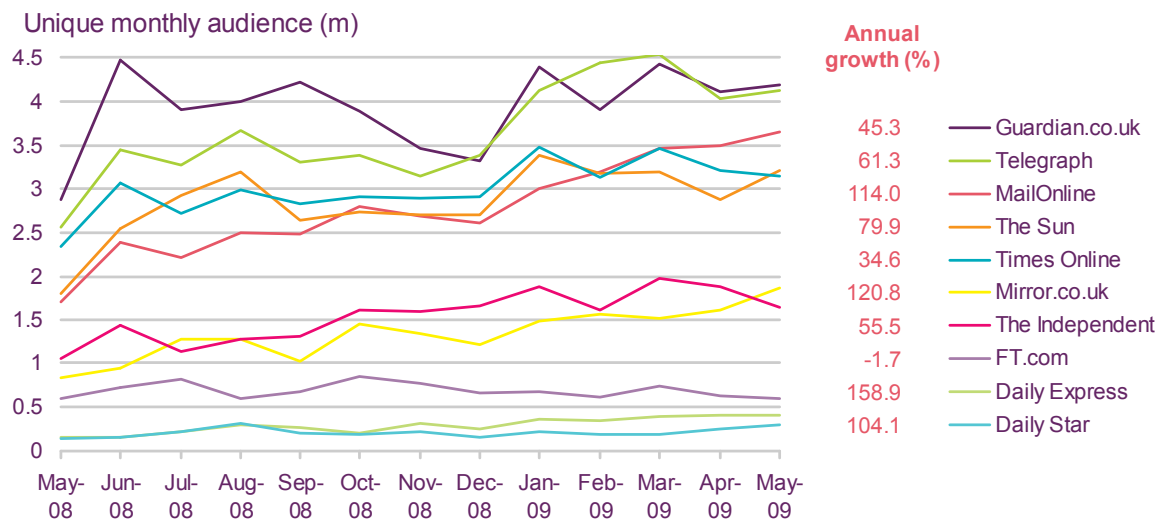
Source: ABC/MediaTel/Ofcom.

S

## The Guardian and The Telegraph attract the largest unique audiences online

In an effort to stem the decline in physical circulation, all major newspapers have developed online offerings. These do not just duplicate print editions but typically also include video and audio content. Newspaper groups have used a range of business models to support their online content, including advertising, subscriptions and pay-per-view, but most newspapers have free or mostly free websites.

**Figure 5.37 National newspaper websites: unique audiences**



Source: Nielsen Online. Covers work and home internet access (most newspapers' websites represent the daily and the Sunday paper). Note that annual growth is calculated from May 2008 to May 2009.

Audience data from Nielsen Online show that the leading UK newspaper websites come from *The Guardian* and *The Daily Telegraph*, each attracting over 4 million unique UK visitors every month during 2009. Nearly all national newspaper websites have experienced strong growth in the last year; with increases particularly notable among the popular and middle-market press. FT.com was the exception, losing 1.7% of its unique audience, perhaps a result of the restrictions it places on content access (in terms of both payment and registration).

### 5.2.8 Internet advertising

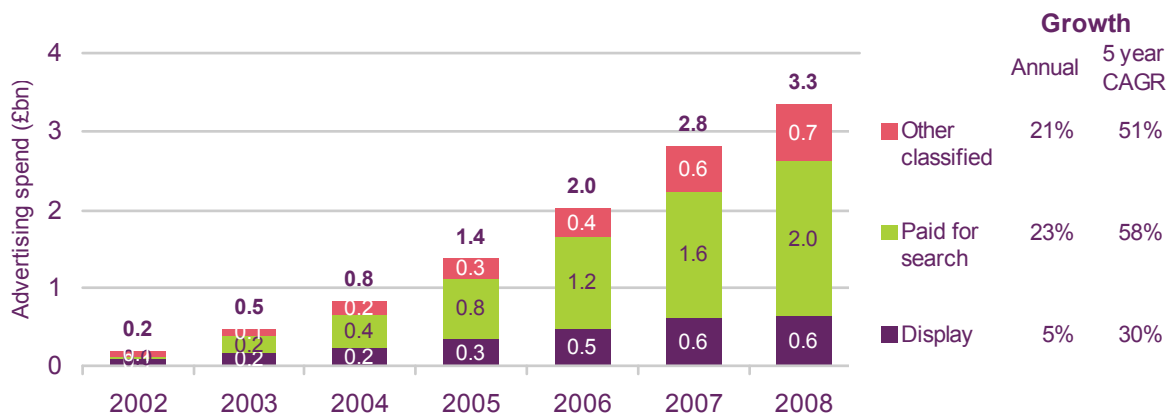
All of the content types discussed above depend, at least in part, on internet advertising revenues to support their business models. Internet advertising provides revenue for many of the operators we regulate – and can also compete for funds and challenge the business models of broadcasters and newspapers. The key website categories that offer free-to-access online content, funded at least in part by advertising, include:

- music streaming sites such as We7 and Spotify;
- online video sites such as Joost, ITV Player, 4OD, Demand Five, and (in the US) Hulu;
- social networking sites such as Facebook, MySpace and Bebo; and
- newspaper websites providing free-to-view access to elements of their print content.

#### **Paid-for search continues to drive internet advertising revenue**

Although many sites are pinning their hopes on securing sufficient online advertising revenue directly to their own site to make their businesses profitable, the data show that most online ad revenue accrues through paid-for search. This is advertising which appears alongside search results on sites such as Google, Bing and Yahoo! Search, and the big search engines take much of the revenue.

**Figure 5.38 Internet advertising expenditure, by category**



Source: The Advertising Association/WARC ([www.warc.com](http://www.warc.com))

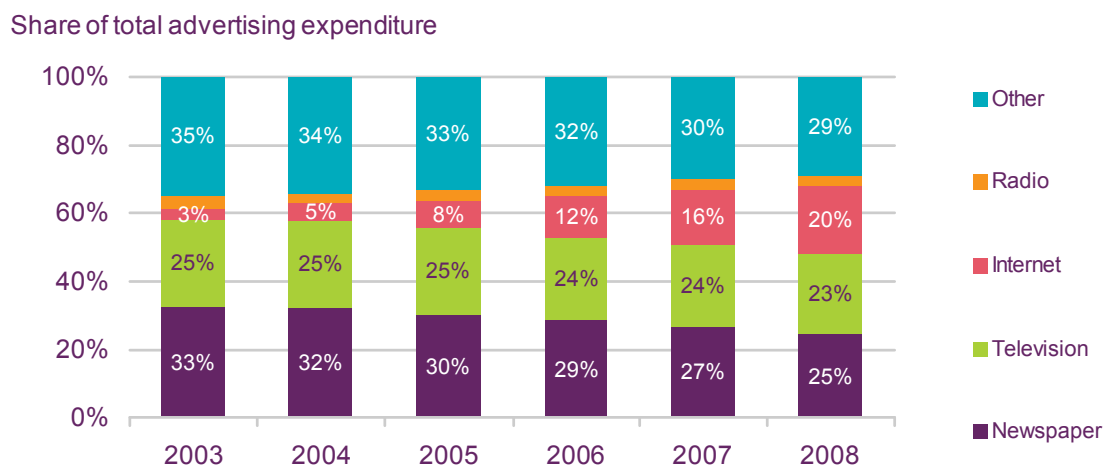
Note: All figures are nominal

Figure 5.38 shows that paid-for search accounted for the majority of internet advertising revenue (60.6%) in 2008, and grew by 23%, faster than both display (5%) and other sources of classified advertising (21%).

Between 2003 and 2008 the internet's share of total advertising expenditure rose from 3% to 20% (Figure 5.39). It is now the third most popular advertising medium after newspapers (25%) and television (23%), and on current trends looks set to rise to first position in the next few years, as happened in Denmark in 2008.

