

# The International Communications Market 2007

## **2 Convergence**

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## 2.1 The meaning of convergence

### 2.1.1 Defining convergence

Ofcom's 2007 *UK Communications Market Report* analysed the communications sector through a value chain structure. It did not propose one immutable definition of convergence, as the technologies and consequences of converged services and devices are changing all the time. Instead it looked at the ways in which communications are created, distributed and received according to the schema shown below.

**Figure 2.1 The converged communications value chain**



Source: Ofcom

A lack of available data means that analysing each of these segments for the seven key comparator countries is beyond the scope of this report. Instead this chapter will focus on the areas where the impact of convergence has been greatest, namely:

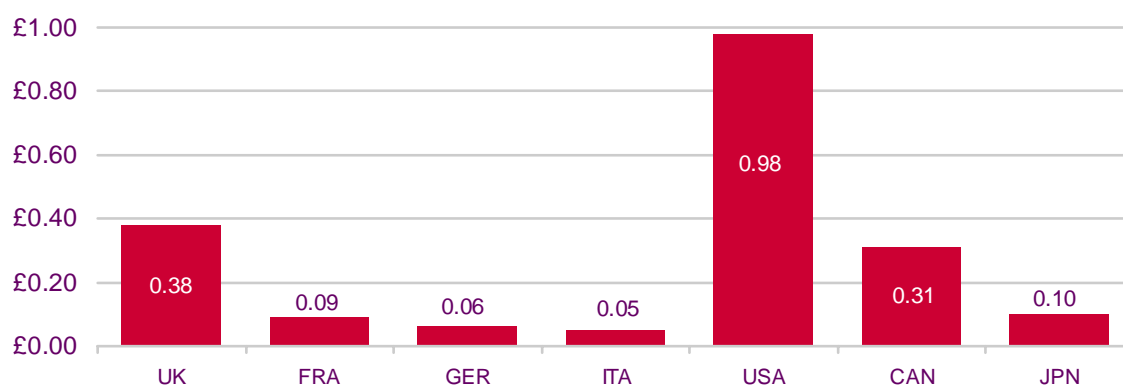
- **content and voice and packaging** – similar content is often packaged for distribution to the TV, computer and mobile phone. An abundance of content is generated by users, and new questions are being raised about how best to manage rights;
- **distribution** – some network types are now able to transmit multiple forms of content; for example 3G mobile, DAB and internet technologies can all carry voice, data and audio-visual content. This chapter will focus on services enabled by Internet Protocol (IP) technologies;
- **devices** – many devices are now capable of receiving multiple wireless signal types, for example some mobile phone handsets can receive a combination of 2G, 3G, Bluetooth, WiFi and DVB-H; and
- **consumption** – the consumption chapter reports on how the internet is being used in different countries, both in terms of the impact it is having on offline media consumption and also in the type of content consumed. We also look at the use of the multiple functions available on many mobile handsets.

Before looking at recent developments in these areas, this introduction will examine the revenues generated by selected converged media, the growing importance of the internet in the advertising market, and the development of multi-service offerings or 'bundling'. It will also consider how convergence is opening up the value chain, which is leading to both collaboration and competition and driving policy debates.

### 2.1.2 Online revenues

Across the key comparator countries, online TV and video revenue per capita is highest in the US, at almost £1 per capita in 2006. There is a noticeable gap between the revenue per head in the English speaking countries and those of our other key comparator countries, all of which generate £0.1 or less per head of population. (Figure 2.2).

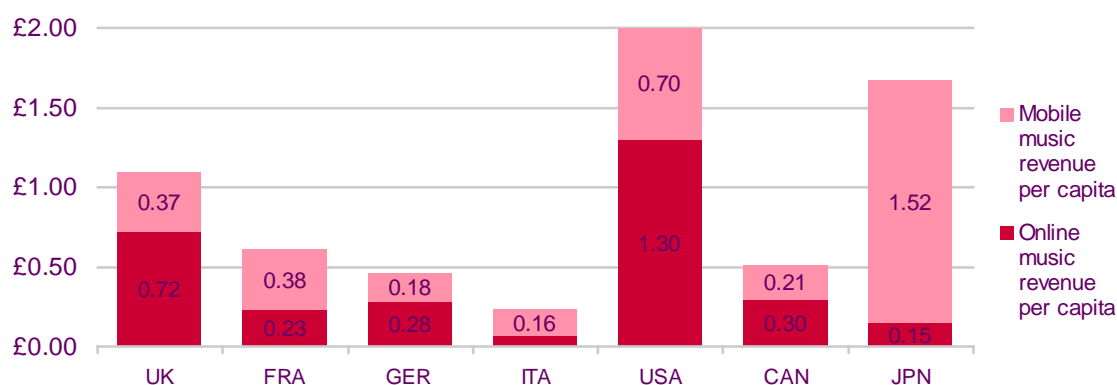
**Figure 2.2 Online TV and video revenue per capita, 2006**



Source: Ofcom calculations based on Informa Telecoms and Media data

The situation is slightly different as far as digital music is concerned. Although the US still leads the field with revenue per capita of £2 in 2006, Japan is not far behind, and in terms of digital music sales to mobile phones only, its revenue per capita is twice as high as in the US. Distribution to mobile is also particularly prevalent in Italy, where mobile sales accounted for 70% of digital music (Figure 2.3).

**Figure 2.3 Digital music revenue per capita, 2006**



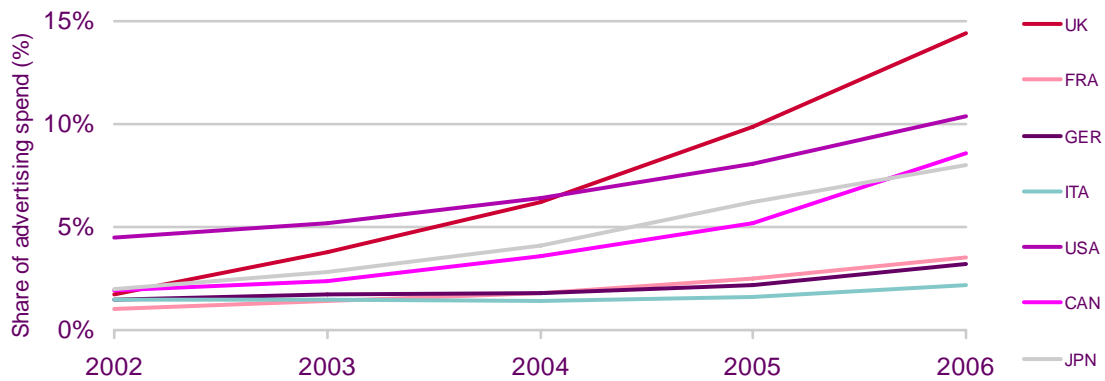
Source: Ofcom calculations based on International Federation of the Phonographic Industry data

### 2.1.3 Advertising revenues

#### Online advertising increases market share in all global regions

The internet is attracting an increasing share of advertising spend in all key comparator countries, although this share is growing at markedly different rates, from a 0.7 percentage point increase in Italy over the last five years to a 12.7 percentage point rise in the UK. (Figure 2.4).

**Figure 2.4 Internet advertising spend as share of total advertising**



Source: World Advertising Trends 2007, WARC

The importance of online advertising is also evident from some of the partnerships, mergers and acquisitions involving global media companies that have recently taken place. Many major target companies have been websites which facilitate the online trading of internet advertising, firms providing online advertising services and software, and websites hosting user-generated content or providing social networking services.

**Figure 2.5 Major media company online advertising deals**

Company	Deal
AOL	Acquired advertising.com, a leading advertising network, which pools inventory from many media owners and sells it to advertisers. (2004) Made an offer for TradeDoubler, a leading digital marketing company. This offer was rejected. (2007)
Google	Acquired 5% stake in AOL. (2005) Acquired YouTube for \$1.65bn. (2006) Agreed exclusive advertising partnership with Fox Interactive Media, which owns MySpace. (2006) Announced that it is joining forces with MySpace to launch 'OpenSocial', a set of common application program interfaces (APIs) for building social applications across the web. (2007) Announced agreement to acquire DoubleClick, a leading advertising services company for \$3.1bn (2007). The acquisition is still being looked at by European and American competition regulators.
Microsoft	Acquired the aQuantive family of digital marketing companies for approximately \$6bn. (2007) Acquired a \$240 million stake in Facebook's October 2007 round of financing at a \$15 billion valuation. (2007)
WPP	Acquired 24/7 RealMedia, a digital marketing agency (2007). The acquisition was valued at approximately \$649 million.
Yahoo!	Acquired the remaining 80% stake in RightMedia, which offers an online advertising exchange, for around \$650m (2007). Yahoo already owned 20%. Announced definitive agreement to buy BlueLithium, a leading online advertising network. (2007)

Source: Ofcom

### 2.1.4 Multi-service offerings or 'bundling'

In its most basic form, convergence is manifested in the range of multi-service offerings or 'bundled' services, which are available in all of our key comparator countries. These consist of two or more fixed-line, mobile telephony, internet and television services. In many countries, bundling has been driven by the cable operators, as they were the first to have the necessary network infrastructure in place to deliver multiple services. However, relatively few cable companies offer quad-play services comprising all four services, since most do not

have a mobile network, although key exceptions include Virgin Media (UK), Rogers Communications (Canada) and Bright House Networks, Comcast, Cox Communications and Time Warner in the US.

The mobile component of cable quad-play services is provided in different ways. Rogers has its own proprietary mobile network while Virgin Media operates as a Mobile Virtual Network Operator (MVNO), providing services through T-mobile's physical network. The four US cable operators have launched a service called *Pivot* in partnership with the Sprint mobile network in selected regions of the country. In addition to the mobile service, *Pivot* subscribers receive their cable operator's TV and email service on their mobile, as well as unlimited calling between the cable operator's digital phone service and their mobile. The *Pivot* service is billed alongside the cable services, making it appear to be a largely seamless quad-play from the consumer perspective.

Most incumbent telecoms operators have expanded into mobile services and internet access, with TV the final element to be added into the quad-play mix. Across our key comparator countries, all of the incumbent telecoms operators offer all four services, although some do not promote them as a quad-play bundle. For example BT (which does not own its own mobile infrastructure) and Deutsche Telekom do not market a quad-play bundle.

Internet service providers in France and Japan also offer all four services, although they are not necessarily marketed as a quad-play bundle. They are able to achieve this by offering fixed voice through VoIP technology, securing carriage agreements with the TV channels and either acquiring a mobile operator or licensing an MVNO.

### **2.1.5 Collaboration and competition across the value chain**

Digital technologies have opened up the communications value chain, allowing operators to collaborate more extensively with those from other segments in the value chain, and making it easier for them to broaden their operations in an effort to increase revenue. This has been one factor behind an increase in internet traffic, which has led to an intense debate over who should carry the distribution cost of content-rich services, the so-called 'net neutrality' issue (see the regulatory landscape section).

