Ofcom
OFFICE OF COMMUNICATIONS

The International Communications Market 2007

6 Country profiles, Annexes and Glossary

Contents

Country profiles

This section provides a brief overview of each of the key comparator countries used in this report. The profile of each country includes basic demographic and economic information, market data for the telecoms and broadcasting industries, as well as a synopsis of the regulatory environment and recent communications market developments.

This is not intended to constitute an exhaustive study of the countries concerned, and the summarising nature of the text means that certain important organisations or events may have been omitted. Furthermore, differences in the legislative and market structures make inter-country comparability difficult. Nevertheless the section should still serve to provide a context for analysing the trends described in this publication, as well as a flavour of the communications market in each of the key comparator countries.

Data on telecoms and broadcasting (where available) cover the top three providers by market share: fixed operators by lines, mobile operators by subscriptions, broadband operators by connections and broadcasting channels by audience share.

Sources used for these country profiles include: Analysys, Global Insight, Global Competition Review, RAJAR, Reuters, Screen Digest, The World Bank. Other figures come from the operators directly.

UK

Basic country data, 2006

Size (Sq Km)	**224,820**
Population (m)	**60.5**
Households (m)	**26.3**
GDP (£bn)	**1,290**
GDP per capita (£)	**21,322**

Communications legislation and regulatory environment

The communications market in the UK is regulated by Ofcom, a statutory corporation established by act of Parliament and independent of government. Ofcom's responsibilities cover television, radio, telecoms and wireless communications services, including competition powers. Regulation of the market is governed by the Communications Act of 2003. Ofcom's principal duty under the Communications Act is to further the interests of (i) citizens in relation to communications matters and (ii) consumers in relevant markets, where appropriate by promoting competition.

In the telecoms market the local, domestic long-distance, international long-distance, and mobile segments are fully opened up to competition. The incumbent, British Telecommunications Group Plc, is fully privatised.

Ofcom also is empowered to enforce competition law in the electronic communications sector acting concurrently with the Office of Fair Trading (OFT). The Competition Appeals Tribunal (CAT) hears appeals against Ofcom decisions. Appeals are referred to the Competition Commission if they concern price control.

There are some restrictions in the broadcasting sector on the ownership and control of broadcasters. For example political bodies and advertising agencies may not hold broadcasting licences. There are also cross-ownership restrictions designed to ensure a plurality of voices across different media in each region. The Secretary of State may intervene in media mergers that raise public interest considerations. Ofcom and the Competition Commission may be asked to investigate any merger that could have an effect on plurality, diversity or standards.

Telecoms market data

	2003	2004	2005	2006
Revenues (£m)				
Fixed-line	11,361	10,704	9,572	9,953
Mobile	9,836	11,938	12,940	13,902
Internet	849	1,301	1,691	2,185
Total	22,046	23,943	24,203	26,040
Take-up (m)				
Fixed-line connections	35.0	34.6	34.1	33.6
Mobile subscriptions	52.8	59.7	65.4	69.7
Broadband connections	3.1	6.1	9.9	13.0
Penetration (%)				
Fixed-line (individuals)	58%	57%	56%	56%
Mobile (individuals)	99%	108%	115%	115%
Broadband (households)	13%	25%	40%	52%

Largest telecoms operators, Q4 2006

Fixed-line	BT Virgin Media Cable & Wireless	23.5m lines 4.4m lines c400k lines
Mobile	O2 T-Mobile Orange	17.6m subscriptions 16.9m subscriptions 15.3m subscriptions
Broadband	NTL/Telewest BT TalkTalk/AOL	3.3m connections 3.1m connections 1.2m connections