Figure 5.39 also shows the growth of the internet against newspaper advertising share. Since 2003, internet share has grown by 17 percentage points, while newspapers have fallen by eight percentage points during the same period. TV, radio, outdoor, cinema, magazine and direct mail advertising have also gone down, although by smaller amounts.

**Figure 5.39 Share of advertising expenditure, by medium**



Source: The Advertising Association/WARC ([www.warc.com](http://www.warc.com))

Note: 'other' includes cinema, magazine, direct mail and outdoor advertising. All figures are nominal.

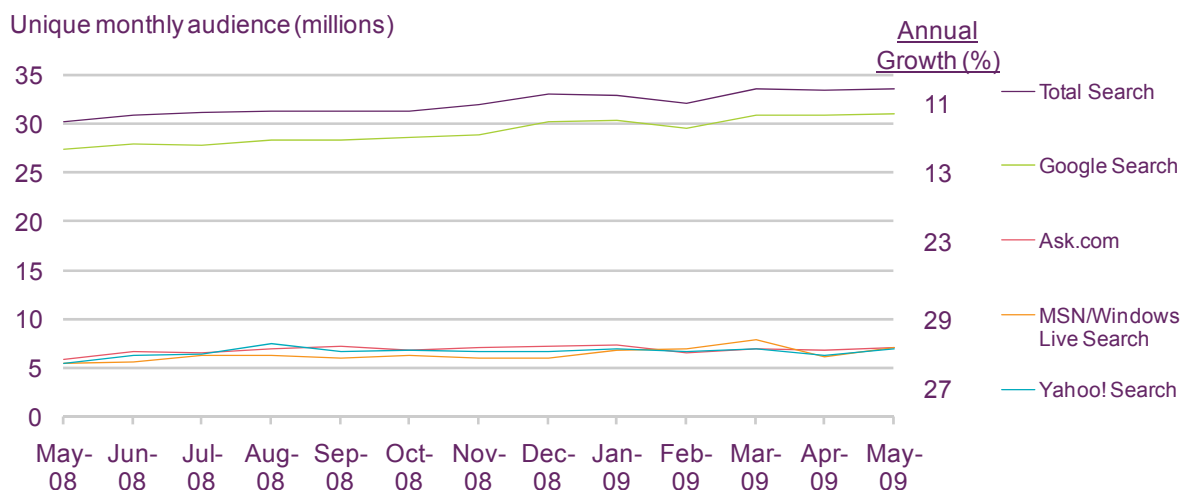
### Search engines battle for market share

Search engines are popular and easy-to-use online navigation tools. According to Nielsen Online, 91% of people who used the internet in May 2009 visited a search site, an increase of three percentage points on May 2008.

Google is by far the most-used online search engine. Thirty-one million unique users visited Google in May 2009, which equates to 80% of UK internet users and 91% of those who used a search engine site. By comparison, the three biggest challengers to Google, Ask.com, MSN/Live Search and Yahoo! Search - each attracted around 7 million unique users.

The audience for search engines is still growing. Since May 2008 the total number of visitors to search sites has grown by 11%. It seems that much of the new growth is accruing to the established navigators, whose audiences all outpaced the 11% annual growth of the total audience to search sites - MSN/Live Search grew by 29%, Yahoo! by 27%, Ask.com by 23% and Google by 13%.

**Figure 5.40 Unique audience of leading search engines**



Source: Nielsen Online, home and work use.

Note: Annual growth calculated from May 08 to May 09.

Innovation in the search engine market has seen a number of re-launches and branding exercises over the past year:

- in October 2008 Ask.com re-focused its business as it sought to become the search engine of choice for those wishing to answer a specific query. Subsequently, in April 2009, Ask.com announced that it was reverting to its original name of AskJeeves in the UK, having previously scrapped this brand in 2006;
- in May 2009 Steve Ballmer, the CEO of Microsoft, announced that MSN/Live Search would be rebranded as Bing and would include several updated features such as real-time search suggestions as users enter queries. Early indications from comScore suggested that in the US at least, Bing has been successful in increasing share.

In addition, new types of search engine continue to emerge; for example, Wolfram Research's *Wolfram|Alpha* which emerged in May 2009, and describes itself as a 'computational knowledge engine'. It is based on the *Mathematica* software, also developed by Wolfram Research. Rather than providing a list of documents or links that match a search term, as most other search engines do, it attempts to answer factual queries directly by computing the answer from the data sources it holds. As an example, entering any date might provide famous anniversaries, times of sunrise and sunset, and the length of time to today's date.

## 5.2.9 Conclusion

This section has examined how converging technologies have reshaped the markets for a range of content types that, directly or indirectly, have a bearing on the industries that Ofcom regulates.

Online catch-up TV has grown in popularity, helped by the increased availability and take-up of broadband connections, new easy-to-use content delivery systems, wider access across computer platforms, heavy marketing campaigns, and distribution direct to television sets and gaming consoles. Nearly a quarter of all households use the internet to watch catch-up TV, with most traffic directed towards the BBC *iPlayer*. Most BBC *iPlayer* content is viewed online in contrast to most of Channel 4's *4OD* content which is viewed on the television set.

The Government's *Digital Britain* report includes proposals to address online copyright infringement, in particular by requiring ISPs to take specified action in relation to subscribers engaging in unlawful file-sharing. Of those who regularly access unauthorised content, copying physical discs and unlawful P2P file-sharing are equally the most popular. The unique audience of leading file-sharing networks has changed little overall despite fluctuations throughout the year and a shift in the P2P technology used by file-sharers.

Digital networks have affected the distribution of audio-visual content in a number of different ways. Physical music sales continue to decline, as do overall retail music sales, but at a slower rate bucked by strong growth in both digital album and digital singles sales. Pay-per-download remains the most popular revenue model for digital music, generating £125.4m in 2008 and growing 79% year-on-year. Online streaming services like *Last.fm*, *We7* and *Spotify* continue to grow in popularity with users spending more time on *Spotify* than traditional offline media player software.

In the market for home film, video-on-demand from operators like Virgin Media and near-video-on-demand such as *Sky Box Office* generated 43% more revenue in 2008 than in 2007, but still only represented 4.5% of total home film market revenue.

Social networking continues to grow with 38% of consumers surveyed by Ofcom having set up a profile in 2009, a growth of 17 percentage points since 2007. Facebook is the most popular user-generated-content website (and social network), growing 73% between May 2008 and May 2009. YouTube is the second most popular UGC site and far more popular than competing video-sharing sites. Social networking audiences are maturing with significant growth in the 25-34 and 35-54 age groups. Microblogging network Twitter has received much media attention and grown massively since the start of 2009, but still has a reach of just 7% of internet users.

National and regional newspaper revenue continues to decline, but at an accelerated rate in 2008. *The Financial Times* and *The Sun* were the only national newspapers not to experience a fall in circulation. News content accessed online grew over the past year, with *The Guardian* and *The Daily Telegraph* attracting the highest unique audiences of national newspaper websites.

Paid for search grew 23% on 2007, driving the continued growth in internet advertising expenditure. Internet advertising now represents 20% of all advertising expenditure. Google remains the leader among search engines, attaining a unique audience greater than the sum of its rivals Ask.com, Yahoo! Search, and MSN/Windows Live Search.



## 5.3 Distribution and devices

Converging technologies allow consumers to receive different content types over the same distribution network, as well as receiving similar content over a range of different networks. Consumers can also access their content through a variety of different devices.

This section sets out a range of recent developments in the distribution of content over digital networks and the devices that are used by consumers to access it. It starts by looking at aspects of the distribution of content.