#### **Collaboration across the value chain**

Deals and partnerships between players in different parts of the communications value chain are being struck in many of the countries examined in this report. Many are between content suppliers, whose bandwidth requirements are increasing, and distribution networks, some of which are now able to carry much more content than previously. However, collaboration can also be between network owners and manufacturers, as functions such as video calling are added to games consoles. The table below lists just a few of the international deals involving UK companies over the last twelve months that include players from across the value chain.

**Figure 2.6 Selected deals and partnerships between players in adjacent markets**

UK company	International partner	Date of deal	Nature of deal
BSkyB	Google (USA)	Dec-06	BSkyB and Google announce plans to bring web-based search, advertising, communications and video services to Sky's broadband internet subscribers
Virgin Media	HBO (USA)	Feb-07	Virgin announces content deal with HBO to screen series such as <i>The Sopranos</i> and <i>Six Feet Under</i> on its on-demand service
Vodafone	ZTE Corporation (China)	Feb-07	ZTE Corporation will produce a range of Vodafone-only branded low cost handsets for sale across Vodafone's markets
Vodafone	Google (USA)	Feb-07	Vodafone and Google announce that they intend to develop a location-based version of Google Maps for mobile to add to the portfolio of internet-based services available to Vodafone customers
BBC	YouTube (USA)	Mar-07	YouTube content to include two BBC-branded entertainment channels showing short-form videos
Simply Media	JumpTV (Canada)	Mar-07	Ethnic TV company JumpTV provides channels to Simply Media's IPTV services in the UK
BT	Many (international)	Mar-07	BT announces a range of new content partners for its BT Vision service: Avalon, Cookie Jar, Contender Home Entertainment, FremantleMedia, Gong, Nelvana, Real Estate TV, Revelation Films, Shorts, TVF, TwoFour Broadcast, Vidzone Digital Media and Warner Bros
Vodafone	Ericsson (Sweden)	Apr-07	Ericsson will manage the supply and distribution of spare parts for Vodafone's networks across several of its major European operating companies including Germany, Spain and Portugal
BBC Hindi	MSN India	May-07	News content from bbchindi.com to be made available to users of MSN India's Hindi portal
BT	Sony (Japan)	May-07	BT and Sony Computer Entertainment Europe sign a deal to add wireless broadband functionality to the PlayStation Portable including video calls, voice calls and messaging
Narrowstep	VivoCom (Spain)	Jun-07	Narrowstep collaborates with VivoCom to deliver a host of new IP delivered TV channels to the Spanish market
ROK	CNBC Europe	Jun-07	ROK will add CNBC Europe to its mobile TV content portfolio
BBC Learning	Sina (China)	Aug-07	sina.com.cn offers its users direct access to the BBC Learning English content specially tailored for Chinese-speakers
Narrowstep	KPN (Holland)	Sep-07	KPN Global Carrier Services teams up with Narrowstep to provide a wholesale internet TV offering to mobile and fixed network operators, ISPs and content owners
Tiscali	Setanta (Ireland)	Sep-07	Tiscali UK signs a distribution agreement with Setanta Sports to offer three of its premium sports channels on Tiscali TV to its subscribers
Three UK	Skype (Luxembourg)	Oct-07	Skype and 3 to launch a handset that lets customers make Skype to Skype calls and send Skype instant messages from their mobile phone to other Skype users

Source: Ofcom

### Competition across the value chain

Convergence also allows operators to expand into previously adjacent markets, thereby entering into competition with a whole new range of operators. The attractiveness of this as an option depends very much on market conditions. For example, in Germany, satellite and cable penetration were much higher than in France at the time when digital technologies made IPTV services feasible. Consequently, in Germany local loop unbundlers launched IPTV services much later (in 2006) than they did in France, where two operators began offering services in 2003.

In France Orange has moved into content packaging by launching channels such as Orange Sports TV on its IPTV service. It has also acquired some exclusive content including films like *Arthur and the Minimoys*, a seven-channel French Open tennis package and rights to the Rugby World Cup. Additionally, Orange's IPTV proposition offers its customers a 'CanalSat Premium' pack and the 'Canal+ Le Bouquet' pack; these include the premium film and sports content that is also available over the CanalSat ADSL and satellite networks.

In the UK Virgin Media launched its first branded channel, Virgin 1, on digital terrestrial, cable and Sky's satellite services in October 2007. The channel will be a rival to Sky One, thereby ramping up Virgin's competition with BSkyB in the realm of content, in addition to the already fiercely-contested distribution market. Virgin 1 has commissioned content such as *Crime Invasion* for its new channel, as well as taking content from other Virgin Media channels such as Living, Bravo and Trouble.

In Italy, the incumbent Telecom Italia also has its own media company, Telecom Italia Media, which packages content through the La7, MTV Italia and APCom channel brands. La7 focuses on news and current affairs, APCom on domestic and international politics and business, while MTV Italia is a multi-channel music network. The company has also recently launched Qoob TV, which offers cartoon and movie content for TV, the internet and the mobile phone. In content, Telecom Italia competes with Sky Italia, the pay-TV operator, which provides much of the content for the country's IPTV and mobile TV operators.

### **Carrying the cost of converged services**

The increasing availability of content-rich services over the internet is a source of debate between players right across the communications value chain. The discussion has been intensified recently by the launch of the *BBC iPlayer* in the UK and the popularity of the *Daily Motion* user-generated content video platform in France. The high bandwidth required to view content from such services has caused UK-based ISPs to warn that they may have to restrict access to the service unless the BBC contributes to the cost of streaming videos over the internet. Similarly, French operator Neuf Cegetel has had a dispute with *Daily Motion* over the price of its peering agreement.

## 2.2 Converging industries

### 2.2.1 Content and voice

#### Mixed-media formats now a reality

The increased availability of networks and devices over which audio-visual content can be distributed and received means that 'mixed-media' formats, whereby similar content is packaged for the television, the computer and the mobile handset, are now a reality for content aggregators, distributors, advertisers and users. Content repackaging is being led by the mainstream broadcasters, and involves not only ensuring that the content is accessible over the available networks and devices, but also adding extra content with which to exploit the opportunities afforded by different media, such as ringtones or wallpapers.

Examples of mixed-media formats include:

- HBO series such as *Six Feet Under*, *Sex and the City* and *The Sopranos*, which are available over the AT&T mobile network in the US, either as full length episodes or short clips. Ringtones, games and graphics are available for download to mobiles and customers can also get themed screensavers or instant messenger icons from the HBO website;
- Canada's CBC news, sports and political satire programmes, which can be watched online along with a large amount of archive material. CBC hourly news updates are available to mobile phone users, and news headlines for a range of subjects and regions can be received in response to a text message; and
- the BBC's *Heroes* website, which hosts clips from episodes, video interviews with actors, podcasts from the radio show and interactive video games. The series also has a dedicated website for mobiles.

The above examples are just three from the vast array of multi-platform content which is now the norm for many mainstream broadcasters. For example, in the US, broadcasters with content available on the internet include: ABC, CBS, CNN, Fox TV, and NBC Universal. In the UK, the BBC, ITV, Channel 4, Five, Discovery, ITN, MTV and BSkyB all offer content online. A broadcaster's online content service may consist of programme clips, on-demand films, or live streaming. In the US the online content services are mostly supported by advertising, whereas the funding mix in the UK includes the licence fee, subscriptions, pay-per-view, download-to-own charges and advertising.

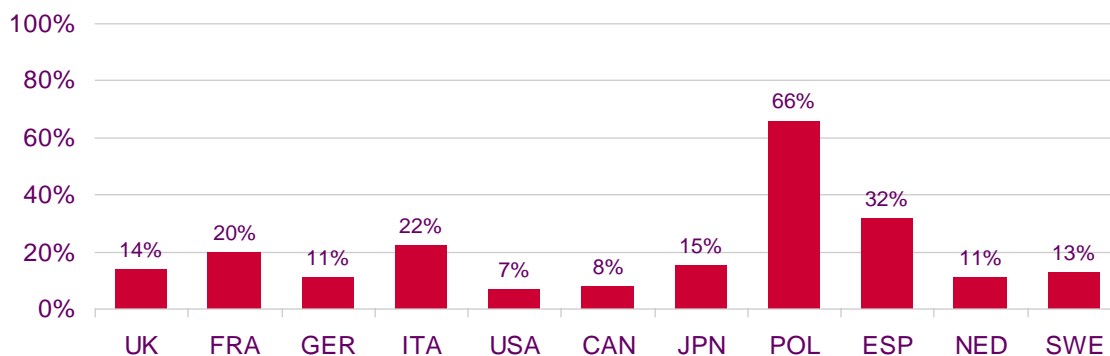
On the mobile platform, many content distribution deals have been struck in 2007. According to Informa, there were 11 mobile TV deals in July and August alone, including T-Mobile's launch of Sky Mobile TV, Verizon Wireless adding a new channel to its *V Cast* Mobile TV service and MediaFLO partnering with CBS to launch a real time *Big Brother* broadcast. The most popular TV genre on mobile varies by country: according to M:Metrics, music predominates in the US and Spain, in the UK and Italy consumers prefer sports action or news, while in Germany local, national and international news clips are most popular.

#### Digital technologies have consequences for rights and piracy

The repackaging of content for different networks and devices is being led by broadcasters, as they own valuable content rights, possess a brand capable of driving take-up across multiple platforms, and can therefore exploit new platforms to increase revenues. They also stand to lose most through the operation of illegal distribution business models or piracy.

This seems to be a particular problem in Poland, according to figures from the Motion Picture Association, which estimates that it suffers piracy rates equivalent to a loss of 66% of revenues (Figure 2.7).

**Figure 2.7 Estimated share of potential revenue lost to piracy, 2005**



Source: Motion Picture Association (MPA)

Note: Estimates of potential revenue losses to piracy are based on the number of legitimate movies (i.e. movie tickets and legitimate DVDs) that consumers would have purchased if pirated versions were not available.

In developed countries with widespread broadband take-up, the demand for hard-format pirate DVDs has fallen over the last few years, as films are instead downloaded legally and illegally or shared via peer-to-peer networks. The International Federation of the Phonographic Industry reports that professionally pressed pirate discs accounted for less than 25% of DVDs seized in 2006 and only 3% of CDs. The remaining seizures consist of recordable CDs or DVDs or blank discs.