Broadcasting market data

	2003	2004	2005	2006
TV revenues (£m)				
Subscription	3,328	3,724	4,077	4,226
Public funding	2,850	3,108	3,163	3,210
Advertising	3,356	3,500	3,537	3,249
Total	9,533	10,332	10,777	10,685
Radio revenues (£m)				
Subscription	0	0	0	0
Public funding	580	610	640	650
Advertising	601	638	630	585
Total	1,181	1,248	1,270	1,235
TV take-up (m)				
TV homes (m)	25.7	25.7	25.8	25.8
Multichannel homes (m)	13.4	15.7	18.3	20.0
Digital TV homes (m)	12.4	14.9	17.6	19.7
Penetration in TV homes (%)				
Multichannel homes (m)	54%	63%	73%	80%
Digital TV homes (m)	50%	60%	70%	78%

Major channels'/ stations' audience share, 2006

TV	BBC1 ITV1 Channel 4 & S4C	22.8% 19.7% 9.8%
Radio	BBC Radio 2 BBC Radio 4 BBC Radio 1	15.8% 11.1% 9.7%

Note: Radio data refer to market share of adults (15+) in Q4 2006; TV data refer to market share of all individuals (4+) in 2006

Recent market activity[21]

During 2006 the amount spent per person on telecommunications services fell, largely caused by average spend on mobile falling for the first time as falling prices more than compensated for an increase in the total number of connections and in the average number of voice calls and text messages per subscriber. There has been an increase in the number of triple- and quad-play offerings as more providers have entered the market, although there has been consolidation among existing providers.

Penetration of broadband increased to over 50% of households by March 2007. Households with a mobile connection (93%) exceeded households with a fixed connection (90%) for the first time in 2006. Average calls per mobile connection rose above 100 minutes a month for the first time, while average calls per fixed-line connection fell below 300 minutes.

3G mobile connections grew by 70% during 2006 to reach 7.8 million by the end of the year, and all five mobile operators are in the process of upgrading their 3G networks to HSPA in order to improve coverage and provide faster data speeds. O2 was the last operator among the five to launch flat rate data tariffs in September 2007. Of the 70 million mobile connections at the end of 2006, around 35% were post-pay and contract lengths of 18 months or more accounted for the majority of connections.

Penetration of digital television, digital video recorders (DVRs) and high-definition television is increasing. Television revenue from subscription and interactive services grew during 2006, but revenue from advertising declined.

The number of DAB radio stations has increased although the number of radio listening hours continues to decline falling from 20.1 hours per week in 2005 to 19.8 in 2006.

[21] For in-depth data and analysis of the UK's communications market, see Ofcom's *UK Communications Market Report 2007,* http://www.ofcom.org.uk/research/cm/cmr07/

France

Basic country data, 2006

Size (Sq Km)	**545,630**
Population (m)	**62.8**
Households (m)	**26.2**
GDP (£bn)	**1,213**
GDP per capita (£)	**19,242**

Note: Population includes French overseas territories. The population of mainland France was 60.9 million at the end of 2006

Communications legislation and regulatory environment

The telecoms market is regulated by the Autorité de Régulation des Communications Electroniques et des Postes (ARCEP). ARCEP is an independent regulator, which until May 2005 was called the Autorité de Regulation des Telecommunications (ART).

The telecoms market in France has been liberalised since the 1996 Telecoms Law came into force. Since then France has opened up different segments of the telecoms market to competition. Incumbent operator France Telecom has been partially privatised. Currently, the French state is still the largest single shareholder although it has reduced its shareholdings each year since 2004 (27.4% share at June 2007) and there are opportunities for further privatisation.

ARCEP has relaxed its regulatory control of the fixed-line market and in June 2007 announced its decision to withdraw the majority of regulatory controls from the residential fixed-telephony retail market.

The broadcasting regulator is le Conseil Supérieur de l'Audiovisuel (CSA). Its functions include oversight of state-owned radio and television stations, issuing of DTT, FM and AM broadcasting licences, as well as overseeing programme quality. TV and radio activities are defined and regulated by the 1986 Radio and TV Law on Freedom to Communicate.

There are restrictions in the sector on the ownership and control of broadcasters. These restrictions aim to preserve competition and media pluralism by limiting the share that one entity may hold in different broadcasters. ‘Must carry’ rules’ provide that free-to-view public service channels, including the parliament channel and TV5 are carried on Cable, Satellite and ADSL. Cable and ADSL networks must also broadcast local TV channels free of charge.