### 5.3.1 Distribution

#### Introduction and structure

This section examines the characteristics of a selection of digital distribution platforms in the UK. To avoid duplication, it does not repeat the analysis from 2007 and 2008 of platforms where there have been few or no developments. Instead, it looks at two important aspects of distribution networks in the UK:

- **The availability of the main digital networks in the UK** – showing how most UK consumers now have access to several different digital distribution networks (**page 300**).
- **Developments in the use and management of spectrum in the UK** – highlighting how spectrum underpins the delivery of wireless distribution networks, looking at recent spectrum auctions, and assessing developments in spectrum policy and future projects to develop the use of spectrum in the UK, through to the London Olympics in 2012 (**page 301**).

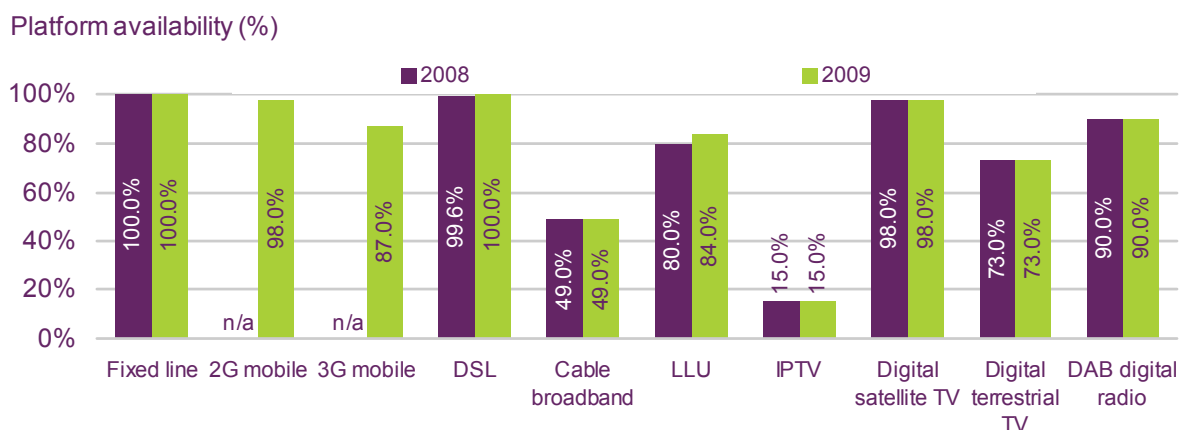
#### Network availability

Digital content can be distributed to consumers via a wide variety of networks. Across the UK most consumers now have access to several of the key broadcasting and telecoms networks, although availability varies according to the extent of network roll-out, population density and local topography.

Figure 5.41 shows that there has been little change since 2008 in the availability of the main digital networks in the UK. The only notable difference is the four percentage point increase in the number of households connected to an LLU exchange.

Availability of some platforms is likely to increase in the coming years. For example, as digital switchover continues, availability of digital terrestrial television will rise to around 90% for all six multiplexes (98.5% for the three public service multiplexes).

**Figure 5.41 Availability of main distribution networks, 2008 and 2009**



Sources: Ofcom and:

2G - Proportion of population living in postal districts where at least one operator reports at least 90% 2G area coverage. Sourced from GSM Association / Europa Technologies (Q1 2008). Note we have raised this threshold from 75% in 2008; as a result we do not have time series data.

3G - Proportion of population living in postal districts where at least one operator reports at least 90% 3G area coverage. Sourced from GSM Association / Europa Technologies (Q1 2008). Note we have raised this threshold from 75% in 2008; as a result we do not have time series data.

DSL - Proportion of premises able to receive DSL services based on data reported by BT

Cable - Proportion of households passed by Virgin Media's broadband-enabled network

LLU - Proportion of households connected to an LLU-enabled exchange

IPTV - availability figure calculated on the assumption that Tiscali TV is now available in London, Stevenage, Birmingham, Newcastle and Edinburgh

DTT - Availability of services from all six digital multiplexes

DAB - digital radio coverage figure based on a Digital One estimate. Both the BBC and Digital One built new transmission masts during 2006/07

## Developments in the use and management of wireless spectrum

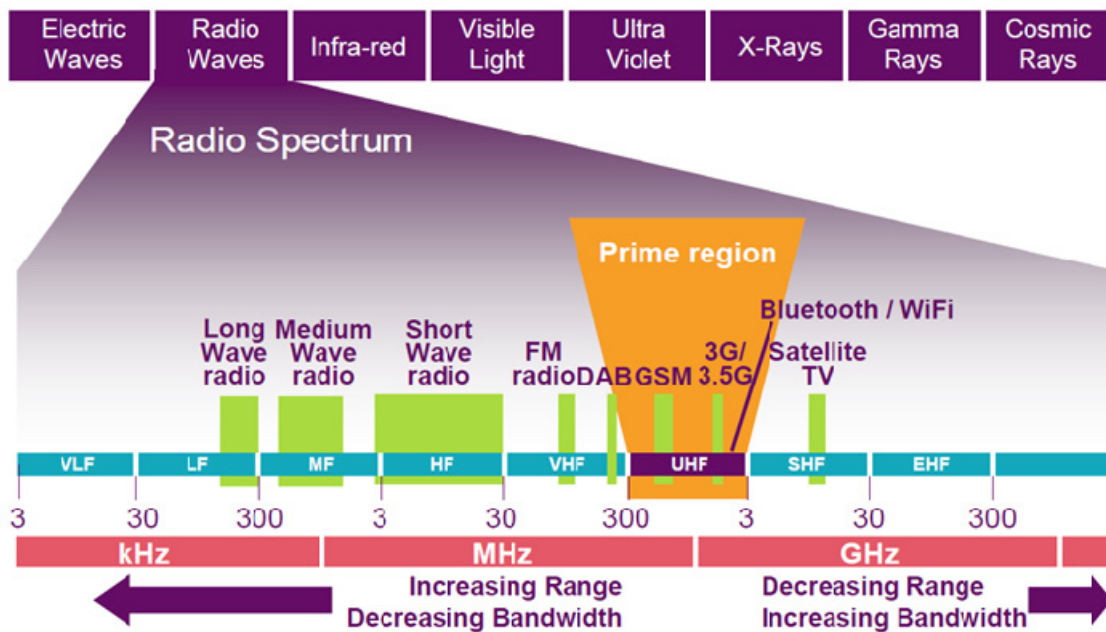
### Introduction

Spectrum underpins the delivery of all wireless communications services. Among other uses, it is an important means of distribution for content and voice services. As a finite natural resource, its use is coming under increasing pressure as the demand for wireless services grows.

Radio spectrum is the range of frequencies between 3 kHz and 300 GHz, and is part of the broader electromagnetic spectrum. Lower-frequency waves can travel over long distances and can penetrate buildings and objects without significant loss of signal, but offer limited bandwidth; the opposite is true at high frequencies.

The UHF (ultra-high frequency) band provides a balance between propagation range and bandwidth. This prime territory is well suited for delivering wireless connectivity to the consumer. The chart below illustrates this area within the broader context of spectrum.

**Figure 5.42 Location and distribution networks across the radio spectrum**



Source: Ofcom

During 2008 there have been several important developments in spectrum management, designed to increase the efficient allocation and use of spectrum in the UK. These are set out below.

### Spectrum auctions

Ofcom held several spectrum auctions in 2008:

- **40 MHz** of spectrum in the **1452-1492 MHz band**. Qualcomm, the eventual winner, paid £8.3m for the entire band. This spectrum can be used for a number of purposes including mobile TV and mobile broadband. As yet, Qualcomm has not released any details of its plans for this spectrum.
- Interleaved spectrum in the **542 to 550 MHz** band went to Cube Interactive in Cardiff and in the **758 to 766 MHz** band to Channel M Television in Manchester. Channel M are planning to launch a DTT service in addition to delivering programmes by cable, satellite and online. Cube Interactive are planning to develop a multi-tier service based on linear TV. A multi-tier service would use the spectrum available to Cube to deliver a variety of services that might include television and broadband.
- A pan-European process led to the award of spectrum at **1980-2010 MHz** paired with **2170-2200 MHz** to Inmarsat Ventures Ltd and Solaris Mobile Ltd. This will support mobile satellite services such as high-speed internet access, mobile television and radio or emergency communications across Europe, particularly to rural and less-populated regions.