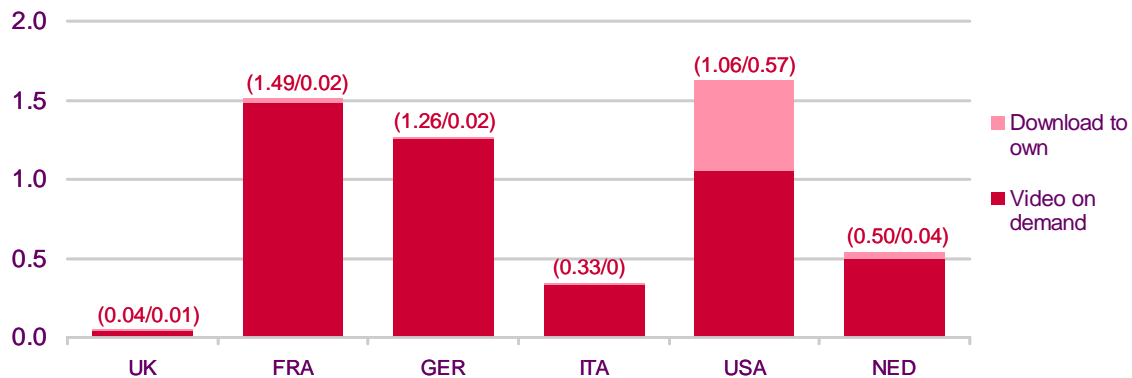
Digital distribution over the internet presents a conundrum for content rights owners. On the one hand they may want to use online distribution to meet consumer demand, increase revenues and beat professional piracy. However, on the other hand they may be exposed to revenue loss.

In order to make downloading via the internet as attractive as possible to consumers, content packagers are making video available in different ways:

- **Download-to-own (DTO)** Consumers purchase a permanent download. This is offered, for example, by Coolroom (UK), CanalPlay (FRA) and the iTunes store (US).
- **Video on demand (VoD)** Consumers rent a temporary download or buy temporary access to a stream. This is offered, for example, by Lovefilm (UK), Arcor (GER) and Rosso Alice (ITA). The time the viewer has to watch the film varies; Lovefilm downloads are available for 5-7 days whereas Arcor downloads must be watched within 24 hours.
- **Subscription video on demand (SVoD)** Consumers pay a monthly fee in exchange for as many temporary downloads and streams as they can view. This is offered, for example, by MovieFlix (UK, international), CinemaNow (UK, international) and One4Movie (GER).
- **Advertising funded** Consumers can stream or download content for free in exchange for watching adverts. October 2007 saw the beta launch in the US of Hulu, an online video service founded by NBC Universal and News Corp, which offers viewers the opportunity to watch on-demand full-length primetime programmes and feature films.

Of these, Screen Digest figures suggest that Video on demand is the more commonly-used method, with France selling the most VoD films per head in 2006. However, the greater popularity of download-to-own in the US means that in total, marginally more films were downloaded per capita in the US than in any of the other countries surveyed (Figure 2.8).

**Figure 2.8 Sales of online films per 100 population, 2006 (VoD/DTO)**



Source: Ofcom calculations based on Screen Digest data

The impact of digital technologies on music is different as rights are managed collectively. In the UK the body representing music writers, composers and publishers is the MCPS-PRS Alliance. It exists to collect and pay royalties to its members when their music is recorded, performed, broadcast or otherwise made publicly available. The alliance is also able to license music for online and mobile distribution across Europe, following a recent recommendation from the European Commission that rights holders should be free to choose how to license their online and mobile rights across the continent.

Consequently organising the rights to deliver music online and over mobile is simpler than for audio-visual content, and the barriers to entry for content distribution are lower. As a result, the digital challenge to the radio industry comes not only from peer-to-peer file-sharing, but also from the ease of setting up digital music radio stations.

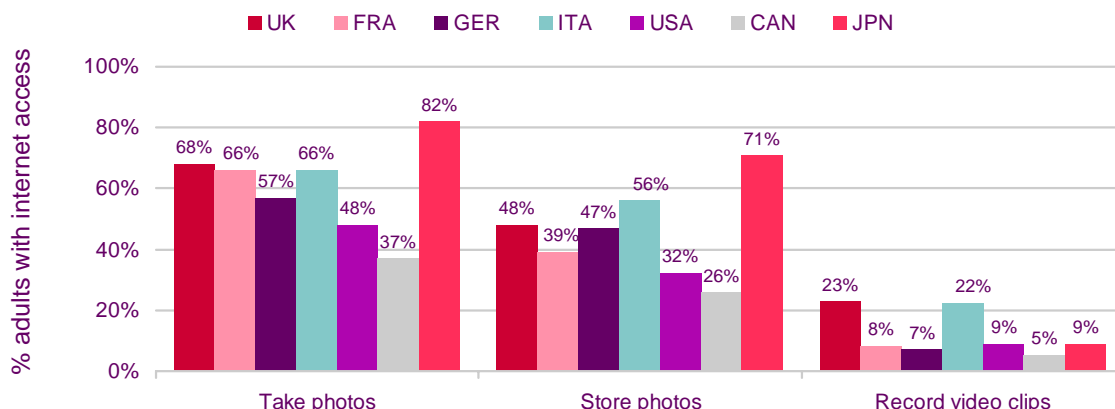
### User-generated content goes mainstream

Digital technologies have given consumers greater power to record and distribute their own content, and many websites exist to help facilitate this. However, the phenomenon is not new. Radio phone-ins and programmes which show viewers' home videos, such as *You've Been Framed* (UK), *America's Funniest Home Videos* and *Fun TV with Kato-chan and Ken-chan* (JPN), were conceived long before digital technologies were widely used to upload content.

However, many consumers now own and use devices with which they can create their own digital content. For example, in addition to making voice calls and sending SMS text messages, many mobile phones are now used to create other forms of content, in particular still photos and videos. Consumer research conducted for this report shows that this is particularly popular in Japan, possibly connected to the greater use of mobile data services in Japan than in North America or Europe (Figure 2.9).

**Figure 2.9 Use of the mobile phone to record and store photos**

Which of the following do you use your mobile phone for?

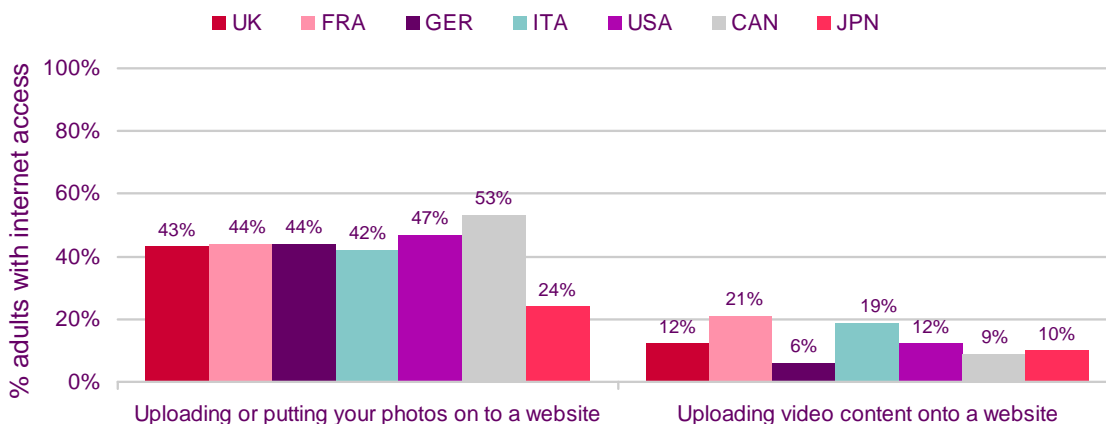


Source: Ofcom research, October 2007

However, people in Japan use the internet to upload photos onto websites less than in the other key comparator countries. This may suggest that they share photos privately on a mobile or other device rather than making them publicly available. By contrast in the other key comparator countries, over 40% of internet users upload photos onto websites (Figure 2.10).

**Figure 2.10 Use of the internet to upload photos and video onto a website**

Which of the following do you use your internet connection for?



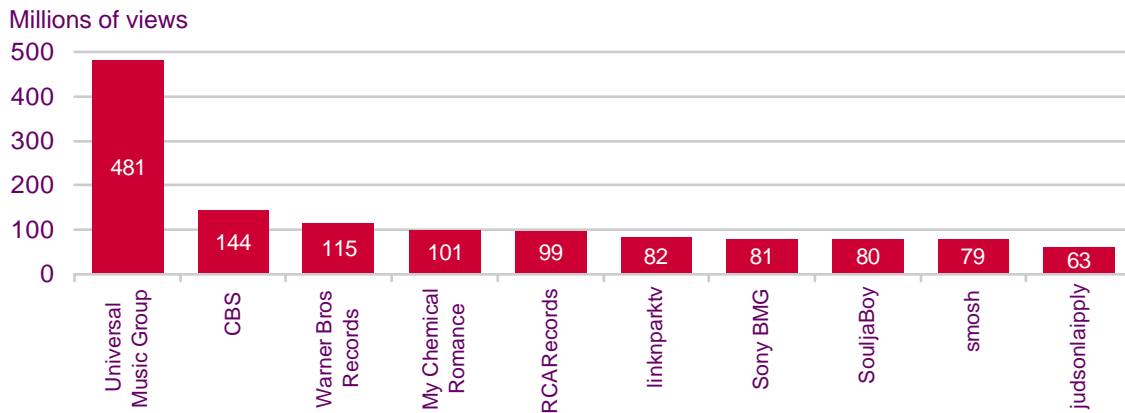
Source: Ofcom research, October 2007

Now that digital cameras, and, to a lesser extent, video cameras, have been widely adopted, and numerous hosting websites are available, audio-visual user-generated content has proliferated online. One consequence of this is the desire of many of these websites to improve the quality of the content they offer. One way to address this issue is to share revenue with creators, in an effort to attract content with higher production values. One company trying this business model is Revver, a video-sharing platform, while the launch of Clipstar in October 2007, where people vote for their favourite video and the most popular item wins a cash prize, is also a development of this trend.

In fact, professionally-produced material has been available on user-generated content websites for some time. On 2 November 2007, the three most-viewed channels ever on

YouTube.com were created by professional American TV and music producers - Universal Music Group, CBS and Warner Bros Records (Figure 2.11).

**Figure 2.11 YouTube.com channels with most views of all time on 2 Nov 2007**



Source: YouTube.com

This trend looks set to continue with YouTube announcing in June 2007 that it had signed content deals with the BBC, France 24, Antena 3 and Cuatro TV in Spain, and VPRO and NPO in the Netherlands.

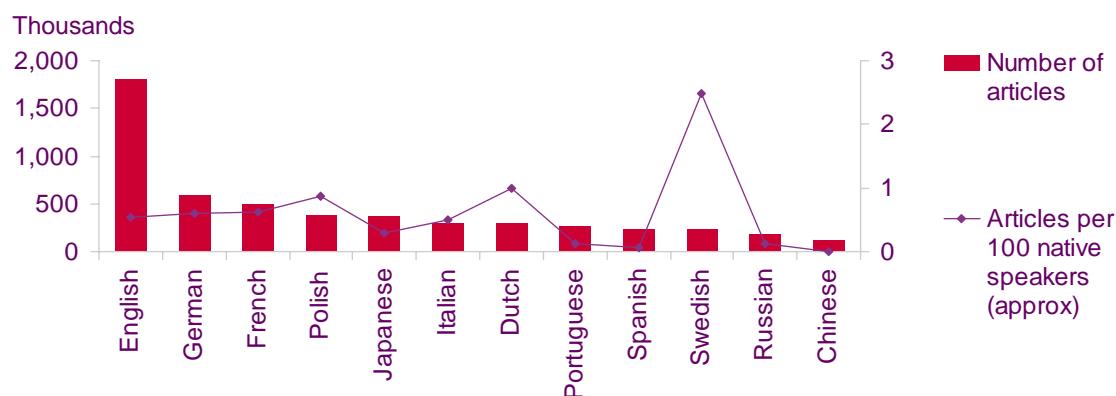
### Web 2.0 websites develop local language versions

Several user-generated content sites are starting to offer new local language versions. YouTube has announced the launch of sites for Brazil, France, Ireland, Italy, Japan, Netherlands, Poland, Spain and the UK, while in July 2007 News Corp announced that MySpace had 18 localised communities in seven different languages including French, German, Italian and Japanese, and a beta version for Brazil. News Corp also announced in April 2007 that a Chinese version of MySpace had launched in beta, although at the time of writing this is not accessible from the international map on the MySpace website.