Other agencies involved in the regulation of the media and telecoms sectors are the French Frequencies Regulator (Agence Nationale des Fréquences - ANFR), the French National Broadcasting Authority and the Competition Council. The Government has also assigned a committee to produce a strategy for digital known as le Comité stratégique pour le numérique (CSN).

Telecoms market data

	2003	2004	2005	2006
Revenues (£m)				
Fixed-line	8,685	8,196	8,039	7,759
Mobile	9,339	10,737	11,847	12,338
Internet	997	1,362	1,800	2,318
Total	19,021	20,296	21,685	22,415
Take-up (m)				
Fixed-line connections	33.9	33.6	33.1	31.6
Mobile subscriptions	41.7	44.5	48.0	51.5
Broadband connections	3.7	6.8	9.4	12.6
Penetration (%)				
Fixed-line (individuals)	55%	54%	53%	50%
Mobile (individuals)	67%	71%	77%	82%
Broadband (households)	14%	26%	36%	48%

Largest telecoms operators, Q4 2006

Fixed-line	France Telecom Neuf Cegetel Iliad	25.5m lines 2.1m lines 1.7m lines
Mobile	Orange SFR Bouygues	23.3m subscriptions 17.9m subscriptions 8.7m subscriptions
Broadband	Orange Free (Iliad) Neuf Cegetel	5.9m connections 2.3m connections 2.2m connections

Broadcasting market data

	2003	2004	2005	2006
TV revenues (£m)				
Subscription	2,739	2,817	2,864	3,139
Public funding	1,023	1,113	1,225	1,245
Advertising	2,051	2,185	2,207	2,295
Total	5,813	6,115	6,296	6,679
Radio revenues (£m)				
Subscription	0	0	0	0
Public funding	572	579	585	606
Advertising	431	455	475	474
Total	1,003	1,033	1,060	1,080
TV take-up (m)				
TV homes (m)	23.5	23.6	24.2	24.5
Multichannel homes (m)	8.5	9.0	10.7	16.0
Digital TV homes (m)	5.0	5.6	7.3	12.9
Penetration in TV homes (%)				
Multichannel homes (m)	33%	35%	41%	61%
Digital TV homes (m)	19%	22%	28%	49%

Major channels'/stations' audience share, 2005-2006

TV	TF1 France 2 France3	31.6% 19.2% 14.7%
Radio*	RTL France Inter Europe 1	11.6% 7.9% 7.9%

** Television data refer to Q4 2006; radio data to Q4 2005*

Recent market activity

IPTV continues to grow in popularity with 1.5 million users by the middle of 2007. By August 2007 10% of fixed telephony subscribers had replaced PSTN with VoIP. Several fixed-mobile convergence services have recently been launched.

The number of broadband users has continued to grow as competition intensifies and alternative providers grow their market share. The incumbent (France Telecom), along with alternative operators Neuf Cegetel and Iliad, has invested in fibre-to-the-home services in large parts of Paris and is currently expanding coverage to major cities within France.

A free WiFi network was launched by SFR in Paris in July 2007 which will be run for two years. France Telecom has taken out legal action against the network, arguing that local authorities can only invest in the provision of infrastructure where there is a lack of supply from private companies

Iliad's application for the fourth 3G licence was rejected in October 2007 due to the financial conditions attached to the application. ARCEP has announced that mobile operators can start using 900MHz and 1800MHz for 3G services as early as 2008.

In October 2007 France Telecom was fined EUR 45 million by the French competitive authority for uncompetitive practices in the French XDSL market. The European Court of Justice has also backed an EC decision that the incumbent must pay back EUR 1.4 billion in state aid.

The two largest satellite operators, CanalSatellite and TPS completed their merger and rebranded as CanalSatellite. Four of the largest cable operators were unified under the Numericable brand and the TNT line-up (the DTT platform) expanded to include local channels, while the same bouquet of free channels is now available by satellite.