### Spectrum pricing

Ofcom encourages efficient use of spectrum by setting licence charges which reflect the costs of preventing the use of that spectrum by other users and uses. As part of this process

we simplified business radio licences in December 2008 by consolidating 21 licence classes into three products, with simplified terms and fees reflecting the opportunity cost.

#### Licence exemption

A number of important devices and services use licence-exempt spectrum, including Bluetooth, WiFi and baby monitors. As part of our efforts to increase the amount of available licence-exempt spectrum, we proposed in June 2009 to make much of the spectrum between 275 GHz and 3000 GHz exempt from the need for a licence (subject to some constraints and excluding some specific bands) after the World Radio Conference in 2011, at which this band will be discussed. This spectrum is mainly used by the scientific community (radio-astronomy, space research and earth exploration satellite services) for spectral line measurements. Other potential uses for the band include short-range anti-collision radar devices, the detection of skin cancer and evaluation tools used in industrial processes.

#### Enabling access to public sector spectrum

Following the 2006 Cave audit of public sector spectrum holdings<sup>56</sup>, the Government announced a far-reaching programme to use market mechanisms to promote the efficient use of public sector spectrum and the release of frequencies for commercial services. In January 2009, Ofcom made the first set of regulations to enable the MoD and other public bodies to release and acquire spectrum through the market, starting with the 406.1-430 MHz frequency band and certain bands used for radio astronomy.

#### Enhancing the value of spectrum through international harmonisation

We work with our European and international partners to make spectrum available on similar terms across a number of countries. This can enhance economies of scale, reduce interference, facilitate international roaming, and increase the value of the spectrum. Of particular note in this regard has been our work over the last 12 months to promote the development of harmonised technical conditions for use of the 800 MHz band for the provision of future mobile broadband services, and our recent decision to modify our own digital dividend plans to make this band available for new use in the UK.

#### Future projects to facilitate spectrum use in the UK

We are currently undertaking several significant projects to aid the efficient use of spectrum in the UK. These include:

- **More spectrum for mobile and other services** – through our digital dividend review (DDR) we are looking at what should happen to the spectrum freed up in the 470-854 MHz band by the transition to digital TV. We are also seeking to award spectrum in the 2500-2690 MHz band. Both these bands can be used for the provision of next-generation mobile broadband services. It is the view of Government, in its *Digital Britain* report, that there should be a co-ordinated approach to these bands.
- **The PMSE ‘band manager’** – in July 2008 and June 2009 we proposed that spectrum used for programme-making and special events (PMSE) should be awarded via a beauty contest to a ‘band manager’. This beauty contest would use criteria designed to ensure that the band manager’s interests were aligned with those of PMSE users.

---

<sup>56</sup> <http://www.spectraaudit.org.uk/>

- **The London Olympics** – Ofcom is responsible for ensuring that spectrum is available to meet the Government’s guarantees for the London 2012 Olympic Games and Paralympic Games. Preparations are being made for temporary use of spectrum by the Games organisers and participants, and for arrangements to satisfy the exceptional demand for wireless services which we expect in 2012. Ofcom began a consultation on the draft spectrum plan for the Games in May 2009.

### **Compression advances – more data using less bandwidth**

High-definition (HD) television is expected to be made available on the *Freeview* digital terrestrial service on a regional basis from December 2009, starting in the Granada region covering Manchester and Liverpool.

By making use of the latest transmission and compression technology, three HD channels – from the BBC, ITV and Channel 4/S4C – will be available at launch. A fourth, from commercial public service broadcaster Five, is expected to become available from late 2010.

The planned launch of HD has been made possible by using the latest transmission technology: DVB-T2, which has been developed by the Digital Video Broadcasting (DVB) standards body. DVB-T2 will be launched on Multiplex B, which will carry the HD channels, and should provide between 30% and 50% more transmission capacity than the current DVB-T technology. Multiplex B currently provides 18Mbit/s of capacity, but after the power increase and re-engineering for DVB-T2, it will be capable of delivering at least 32Mbit/s.

Pilot trials of DVB-T2 were under way at the time of writing. The final DVB-T2 transmission mode has not yet been selected, but it could provide 36Mbit/s of capacity, or even more, if capacity gains prove to be higher than expected. If this does happen, the Multiplex B capacity will have doubled its current bit-rate (amount of capacity). Broadcasters are also taking advantage of the latest compression technology to introduce HD on DTT. Currently, DTT services use the MPEG-2 video compression standard, but its latest iteration, MPEG-4, will be used to deliver the HD services. This requires around half the bit-rate of MPEG-2 encoding.

Consumers who want to watch the new HD services on DTT will need to buy new reception equipment, either a set-top box or an integrated digital Television (IDTV) that incorporates the MPEG-4 and DVB-T2 technology. Viewers will also need an HD-ready television set. Freeview has said that the HD channels will be available to 60% of UK homes towards the end of 2010, up from 50% coverage expected by June 2010, in time for the football World Cup in South Africa.

## **5.3.2 Devices**

### **Introduction and structure**

This final section explores which converged devices consumers in the UK own and use. It does this by examining:

- **Digital device take-up** – access to most audio-visual devices continues to increase and while access to digital television, internet, and mobile is greatest among 35-44s, older consumers are increasingly adopting digital platforms (**page 304**).
- **Broadening appeal of games consoles** – nearly half of households had a gaming device in Q1 2009 (**page 306**);

- **The development of hybrid distribution devices** – IPTV is being delivered by a number of hybrid devices, whilst traditional players in the market are being challenged by the ‘over-the-top’ approach to content delivery (**page 307**);
- **The use of advanced mobile phone functions** – more than half of consumers use their mobile phone to take and store photos but few consumers use the other advanced functions of their handsets (**page 309**);
- **The take-up of wireless routers** – half of all adults with broadband at home currently use a wireless router (**page 311**); and
- **The take-up of e-readers** – ebooks and e-readers remain a minority interest (**page 312**).

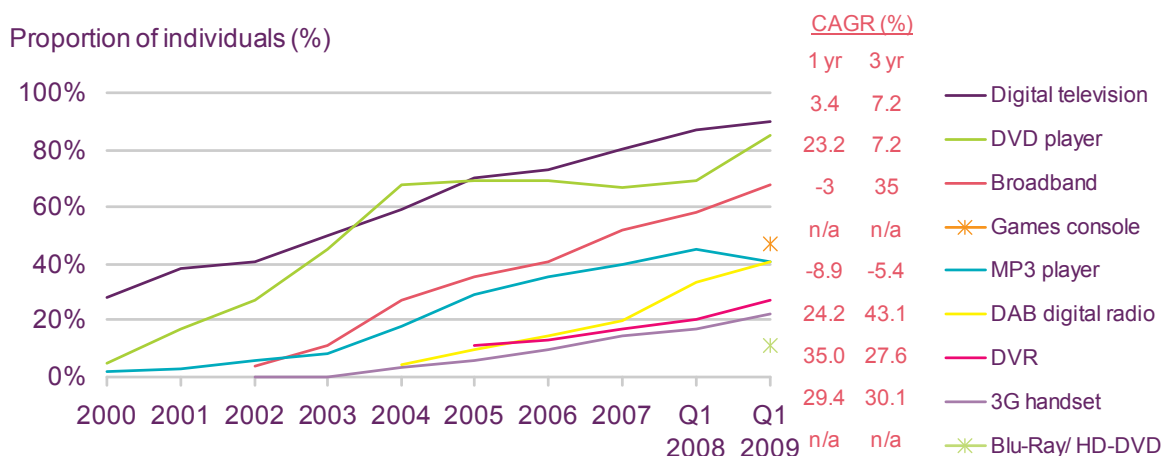
## Digital device take-up

### Take-up of most AV devices grows, but MP3 player ownership falls

Penetration of many digital devices continued to rise in 2008/09. Take-up of digital television now stands at 90%, and although growth slowed to 3.4% last year, it is likely to continue over the next couple of years as digital switchover gathers momentum. Take-up of digital video recorders (DVRs) grew fastest between Q1 2008 and Q1 2009 – 27% of consumers have access to a DVR, a 35% increase since Q1 2008. Growth may have been fuelled by the widening availability of *Freeview+* devices and the substantial marketing and reduced cost of *Sky+* devices.