Another web 2.0 site with international versions is Wikipedia, which offered French, German, Italian, Swedish, Spanish, Chinese and Japanese sites within four months of the English language launch in 2001. At the time of writing there are over 250 different language Wikipedias, including some which use historical languages such as Anglo-Saxon.

There are more articles on Wikipedia in English than in any other language, while Spanish ranks only ninth in terms of volume of articles, behind some countries which have a much smaller native speaker base, such as Poland, Italy and the Netherlands. And taking into account the relative native speaker base, there are seven times as many articles per English native speaker as there are per Spanish speaker (Figure 2.12). This might partly be explained by the fact that internet penetration is higher among English than Spanish native speakers.

**Figure 2.12 Wikipedia number of articles, June 2007**



Source: Wikipedia

Note: Native speaker estimates from Wikipedia

### 2.2.2 Network convergence

We use the term network convergence to refer to distribution networks that can carry more than one type of content. Internet Protocol networks are an obvious example, able to carry voice, text and audio-visual content by transporting it as data packets.

#### **IPTV available in all key comparator countries**

IPTV services deliver audio-visual content as well as additional services such as text and data over internet protocol. The television offered is 'linear' and 'of broadcast quality' (i.e. similar to programmes viewed over digital terrestrial, satellite and cable), although the increasing use of digital video recorders and the availability of high-bandwidth services are starting to make these terms redundant.

There are several differences between IPTV and television content delivered over the internet:

- **Network management.** An IPTV network is a closed and managed network, in which content is distributed to subscribers connected to operator exchanges. By contrast the internet is open and does not recognise national boundaries;
- **Content.** The IPTV operator controls the content it packages and distributes, whereas any user with the tools to do so can upload content on to the internet; and
- **Quality of service.** An IPTV service tends to be more reliable and guarantees its service quality, whereas TV over the internet is subject to the capacity available and the number of other people viewing high-bandwidth content at the same time.

The table below lists selected IPTV services available in the key comparator countries.

**Figure 2.13 Selected IPTV services**

Country	Operator	Subscribers (Q4 2006)	Date of launch
UK	Tiscali	< 100,000	2000 (as HomeChoice)
	BT Vision		December 2006
France	Free	680,000 (Q2 2007)	December 2003
	France Telecom	837,000 (Q2 2007)	December 2003
	Neuf Cegetel	300,000	November 2004
	Alice TV		November 2005
	Darty		October 2006
	SFR		June 2006 (as Tele2)
Germany	Alice	12,000 (July 2007)	May 2006
	Deutsche Telekom	< 100,000	October 2006
Italy	Fastweb	191,000 (May 2006)	2001
	Telecom Italia		December 2005
USA	AT&T U-Verse TV	100,000	June 2006
	SureWest Digital TV	60,000	
	Verizon FiOS TV		
Canada	Bell Canada		
	Aliant		2005
	SaskTel Max Interactive TV	43,000 (2005)	
	MTS TV	55,000 (Q1 2006)	January 2003
Japan	BBTV		November 2004
	KDDI HikariONE		
	NTT East 4 <sup>th</sup> Media		
	NTT West & ITOCHU On-Demand TV		

Source: IDATE, OECD, Screen Digest

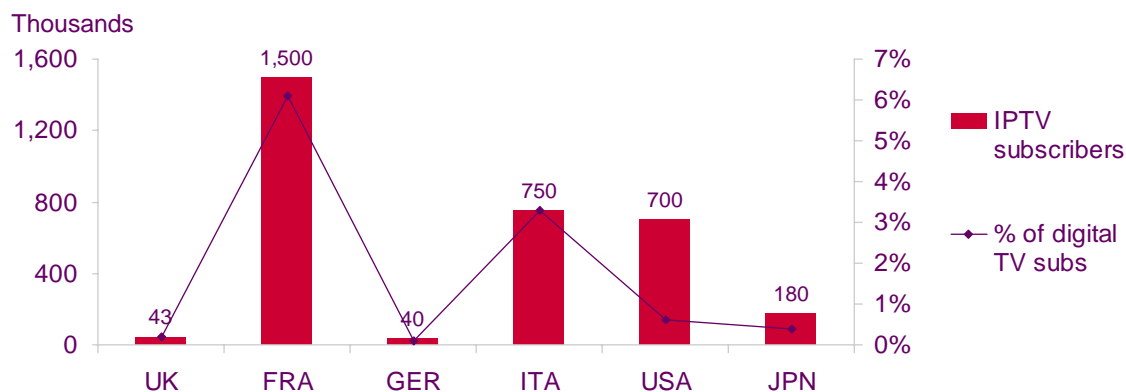
### France is the IPTV market leader

Of the key comparator countries in this report, France is the clear leader in IPTV, both in terms of number of subscribers (1.5 million) and in share of digital TV subscribers (6.1%). Before recent consolidation there were eight operators in France – two of the smaller operators, AOL France and Club Internet, were recently acquired by Neuf Cegetel. Many IPTV operators in France provide basic IPTV packages ‘free’ or for a small additional charge to broadband customers, but also offer a range of premium content comprising repackaged channels from the pay-TV satellite operator.

Although France was not the first country to launch IPTV (both the UK and Italy already had services in operation when France Telecom and Free Telecom launched), it was still a relatively early entrant and its operators benefited from more advanced existing network infrastructure. The operators also benefited from the low multichannel penetration in France at the time of launch, making an IPTV service a comparatively attractive proposition.

The French market was initially driven by an aggressive operator, Free, which developed innovative pricing strategies. At the time of writing Free offers a triple-play service comprising fixed voice, broadband and IPTV for 29.99 Euros/month (although TV is reportedly not available to some subscribers for technical reasons). It is not possible to opt for only one or two of the services, and unlike several other operators in France, Free does not help with equipment installation.

**Figure 2.14 IPTV subscribers, 2006**

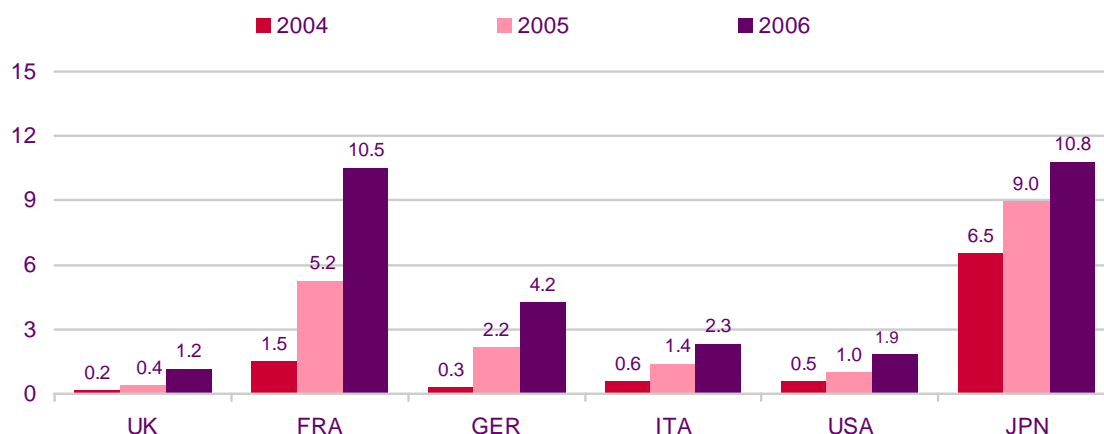


Source: IDATE

**Over 10% of broadband subscribers take VoIP in France and Japan**

Voice calls have been carried via internet protocol over the backbone network for many years; the more recent innovation is the ability to connect a phone to the broadband access network, removing the need for access to a publicly-switched telephone network. VoIP services are offered both by 'pureplay' operators such as Skype, which provides the software for a PC or mobile phone to convert voice into data packets, as well as by telecoms and cable operators which can offer the service over their broadband networks.

**Figure 2.15 VoIP subscribers per 100 population**



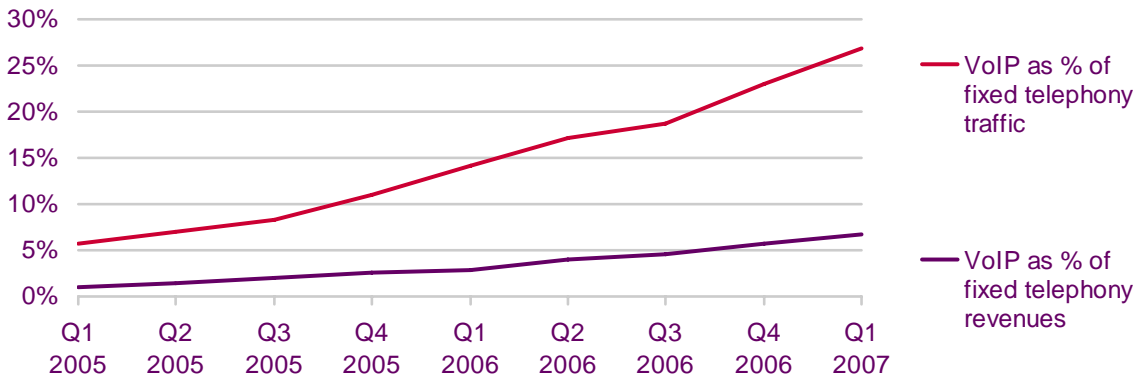
Source: IDATE

Note: excludes those who make PC to PC calls

VoIP is now well established in many countries, with over 10 subscribers per 100 population in Japan and France (excluding those who make PC to PC calls). Take-up of VoIP in Japan has been driven by the telecoms operator Softbank, while in France, VoIP has become a key component of telecoms operators' efforts to retain customers and acquire triple-play

subscribers, which seems to outweigh any cannibalisation of revenue they might suffer (see Figure 2.16). As a result of the increased share of minutes that are being sent over IP, fixed voice revenues in France have fallen by almost a quarter over the last two years, even though fixed voice volumes have remained broadly constant.