By contrast, take-up of MP3 players fell year on year, by four percentage points to 41%. This came as the proportion of individuals with a 3G mobile phone rose from 17% to 22% over the same period. Part of the reason for the decline might be connected with the higher penetration of smartphones such as the Apple *iPhone* which includes an integrated music player and mass storage, removing the need for individuals to carry both a phone and an MP3 player.

**Figure 5.43 A-V devices take-up**



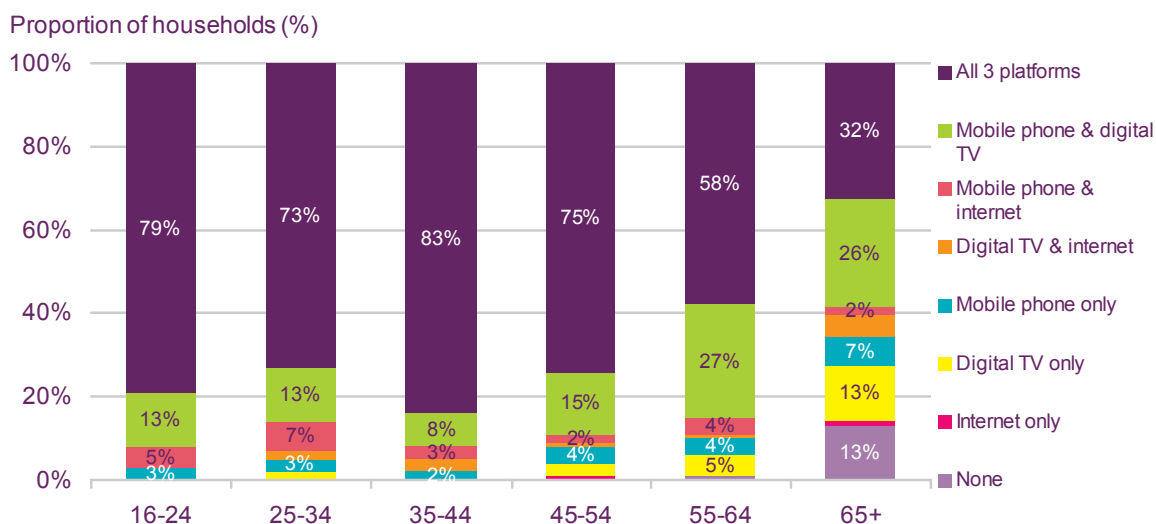
Source: Ofcom research.

Note: The Question wording for DVD Player and DVR was changed in Q1 2009 so data are not directly comparable with previous years.

## Access to digital television, internet and mobile greatest among 35-44s

Many people now have digital television, internet access and a mobile phone. But the proportion who have access to one, two or all three services varies by age. An Ofcom survey (305Figure 5.44) suggests that take-up of all three services is highest among 35-44 year olds (83%). Only in the 65+ age group do less than 50% have access to all three platforms; 13% of over-65s have none of them.

**Figure 5.44 Take-up of DTV, mobiles and the internet, by age**



*T1/ IN1/ M1 – Can any of your TV sets receive additional channels other than BBC, ITV, Channel 4/ S4C and (where available) Channel 5?/ Does anyone in your household have access to the internet at home through a computer or laptop?/ Do you personally use a mobile phone?*

*Base: All adults aged 16+ (812 aged 16+, 106 aged 16-24, 126 aged 25-34, 173 aged 35-44, 140 aged 45-54, 106 aged 55-64, 161 aged 65+, 175 AB, 228 C1, 168 C2, 241 DE)*

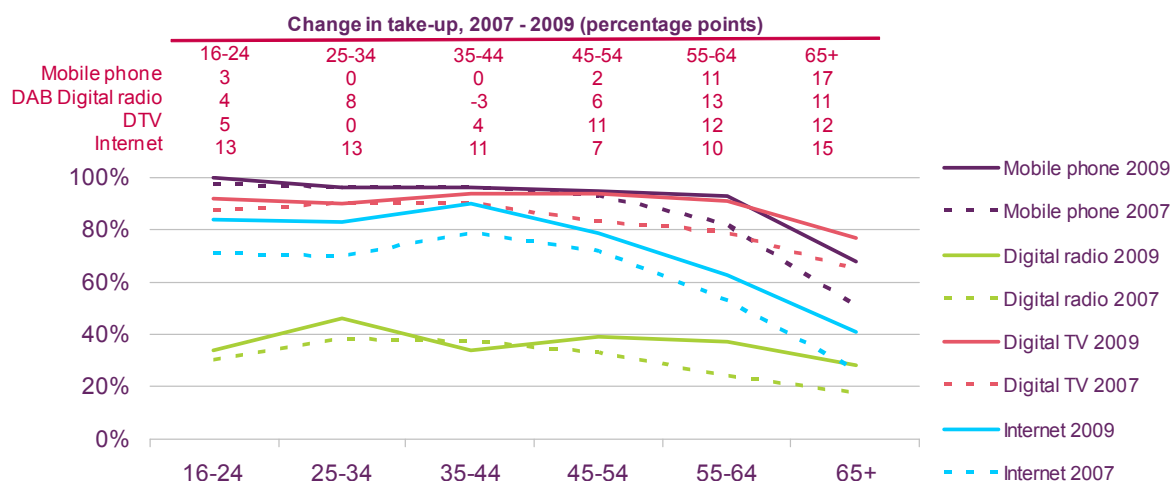
*Source: Ofcom media literacy research, fieldwork carried out by Saville Rossiter-Base in April to May 2009*

## Older consumers increasingly adopting digital platforms

Our research suggests that the gap in take-up between age groups is narrowing as technology take-up among older consumers grew the fastest during 2008. For mobile phone, DTV, and internet take-up, the largest growth in absolute terms between 2007 and 2009 was among the 65+ age group. The only other age group to see double-digit growth across all four platforms was the 55-64 year olds.

With many of these technologies now well established among many age groups, only access to the internet experienced double-digit growth across more than half of all age groups between 2007 and 2009.

**Figure 5.45 Take-up of digital technologies, by age, 2007 and 2009**



T1/ R1/ IN1/ M1 – Can any of your TV sets receive additional channels other than BBC, ITV, Channel 4/ S4C and (where available) Channel 5?/ In which of these ways do you ever listen to radio in your home?/ Does anyone in your household have access to the internet at home through a computer or laptop?/ Do you personally use a mobile phone?

Base: All adults aged 16+ (106 16-24, 126 25-34, 173 35-44, 140 45-54, 106 55-64, 161 65+)

Source: Ofcom media literacy research, fieldwork carried out by Saville Rossiter-Base in April to May 2009.