**Figure 2.16 VoIP share of the fixed telephony market in France**



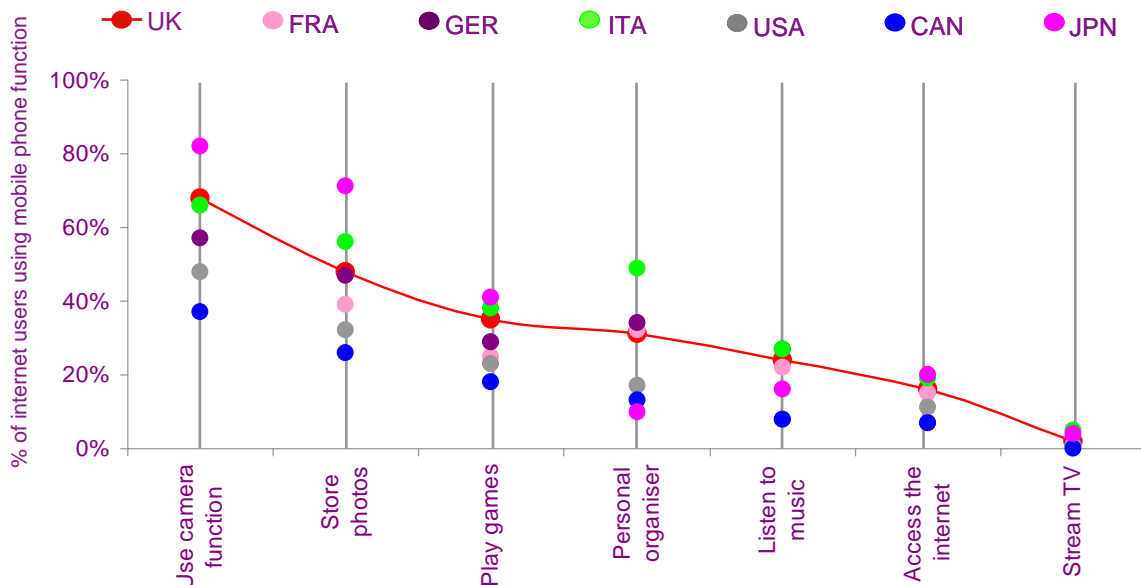
Source: IDATE

Note: excludes those who make PC to PC calls

### 2.2.3 Device convergence

Device convergence in the mobile handset is manifested both by the number of signals some handsets can receive, for example 2G, 3G, WiFi, HSDPA and Bluetooth, as well as by the range of functions contained within a single device. For example, Ofcom research shows that between 37% and 82% of internet users across our key comparator countries use their mobile phone as a camera (Figure 2.17).

**Figure 2.17 Use of non-voice and text functions on the mobile phone**



Source: Ofcom research, October 2007

Informa data show that the majority of handsets produced in June 2007 by five of the main manufacturers incorporated an advanced mobile internet browser, illustrating industry's belief that both the network infrastructure and consumer demand are now sufficiently well developed to make widespread use of the mobile internet possible (Figure 2.18). However,

only one of the 66 handsets launched in June 2007 was capable of receiving mobile TV (Samsung's SPH-W2400), indicating that this service is far from a mass market proposition.

**Figure 2.18      Functionality of selected mobile handsets launched in June 2007**

Feature	Vendor (number of handsets launched)				
	LG (10)	Motorola (6)	Nokia (3)	Samsung (26)	Sony Ericsson (3)
BREW	2	1	0	0	0
GPS	2	1	2	0	0
HTML Browser	0	0	2	3	0
Java	7	5	3	22	1
Media player	6	6	3	18	1
Radio	1	2	3	5	2
Video streaming	9	6	3	24	2
WAP browser	10	6	3	20	2
XHTML browser	9	6	3	11	1

Source: Informa

### Italy first to offer commercial broadcast mobile TV in Europe

TV and video can be distributed over a number of different networks to mobile phones. Unicast mobile TV uses mobile networks to stream and download content. This technology was used in the first mobile TV services to be made available, for example Orange World and Vodafone Live!, and at least one 3G service is on offer in all of the key comparator countries covered in this report. However, there may not be sufficient network capacity to support this form of distribution on a wide scale.

Broadcast mobile TV can use limited network capacity more efficiently than unicast services, but there has been much debate over the best technology to use; the current competing standards are ISDB-T, DMB, DVB-H and MediaFLO. In Europe, Commissioner Reding recently expressed a preference for the use of the DVB-H technology, and in October 2007 France became the first to mandate DVB-H as the only mobile TV broadcast technology. Nevertheless, Italy is still the only country in Europe to have deployed a commercial DVB-H service, with 3 Italia, Telecom Italia and Vodafone all offering subscription packages for different timeframes (daily, weekly, monthly or quarterly). 3 Italia's package includes programmes from RAI - the state broadcaster, Mediaset - the main commercial broadcaster, Sky Italia and La7.

**Figure 2.19 Selected broadcast mobile TV offers**

Operator	Technology	Charging structure
3 Italia	DVB-H	Monthly subscription to DVB-H channel package Unlimited access to DVB-H channel package with an all-inclusive voice subscription
Telecom Italia Mobile	DVB-H	Monthly subscription providing users access to 30 channels (not including WAP navigation costs which are billed separately)
SK Telecom – TU Media	S-DMB	Connection fee Monthly subscription to channel package (excluding pay-per-view channel) Pay-per-view programmes billed on a per-use basis
MBCO	S-DMB	Connection fee Monthly subscription to MoBaHo! Service Monthly subscription to all or part of the channel package via different options
Japanese terrestrial offer	ISDB-T	Free channel package
Korean terrestrial offer	T-DMB	Free channel package

Source: IDATE

The availability of mobile TV in Italy has been driven by 3 Italia, which IDATE estimates to have at least 90% of the approximately 800,000 broadcast mobile TV subscribers. However, subscriber numbers are difficult to compare, not least because the official figures correspond to the number of handsets sold and not the number of subscribers, and because it is not clear whether customers have subscribed to a daily, monthly or quarterly contract.

There are various possible reasons for 3 Italia's majority subscriber share, including:

- 3 Italia subsidises handsets capable of receiving DVB-H, unlike Telecom Italia and Vodafone Italia (Telecom Italia had previously subsidised handsets);
- 3 Italia promotes the services more aggressively than the other operators; or
- as its subscribers are all 3G subscribers, 3 Italia's customers may have a more 'early adopter' profile than those of other operators, and consequently they may be more willing to test and adopt new services.

Broadcast mobile TV services (by satellite using S-DMB) were launched in Japan earlier than in Europe. However, in contrast to Italy, where channels from the pay-TV operator Sky Italia are available on all the operators' mobile TV services, the Japanese service MoBaHo! launched without premium channels.

ISDB-T is the terrestrial television standard in Japan that transmits high-definition channels to the TV set, as well as a simulcast to mobile devices. Subscribers with an ISDB-T receiver in their portable device can view a simulcast of the DTT channels at no extra charge.

### Several forms of fixed-mobile convergence available

Device convergence can also be seen in the form of fixed-mobile convergence (FMC), where voice and data originating from the same device travel over different networks depending on the location of the user and the networks available. FMC may take several forms:

- dual-mode (fixed and mobile) handsets such as Telecom Italia Unica (ITA);

- mobile handsets that can access WiFi networks, such as those provided by The Cloud (UK); and
- VoIP on mobile, e.g. Skype on 3 UK.

The first category of fixed-mobile convergence allows customers to use the same handset to connect to WiFi or another local connection in the home, and switch to the mobile network when outdoors. Dual-mode handsets do this by using the UMA (Unlicensed Mobile Access) protocol (Figure 2.20). The BT Fusion handset uses UMA and originally used Bluetooth to connect to the fixed wireless network, but subsequently switched to WiFi.

**Figure 2.20 Selected fixed-mobile convergence products**

Dual-mode phone	Country	Date of launch
BT Fusion	UK	June 2005
Orange Unik	France/UK	September 2006
Telecom Italia Unica	Italy	October 2007
TDC Duet	Denmark	1999
KT OnePhone	Korea	June 2004

Source: IDATE

There are a number of explanations for the limited number of dual-mode handsets currently available. Mobile and fixed phones are used in different ways – one is typically used for personal consumption and the other is often used by all household members. There is also uncertainty relating to the longevity of the competing protocols; the UMA protocol can only handle voice, whereas the IP Multimedia Subsystem (IMS) can handle voice and data but only in an all-IP environment. A further issue is that adding the favoured short-range connection technology, WiFi, to a handset tends to reduce battery life greatly.

The low number of dual-mode phones may also be related to operators offering services similar to FMC. Increasing wireless coverage through hotspots and municipal WiFi, as well as the partnership between mobile operators and VoIP providers, make the fixed-mobile distinction less clear cut. For example, in October 2007 3UK and Skype announced a deal which means that the mobile operator’s customers only need to pay a minimum monthly subscription or pay-as-you-go fee to make unlimited Skype calls to other Skype users from their mobile phone.

Other operators compete with FMC through offering specially designed pricing strategies. Many operators offer unlimited tariffs, which may provide enough minutes to cover what would otherwise be split between fixed-line and mobile. In Germany O2’s Genion proposition offers lower-priced calls when the user is at home by detecting this through a cell-ID, but it does not change the network over which the call is routed. This shows how operators can arrive at the same consumer proposition despite employing different technical solutions and offering different types of tariff.

## 2.3 Converged consumption

### 2.3.1 Introduction

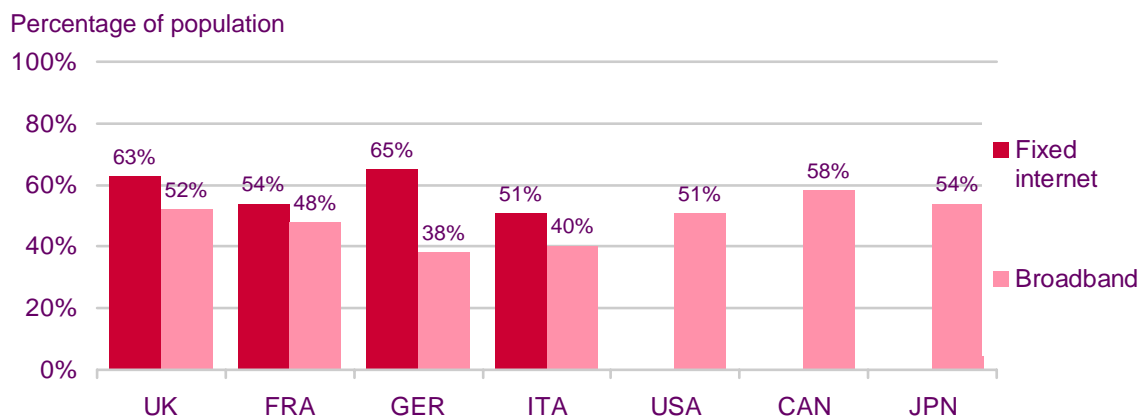
In the industry section we examined data on subscriber numbers to try to assess which converged services are having the greatest consumer impact and which operators are securing market share through providing them. This section goes on to look at how consumption of converged services, and the ways people use them, varies by nation. To do this we commissioned research into the use of one key service – the internet, and one key device – the mobile phone. This is intended to give a flavour of international consumer behaviour rather than to provide an exhaustive analysis of converged consumption.