### Games consoles broaden their appeal

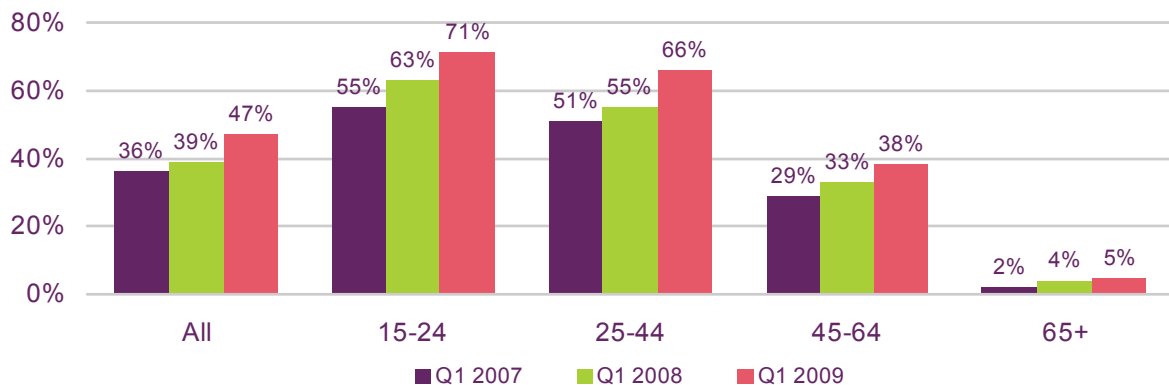
In recent years games consoles have developed from devices designed only for game playing into multimedia centres at the forefront of device convergence which allow users to:

- watch audio-visual content on demand – including streaming and downloading films on demand and watching the BBC *iPlayer*;
- watch HD content using the Blu-ray and HD-DVD drives on *Playstation 3* and *Xbox360*;
- download new content (such as audio-visual content or games) and extras to their console;
- play networked games and communicate and chat with other players; and
- watch live television, in the case of the *Xbox 360*.

Our consumer research shows that take-up of games consoles has increased steadily from just over a third (36%) of households in 2007 to nearly half (47%) in 2009. Penetration was highest among 15-24 year olds at 71%, and lowest for the 65+ age group (5%), although the fastest growth came among 25-44 year olds (up 11 percentage points) indicating that consoles are moving beyond their traditional market of younger people.

**Figure 5.46 Access to games devices in the home, by age**

Proportion of adults



Source: Ofcom research, Q1 2009

### The development of hybrid distribution devices

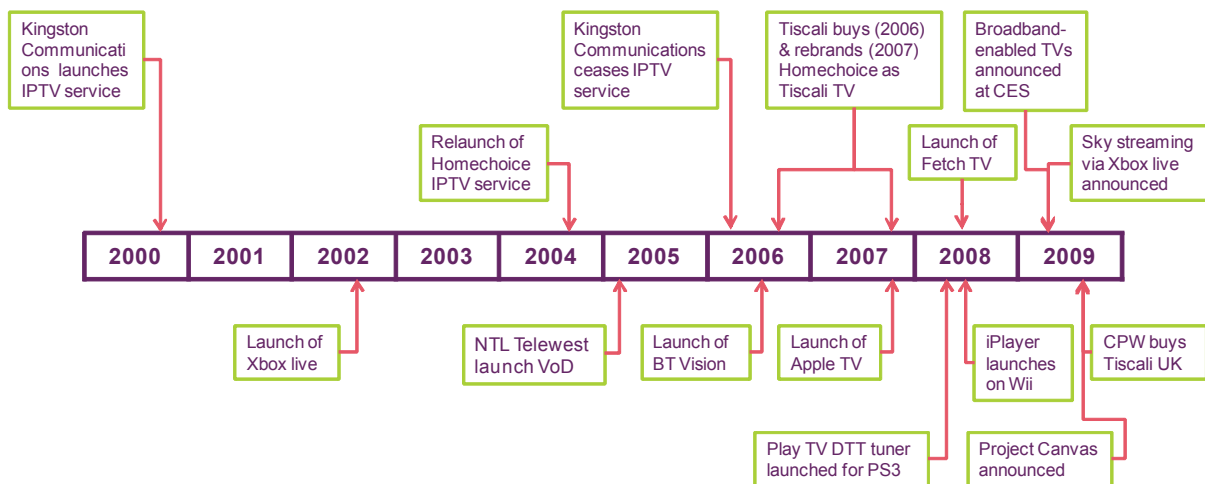
Games consoles with advanced convergent functionality are an example of an emerging new generation of hybrid devices. They seek to harness the benefits of multiple distribution networks to enable consumers to access a wide variety of content.

Perhaps the clearest example of hybrid distribution has been the efforts by equipment manufacturers and service providers to bring the benefits of on-demand access to the television set and radio receiver. They have done this by combining broadcast delivery of live content through a terrestrial or other network, with on-demand content delivered online, either via managed networks or the open internet. These hybrid devices have the potential to increase the popularity of services such as catch-up TV by extending their reach to a wider, less PC-literate audience.

### Hybrid devices are superseding 'pure' IPTV offerings

Figure 1.48 shows the recent development of selected hybrid and on-demand audio-visual services. Operators initially focused their service launches either on relatively distinct IPTV (Kingston and Homechoice/Tiscali) or VoD services (*Xbox Live*, cable). More recently, however, hybrid services have sought to combine broadband content delivery with a complementary broadcast network (for example, BT Vision and the latest Tiscali set-top box). New entrants such as Fetch TV have also launched hybrid devices, and existing device makers such as Apple (*Apple TV*), Microsoft (*Xbox 360*), and Sony (*Playstation 3*) have included hybrid capabilities in their devices.

**Figure 5.47 Timeline of selected hybrid and on-demand audio-visual services**



Source: Ofcom

### IPTV players being challenged by 'over-the-top' approach to content delivery

The details of each service vary from provider to provider (Figure 5.48). Where a device/service includes a broadcast element, it is usually provided through a DTT tuner (although Sky's upcoming content on *Xbox Live* will use streaming technology).

For TV services over the internet, two broad technology approaches are emerging:

- **'Quality of service-assured'**: BT Vision and Tiscali TV both offer DTT set-top boxes which, in addition to receiving Freeview channels via the TV aerial, can also access on-demand content (and, in the case of Tiscali boxes without a *Freeview* tuner, linear TV channels) via a broadband connection. These services require the consumer to purchase their TV and broadband service from the same provider. Control over the broadband connection allows the operator to prioritise its on-demand content over internet traffic, and hence assure the technical quality of the service (QoS).
- **'Over-the-top'**: as broadband connections become faster and more reliable, and video compression efficiencies improve, there is greater potential to deliver video content directly to the TV set-top box without having to control the consumer's broadband connection. Fetch TV has adopted this 'over-the-top' approach. Like BT Vision and Tiscali TV, the Fetch TV set-top box combines a *Freeview+* DVR with on-demand programming from providers such as Paramount and National Geographic. The Fetch TV service is not tied to a particular internet service provider.

Currently operators of both QoS-assured and over-the-top TV services determine the range of online content that consumers can access. This 'walled garden' approach allows the operator to share directly in margins associated with supplying content rather than simply providing an access device. As the range of devices able to support over-the-top delivery proliferates, and as new business models develop and competition intensifies, it is possible that consumers will be able to access TV content from anywhere on the internet.

**Figure 5.48 Comparison of selected hybrid distribution platforms, June 2009**

Service	Operator	Description	Hardware cost	Other costs
BT Vision	BT	Hybrid television service combining broadcast terrestrial TV via Freeview with on-demand IPTV	Free - £90	Subscription* (from £14.68 per month), otherwise pay-per-view
Tiscali TV	Carphone Warehouse*	IPTV service. Latest generation of set-top boxes also include DTT tuners and digital video recorder (DVR)	Free - £50	Subscription* from £19.99 per month
Fetch TV	IP Vision	DTT tuner and (DVR) combined with 'over-the-top' (i.e. unmanaged) online on-demand content	From £129.99	Pay-per-view (from £0.49)
Apple TV	Apple	Digital media receiver that plays content from iTunes store, selected websites and owner's PC hard drive	From £195	Pay-per-view (from £1.29)
Xbox Live	Microsoft	Games console offering on-demand capability through Xbox live network. Sky TV available to stream autumn 09	From c. £150	Pay-per-view from c. £2.10
PlayStation 3	Sony	Games console with optional DTT tuner (Play TV) and DVR. On demand content from PlayStation network	From c. £290	Pay-per-view from c. £2
Slingbox	Sling Media	TV streaming and placeshifting device that allows users to stream content remotely to a PC or mobile device	From c. £69.99	N/A

Source: Ofcom

\*must be taken as part of a bundle with broadband and home telephony. Excludes introductory discounts. The European Commission approved Carphone Warehouse's acquisition of Tiscali UK in June 2009.

#### Hybrid models also emerging for radio

The hybrid broadcast/broadband model has also recently been adopted by digital radio manufacturers such as Roberts and Pure. It is relatively common now for radio sets to have a dual DAB and FM tuner. But now certain models of DAB 'kitchen' radios can also access internet-based catch-up and streamed radio services using a WiFi connection. Due to the much lower bandwidth requirements of audio streaming, internet radio services all tend to be 'over-the-top', with no need for managed network quality.

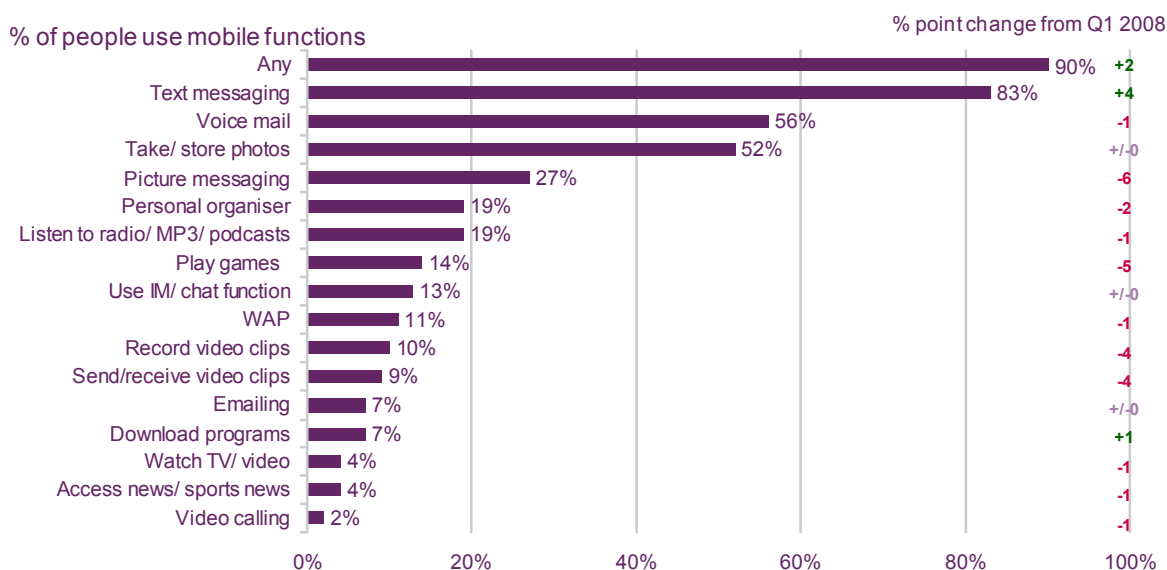
#### **The use of advanced mobile phone functions**

Mobile phones are increasingly powerful portable media devices allowing consumers to undertake a wide range of activities in addition to traditional voice calling and text messaging. Smartphones such as the Apple *iPhone*, the Nokia *N97* and BlackBerry *Pearl* accounted for 16% of all mobile sales in Q1 2009. But even mass-market phones increasingly include the ability to record video, download and play games, and store and listen to MP3 tracks. And as many new phones now include 3G and HSPA connectivity, more people are now equipped to take advantage of these faster data connections to download new content and applications and use the mobile internet.

But despite these increased capabilities, only a minority of consumers appear to use their handsets for functions other than voice calls (and voicemail) or text messaging; the only other function used by more than half of mobile phone users is taking and storing photos (52%).

Our research also shows that there has been little, if any, increase in the number of people claiming to use these mobile phone functions since Q1 2008. In fact, picture messaging and playing games actually declined, by six and five percentage points respectively.

**Figure 5.49 Use of mobile phone functions**



Source: Ofcom research, Quarter 1 2009

Base: Adults aged 15+ who personally use a mobile phone (n= 5273)

## Wireless routers

### Half of all adults with broadband at home currently use a wireless router

During the initial years of broadband take-up, most people used a wired connection between their computer and phone socket. But more recently, as many households have acquired more than one computer and other broadband-enabled devices have become available, home networks have grown in importance. These include physical LAN networks and 'powerline' networks that use the mains wiring in the home to transmit data. But the most widespread are WiFi-based, allowing consumers to access their home broadband connection wirelessly within a radius of up to 100m from a wireless access point.

Most home WiFi networks operate in the 2.4GHz or 5GHz spectrum bands and conform to the IEEE 802.11 family of standards. A home network typically includes one or more network access points (often a wireless router) and one or more devices. Broadband providers often include free or subsidised wireless routers when customers sign up to a broadband contract.

Wireless routers may play an increasingly important part in home networking as technology and device connectivity improve and as the benefits of having a home network become more apparent. Ofcom technology research into the future of consumer entertainment in 2028 suggests that WiFi networks will continue to play an important role in the home in the future, and that the existing spectrum at 2.4 GHz and 5 GHz should be sufficient to meet increased demand for distributing entertainment content.<sup>57</sup>

Separate consumer research (Figure 5.50) shows consumer take-up of wireless routers over the past two years. Take-up has grown by 18 percentage points since Q1 2007 to reach

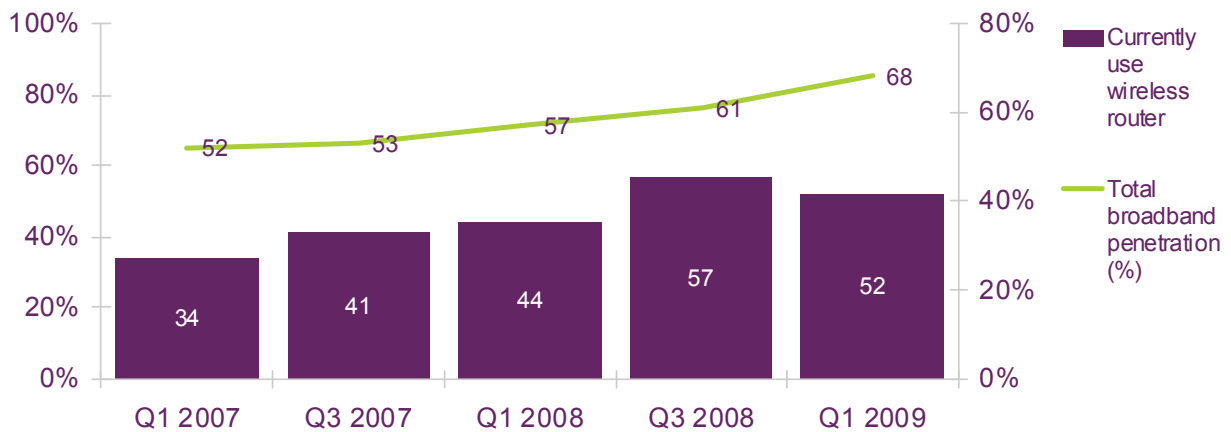
<sup>57</sup> Entertainment in the UK in 2028,

<http://www.ofcom.org.uk/research/technology/research/sectorstudies/entertainment/entertain2028.pdf>

52% of broadband households in Q1 2009. During the same period total broadband take-up has grown from 52% to 68%.