### 2.3.2 Internet and broadband penetration

Consumers can access the internet from fixed or mobile devices, either privately owned or in public areas such as libraries or internet cafes. As a result, figures on the number of fixed internet connections in households may not give an accurate picture of overall internet penetration. Nevertheless, with 4-38% of households in countries covered by this report having a mobile but no fixed line, and only a small proportion of these using their mobile to access the internet, they provide a useful starting point. (Further detail on mobile-only households is supplied in the telecoms section).

In the four European key comparator countries for which we have data, 51%-65% of households have a fixed-line internet connection although the rate of growth has generally been slowing year-on-year since 2000 (Figure 2.21). Over the last couple of years this has had a knock-on effect on broadband take-up in many markets, where most growth has been coming from the conversion of narrowband connections.

**Figure 2.21 Internet and broadband penetration, 2006**



Source: Ofcom, IDATE, Analysys

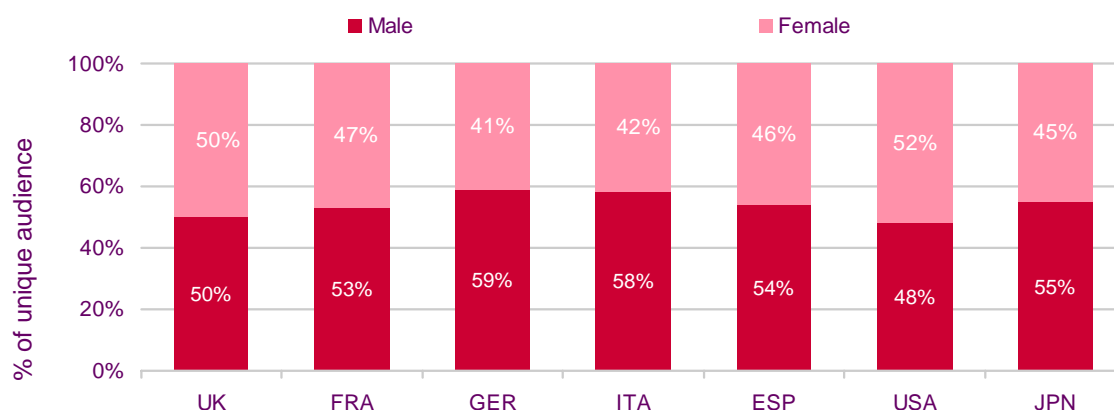
Note: Data not available for the US, Canada and Japan

### 2.3.3 Internet use – demographic analysis

#### More women than men use the internet in the US

In all countries except the UK and the US, more men than women use the internet. In the UK, the split is equal, while in the US 52% of internet users are women, with 18-34 year-old women being particularly active in both countries.

**Figure 2.22 Internet unique audience by gender**



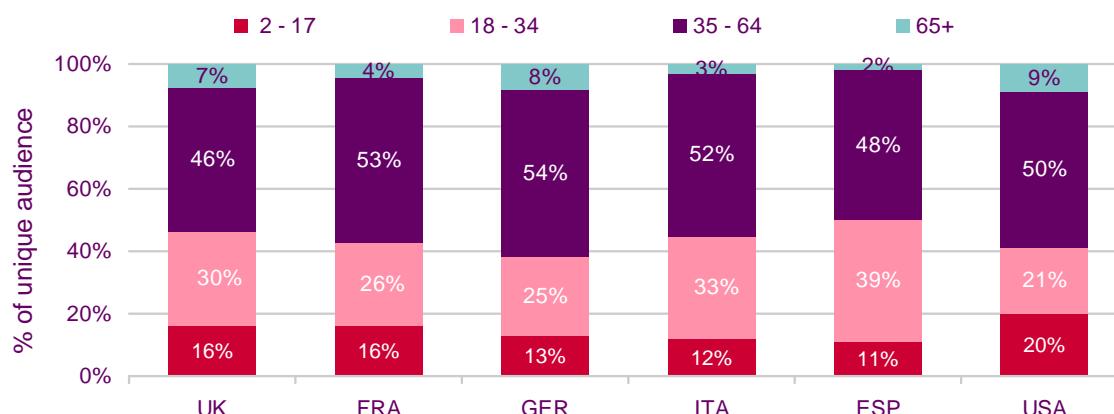
Source: Nielsen Online, August 2007

Note: Home and work use

**Younger and older users form a greater share of mature internet markets' user base**

The US also stood out because its 2-17 year olds' internet user base is significantly higher than in some of the other countries surveyed. Its over-65s were also heavily over-represented compared to most countries, particularly Italy and Spain (Figure 2.23).

**Figure 2.23 Internet unique audience by age group**



Source: Nielsen Online, August 2007 (data not available for Japan)

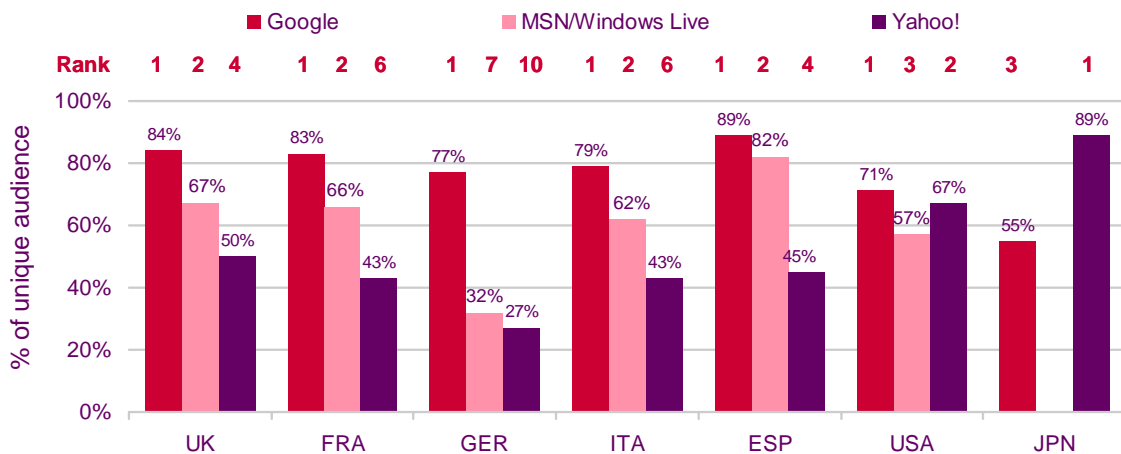
Note: Home and work use

**2.3.4 Most commonly-visited websites**

**Search and navigation predominate in the top websites, by reach**

Google is the most commonly-visited website in all comparator countries except Japan, being visited by between 71% and 89% of internet users. Search and navigation websites feature highly in the top ten sites by unique audience for all countries, but their reach is more equal in the US than in Europe, where Google's lead is more evident (Figure 2.24).

**Figure 2.24 Search websites reach and rank among all sites, by reach**



Source: Nielsen Online, September 2007  
 Note: Home and work use

Google is also the most commonly used search provider for mobile, according to data from M:Metrics, and sits on the homepage of many network operators. Yahoo! and MSN Mobile are also used by many people, although much less than Google, and in the UK, the US and France at least one of them ranks behind search facilities provided by the mobile operators themselves.

**Web 2.0 sites feature in the international top ten sites**

Microsoft, eBay, Wikipedia and YouTube also feature in the top ten in many countries. Microsoft appeared in the top five sites in all seven countries we analysed, indicative of the company’s importance in computing and online activities. YouTube and Wikipedia appeared in the top ten in four and five of the countries respectively, a reminder of the growing popularity of web 2.0 applications (Figure 2.25).

**Figure 2.25 Top ten website brands by share of unique audience**

UK	FRA	GER	ITA	ESP	USA	JPN
Google	Google	Google	Google	Google	Google	Yahoo!
MSN Windows Live	MSN Windows Live	Microsoft	MSN Windows Live	MSN Windows Live	Yahoo!	Rakuten
Microsoft	Microsoft	eBay	Microsoft	Microsoft	MSN Windows Live	Google
Yahoo!	Orange	AOL Media Network	Libero	Yahoo!	AOL Media Network	NTT Communications
BBC	Free	T-Online	Alice	Terra	Microsoft	Microsoft
eBay	Yahoo!	Wikipedia	Yahoo!	eMule	Fox Interactive Media	GMO Internet
Amazon	Pages Jaunes	MSN Windows Live	eBay	YouTube	eBay	Nifty
Apple	eBay	Amazon	eMule	Ya.com	YouTube	FC2
Wikipedia	TF1 Network	Web.de	Wikipedia	Blogger	Wikipedia	Livedoor
YouTube	Wikipedia	Yahoo!	YouTube	Orange	Amazon	NEC

Source: Nielsen Online, September 2007  
 Note: Home and work use

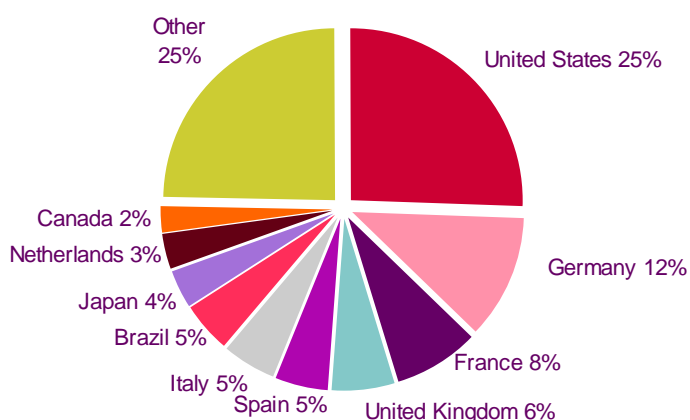
### 2.3.5 The use of web 2.0 websites

Although the term encompasses a wide range of applications and functionality, web 2.0 services are characterised by advanced software, increased user involvement and opportunities to network socially. The collaborative effort put into compiling information on Wikipedia is typical of the web 2.0 model.

Another major web 2.0 website for which international statistics are available is Second Life, one of a growing number of virtual worlds enabled by the internet. Virtual worlds are highly interactive and immersive online graphic environments where a user is typically represented by a virtual character (avatar). Second Life exhibits many characteristics of web 2.0 websites; around 90% of content is user-generated, Linden Labs (the parent company of Second Life) is promoting open source initiatives, third-party services are starting to be integrated and user-generated video streaming is possible.

According to data from Second Life in May 2007 as shown in Figure 2.26, one quarter of its users are from the US. Although it is the fifth largest country in terms of population, it is perhaps still surprising that 5% of all Second Life users come from Brazil. This is greater than Japan's share, despite the fact that Japan is home to four and a half times as many broadband subscribers as Brazil.