Take-up of wireless routers appeared to decline by five percentage points between Q3 2009 and Q1 2009. This outcome is likely to be due to two factors: a change in research methodology, and rising broadband penetration diluting the proportion of broadband customers using routers. Newer broadband customers may not yet be using a wireless network, may not need one or may not feel comfortable setting one up.

**Figure 5.50 Use of wireless routers vs. take-up of broadband**



Source: Ofcom research, Quarter 1 2009

Base: All adults 15+ with broadband at home (fixed and mobile)

Note: From 2009 data based on those with fixed broadband connection

### Devices – notebooks, netbooks and smartphones

There was a time when the appearance of an electronic device was enough to let the user know what purpose it served. Apart from the different sizes and input methods, there was also a big difference in functionality: a PC was used to play games or create spreadsheets while a mobile phone was used to make calls.

Nowadays, in the era of convergence, calls can be made through a notebook using Skype and a smartphone can be used to edit a spreadsheet. You can play games and browse the internet on your TV or your mobile phone, and you can watch TV on your laptop. You can connect your PC to the internet via ADSL, or to a digital TV network, or even to a mobile network using a mobile phone or an integrated GPRS/3G/HSDPA modem. You can receive TV and radio broadcasts on mobile phones, and listen to the radio via the internet.

The convergence of communications and entertainment devices is so complete, and has been so rapid, that people may be confused about *which device* they should invest in. A mobile phone or a laptop?

The netbook fills the gap between the smartphone and the laptop; its name was popularised by Asus in late 2007 when it launched its *Eee PC*. Unlike other 'bridge' devices that have attempted to span the functions of several devices, netbooks have had tremendous success during the past two years and are increasingly becoming substitutes for laptops. The netbook's shape is similar to the laptop's, only smaller. Typical screen sizes range between 7" and 10", while weight is usually around 1 kilo or less. Netbooks usually run a light version of a popular operating system such as Windows or Linux. It is interesting to note that Linux has captured a significant market share in the netbook segment, because its scalability and lower-cost licensing can bring down the cost of netbooks.

Typical uses for netbooks include office applications (word processor, spreadsheet), web browsing and communications (email, instant messaging) applications. Netbooks are usually equipped with wireless interfaces such as WiFi, 3G HSDPA or WiMAX. Storage capacity is usually (but not always) limited and is often provided via solid-state disks.

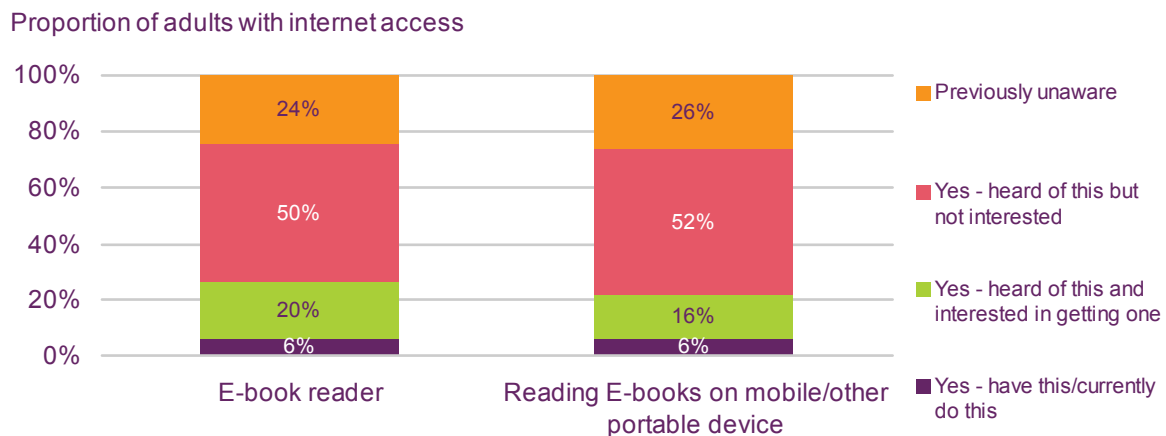
Several mobile operators offer netbooks in their mobile broadband bundles. While prices can vary widely, some can be acquired at no cost when purchasing a mobile broadband plan. Otherwise, a typical netbook costs around £250.

### E-readers and ebooks are at an early stage of development

A new device that generated media and consumer interest in 2008/09 was the e-reader. These are large-screened portable devices that can store and 'play' digital books and potentially newspapers and other text-based content. Higher-end models have a WiFi or cellular connection to enable basic web browsing and content downloading. The major devices all have low-glare screens which mimic the appearance of printed text and, as such, allow the reader to use them for extended periods of time without the risks connected with back-lit screens.

Research from Entertainment Media Research and Wiggin shows that relatively few consumers (6% of internet users) currently use e-books, either on a dedicated e-reader or other portable device. A further 20% have heard of e-readers and expressed an interest in getting one, although as this survey is based on internet users it is possible that both these figures will be lower among the general population. It is clear that e-readers are still at an early stage in their development. There does not yet appear to be mass-market consumer appetite for them; 50% of consumers have heard of e-books but are not interested in them.

**Figure 5.51 Interest in ebooks**



Source: 2009 Digital Entertainment Survey from Entertainment Media Research/Wiggin  
 Question: An e-book reader is a portable device that can store and play books in the same way that an iPod can store and play music. Do you own an e-book reader or have you downloaded any e-books?

Base: UK adults 15+ (1,512)

Note: This survey was based on an online survey that is representative of the national demographic, conducted in May 2009.

### **Ebooks: The story so far...**

More and more of the media we consume are becoming digitised and mobile: first audio, then video, and now the humble book. In the US, online retailer Amazon first launched the *Kindle* eBook reader in November 2007, along with the *Kindle* store which currently holds more than 300,000 ebooks, newspapers and magazines. Since then Amazon has released a further two models and in 2008 alone sold 500,000 *Kindles*. Furthermore, the ebook format has proved very popular, with 35% of sales titles that have an ebook edition sold in that format.

As yet the *Kindle* is unavailable in the UK, but other ebook readers have launched. Sony has partnered with high street retailer Waterstone's, which sells Sony's *Reader* in-store and *eBooks* online. Newcomer Elonex released its Elonex ebook device in a similar deal with retailer Borders. Other devices available in the UK include the French *CyBook* by Bookeen and the Dutch *BeBook* by Endless Ideas.

Furthermore, access to ebooks is not limited to just ebook readers. Amazon has already released a *Kindle iPhone* application and has announced that it will increase competition between devices by making *Kindle* books available on other mobile and computing devices. In the meantime, ebooks can already be read on many smartphones, gaming devices (such as the Nintendo *DSLite*), and even satellite navigation devices.

As with the digital music industry, ebooks come in a variety of formats, some of which employ open standards and others that are proprietary or have digital rights management (DRM) software included. This mix of formats decreases cross-compatibility between readers and can tie users to particular ebook retailers and hardware. However, in March 2009 Google announced that its library digitisation project *Google Book Search* would support Sony's *Reader* device and contribute more than half a million titles in the open EPub format to Sony's *eBook Store*. This brings Sony's total number of books to double that of *Kindle*'s, and in a format which is compatible across a number of ebook readers.

### **5.3.3 Conclusion**

Converging services and technologies play an increasingly important role in the wider communications markets and, therefore, the sectors we regulate.

The rate of change in these markets is increasing as consumers become more attuned to the potential benefits these services can offer and adopt these services in greater numbers.

2008 saw the rise of both catch-up and online TV as industry took advantage of the widespread availability of faster broadband and consumers demonstrated an appetite to take greater control over their viewing.

However, with new technologies come new challenges. Unlawful content sharing is becoming increasingly widespread and research suggests that two-thirds of people aged 15-24 think it is morally acceptable to download music for free.

This has prompted industry and Government to look for ways to address the problem of unlawful content sharing through a range of initiatives, including educational campaigns, legal action, a memorandum of understanding between content owners and internet providers, proposed legislation and promotion of legal alternatives.