**Figure 2.26 Second Life users, by nationality**



Source: Second Life, May 2007

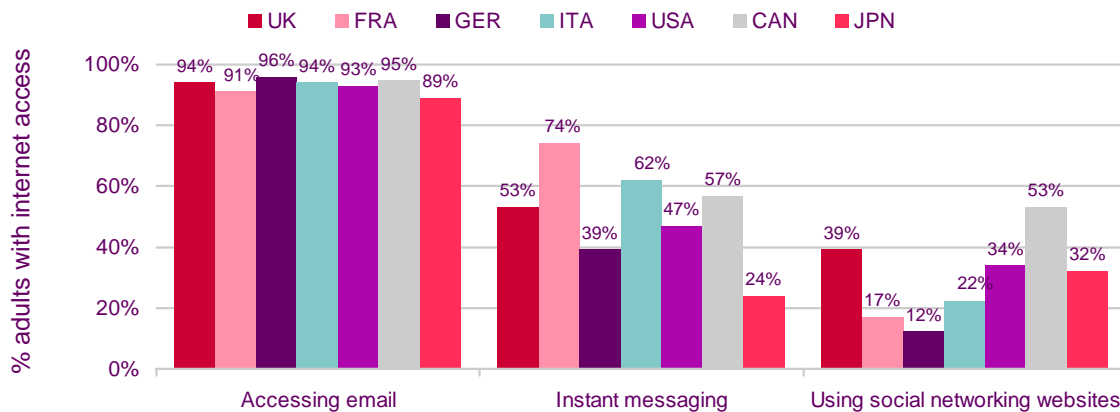
### 2.3.6 What is the internet used for?

We commissioned research into use of the internet, and the effect it was having on offline activities. The research was conducted online, and therefore the base is all internet users (and not the general population). Similar research conducted for last year's publication was based on home *broadband* users, rather than home *internet* users, and consequently the results are not directly comparable.

Across all key comparator countries the internet is most commonly used for sending and receiving email, and the share of internet users using email is broadly consistent. By contrast, the use of instant messaging and social networking websites is much less even across the countries, and with no obvious geographical pattern; internet users send and receive instant messages most in France, and Canadians emerge as the top social networkers.

**Figure 2.27 Use of internet to contact people**

Which of the following do you use your internet connection for?



Source: Ofcom research, October 2007

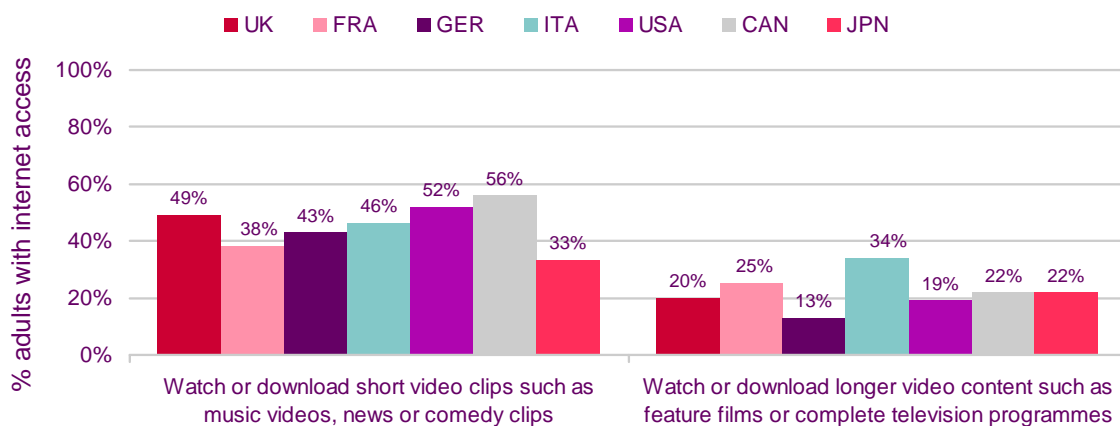
**UK top social networkers in Europe**

Of the European countries in our survey, more adults use social networking sites in the UK than in any other country. This fact is corroborated by ComScore data from August 2007 which suggest that UK internet users clock up an average of 23 visits and 5.3 hours on social networking sites each month. (The ComScore data showed many more adults in all European countries using social networking services than the Ofcom research, probably a result of definitional differences).

**The longer the video content, the less people watch it online**

Between 33% and 56% of internet users across our key comparator countries have watched or downloaded video clips online. In all countries, the proportion of people using the internet to watch or download longer items, such as television programmes or feature films, is lower than for video clips (Figure 2.28). This is probably due to the time and bandwidth required, and is possibly also connected to the availability of such content.

**Figure 2.28 Use of the internet to watch audio-visual content**

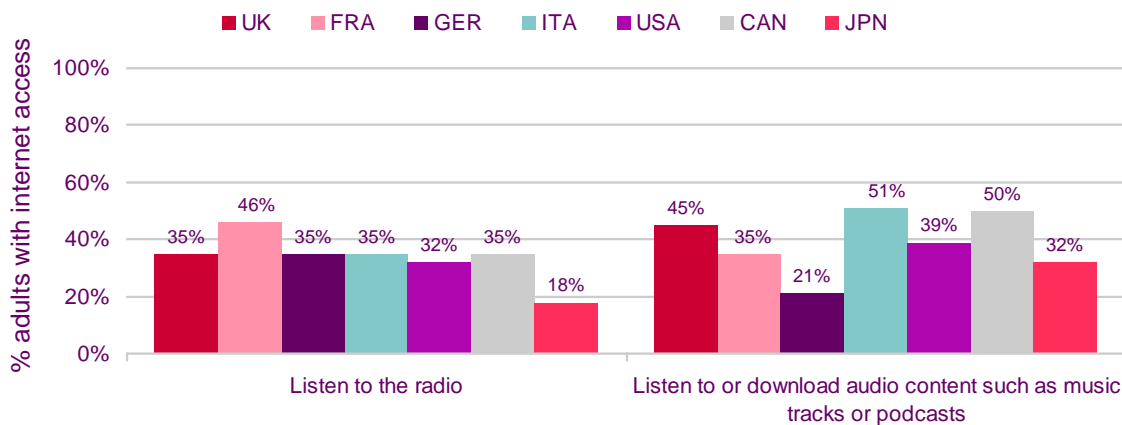


Source: Ofcom research, October 2007

With the exception of France and Japan, roughly a third of internet users in the key comparator countries listen to the radio online; in France it is higher and in Japan, much lower (18%). The Japan figure could be a result of a lack of online radio stations (it has fewer

licensed broadcast radio stations per head than most of the other key comparator countries) or the lower general popularity of radio in Japan (where average listening per week is five hours less than in the UK, France, Germany or the US – see radio section for more details).

**Figure 2.29 Use of the internet to consume audio content**



Source: Ofcom research, October 2007

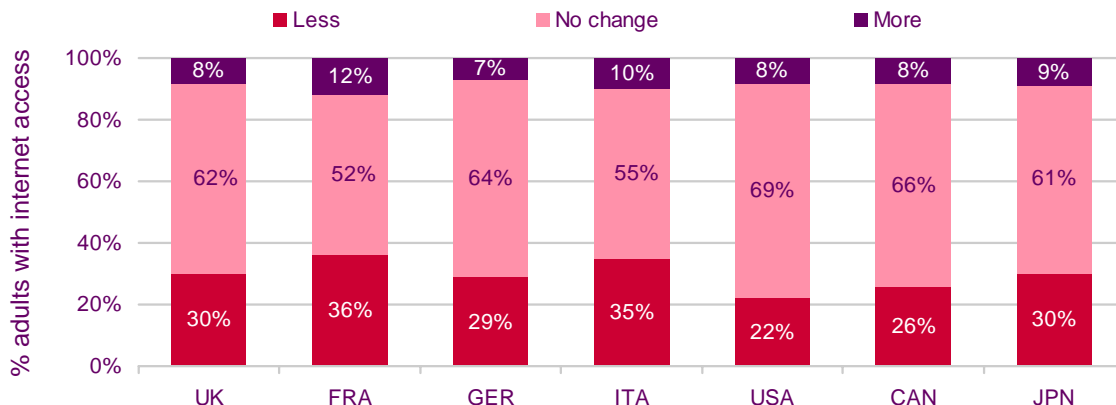
### 2.3.7 The impact of the internet on offline activities

Our research also looked at the impact of internet use on offline activities. Most people believe that the internet has not changed their consumption of offline media. However, of those who believe there has been a change, in almost every country more people thought that they consumed less of the offline media as a result of having the internet.

In the UK 30% of internet users say they watch TV less as a result of having the internet, compared to only 9% of people who say they watch it more (Figure 2.30). Across all countries, the internet appears to have less substitutional impact on DVDs and videos, than on TV. This may be because watching DVDs and videos is a conscious deliberative act, in order to watch a certain programme, whereas watching television in general may have a less specific goal.

**Figure 2.30 Impact of the internet on watching TV offline**

Since you started using the internet, which if any of the following activities do you believe you undertake more or less often OFFLINE? Watching TV.

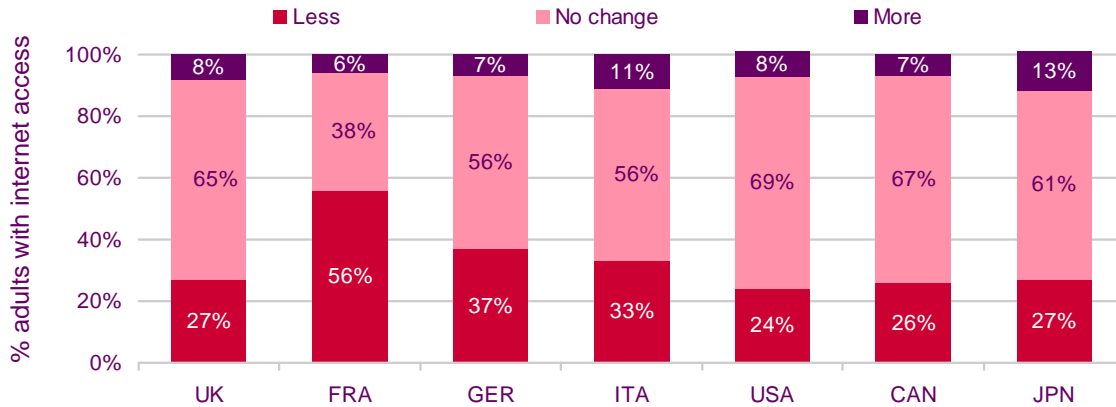


Source: Ofcom research, October 2007

The internet appears to have less substitutional impact on games console use in the UK than in the other European countries surveyed, and this may be related to greater interest in the latest generation of games consoles such as the Xbox 360 (launched 2005), Nintendo Wii and Sony PlayStation 3 (launched 2006) in the UK. Data from the European Information Technology Observatory show that, although fewer games consoles were sold in the UK than in France and Germany in 2004, this trend has now reversed; in 2006 over a third more games consoles were sold in the UK than in France, and over half as many as in Germany.

**Figure 2.31 Impact of the internet on playing on a games console**

Since you started using the internet, which if any of the following activities do you believe you undertake more or less often OFFLINE? Using a games console



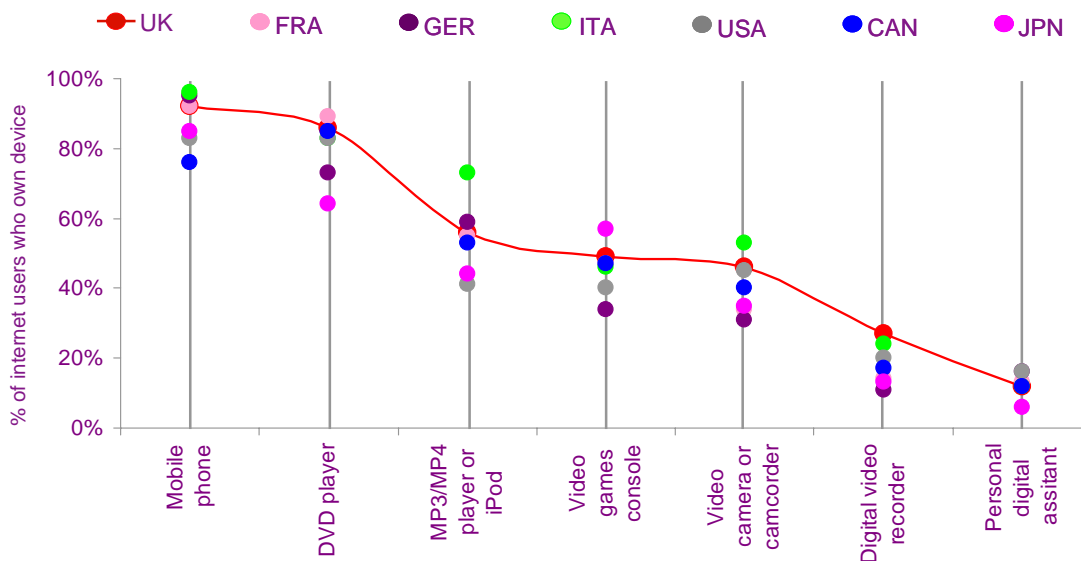
Source: Ofcom research, October 2007

### 2.3.8 Use of the mobile phone

#### Mobile phone more widely adopted than many other communications devices

Consumer research into the penetration of communications devices among internet users shows that, with the exception of Canada, the mobile phone is the most commonly owned device of those considered in our survey. The research backs up operator data in showing that penetration is higher in the European countries, with Italy highest.

**Figure 2.32 Penetration of consumer communications devices**

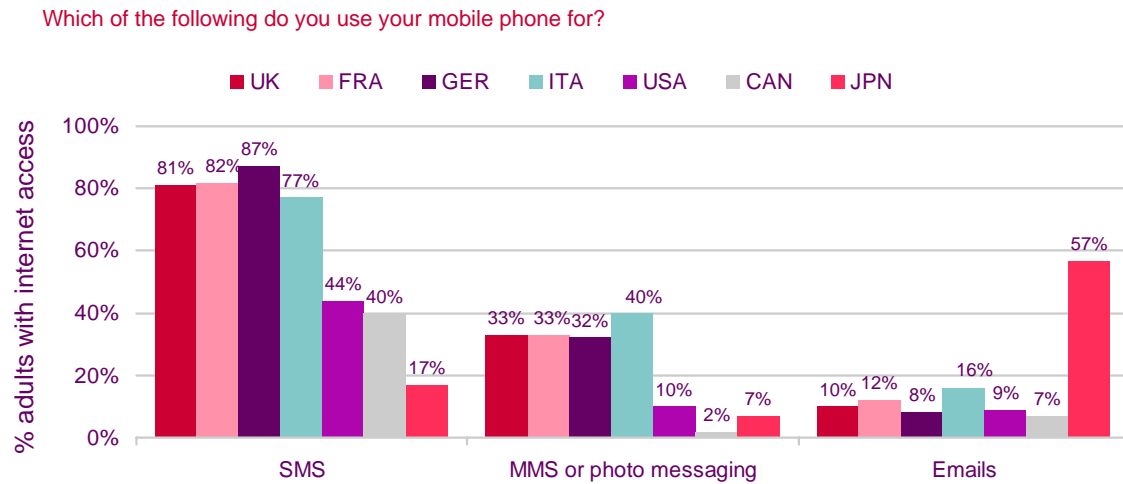


Source: Ofcom research, October 2007

### SMS big in Europe but not in the US, Canada or Japan

Across all countries the most widespread use of the mobile phone was for making calls, with at least 95% of respondents in every country saying they did so. In all four European countries, SMS was used by over three-quarters of survey respondents. However, a very different picture emerged in the US, Canada and Japan, where only 17% of respondents said they used SMS. In Japan this can be at least partly explained by the use of email, which is used by over three times as many people as use SMS. MMS showed a similar pattern; being used more commonly in Europe than in North America or Japan (Figure 2.33).

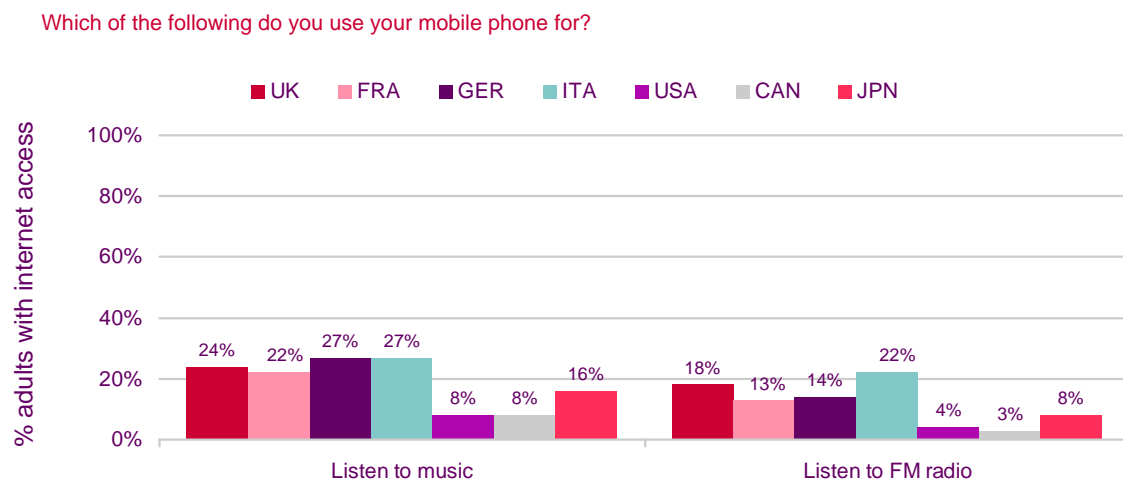
**Figure 2.33 Use of mobile phone functions to make contact with people**



Source: Ofcom research, October 2007

A higher proportion of people in Europe use their mobile phone to listen to the radio than in the US or Canada. The pattern is repeated for listening to other forms of music on the mobile phone. This may be due to the lower penetration of phones with radio functionality, and to a culture in which using phones for other non-voice services is also less prevalent.

**Figure 2.34 Use of mobile phone to listen to music or FM radio**



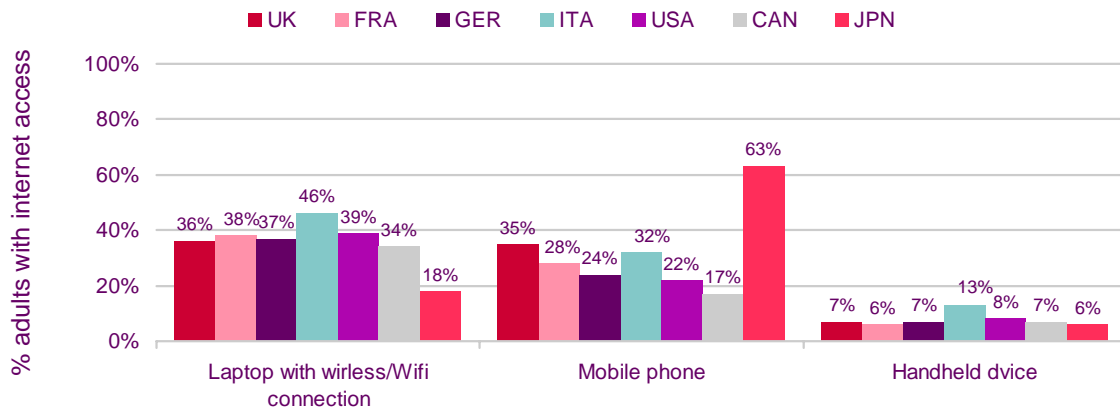
Source: Ofcom research, October 2007

### Users in Japan favour a mobile phone over a laptop for wireless internet access

The practice in Japan of using the mobile phone for non-voice services, as illustrated by the use of the camera function (Figure 2.9) is also clearly in evidence when considering how people access the internet wirelessly. Almost twice as many internet users in Japan access the internet wirelessly through their mobile phone as in any other country. Indeed over three times more internet users in Japan use a mobile phone to access the internet as use a laptop with a wireless connection (Figure 2.35).

**Figure 2.35 Devices used to access the internet wirelessly**

Which of the following have you used to access the internet wirelessly in the last month?



Source: Ofcom research, October 2007

## 2.4 Conclusion

The rapid evolution of convergence means that it may be better not to attempt to define the term, but rather to describe its impact, both in different parts of the value chain, and in different regions of the world.

In content creation and aggregation we see broadcasters in all key comparator countries repackaging their programmes for the internet and mobile handsets, and adopting new business models for distribution. The US's lead in audiovisual content is reflected in international online TV and video revenues, as well as the popularity of US-made programmes on user-generated content websites. Online TV and video revenue per capita is noticeably higher in the English-language countries surveyed in this report (UK, US, Canada) than the other key comparator countries.

The emergence and take-up of convergent networks which can carry more than one form of content are influenced by the existing communications services and infrastructure. These networks are having an impact on operator business models, promoting the bundling of communications services and, in the case of VoIP, making operators prioritise customer retention over the risk of cannibalising fixed-voice revenues.

The mobile phone is becoming a hub for many functions which were previously only provided by standalone devices. Handsets are used to send email and access the internet, particularly in Japan, where they are often favoured over the laptop. However, not all mobile applications have met with immediate success – the take-up of handsets which can switch between fixed and mobile networks not only face the challenge of reconciling personal and household use, but also compete with other functionality and tariffs which offer the customer a similar proposition.

The internet is also being used in numerous different ways, and given the range of services available, it is perhaps not surprising that websites which help consumers navigate the internet constitute some of the most commonly-used sites across all our key comparator countries. Internet use appears to be more advanced in the English-language countries surveyed in this report. There are more women online in the US and the UK, and these countries' user bases also include a greater share of younger and older users. Internet users in Canada, the US and the UK are more likely to visit social networking websites and watch video clips online.

The maturity of the online industry is also perhaps reflected in the internet advertising figures, with online attracting a greater share of total advertising spend in the UK, the US and Canada than the other key comparator countries. The recent moves by major US media companies into internet advertising may herald a further increase in these figures.