Germany

Basic country data, 2006

Size (Sq Km)	**349,520**
Population (m)	**82.4**
Households (m)	**40.0**
GDP (£bn)	**1,574**
GDP per capita (£)	**19,133**

Communications legislation and regulatory environment

The telecoms market is regulated federally according to the conditions of the 2004 Telecoms Act. In July 2005 the independent regulator was renamed the Federal Network Agency for Electricity, Gas, Telecommunication, Post and Railway (Bundesnetzagentur or BNetzA). Until that time it was called the Regulatory Authority for Telecommunications and Post (RegTP). RegTP was established in 1998. BNetzA has responsibility for frequency management. The federal competition authority is the Bundeskartellamt.

Germany's telecoms market was fully liberalised in January 1998. The German regulator has particularly promoted competition in the long-distance market and in carrier pre-selection. The German state directly owned 14.83% of the incumbent telecoms operator Deutsche Telekom in September 2007.

According to constitutional law, only technical provisions for broadcasting are covered at the federal level. The State media agencies are responsible for granting broadcasting licences, supervising commercial broadcasters and allocating transmission capacities.

There are no restrictions on the ownership and control of broadcasters. A company is entitled to operate an unlimited number of nationwide television channels unless it is able to exercise a controlling influence on public opinion. Distribution networks in all states have an obligation to carry certain programmes. The programmes of the public broadcasting institutions for the relevant German state are usually classified as must-carry programmes. The specific nature of the obligations varies according to whether the platforms concerned are terrestrial radio, analogue or digital cable.

Other organisations involved in the regulation of the communications sector include the Federal Ministry for Economics and Labour, which prepares draft amendments to the Telecoms Act, and the Federal Cartel Office, which is responsible for merger control.

Telecoms market data

	2003	2004	2005	2006
Revenues (£m)				
Fixed-line	13,950	14,177	13,126	12,523
Mobile	14,388	15,547	16,025	15,928
Internet	976	1,227	1,473	2,026
Total	29,314	30,951	30,624	30,477
Take-up (m)				
Fixed-line connections	54.3	54.7	54.9	54.8
Mobile subscriptions	64.8	71.3	79.2	85.4
Broadband connections	4.6	7.0	10.7	14.7
Penetration (%)				
Fixed-line (individuals)	56%	55%	53%	53%
Mobile (individuals)	63%	67%	71%	75%
Broadband (households)	12%	18%	28%	38%

Largest telecoms operators, Q4 2006

Fixed-line	Deutsche Telekom	33.2m lines
	Arcor	6.0m customers
	Freenet	3.0m customers
Mobile	T-Mobile	31.4m subscriptions
	Vodafone D2 GmbH	30.6m subscriptions
	E-Plus	12.7m subscriptions
Broadband	T-Online (DT)	7.1m connections
	United Internet	2.3 customers
	Arcor	1.2m connections

Broadcasting market data

	2003	2004	2005	2006
TV revenues (£m)				
Subscription	2,893	2,975	3,034	3,022
Public funding	2,791	2,809	3,115	3,177
Advertising	2,604	2,632	2,680	2,806
Total	8,288	8,416	8,829	9,005
Radio revenues (£m)				
Subscription	0	0	0	0
Public funding	1,701	1,711	1,764	1,851
Advertising	396	423	437	453
Total	2,097	2,134	2,201	2,304
TV take-up (m)				
TV homes (m)	37.4	37.6	37.6	37.6
Multichannel homes (m)	35.4	36.0	36.7	37.0
Digital TV homes (m)	4.7	5.8	7.6	9.0
Penetration in TV homes (%)				
Multichannel homes (m)	92%	93%	94%	95%
Digital TV homes (m)	12%	15%	19%	23%

Major channels' / stations' audience share, 2005-2006

TV	ARD III ZDF ARD	14.2% 13.6% 13.5%
Radio*	WDR SWR NDR	15.2% 13.8% 12.2%

** Television data refer to Q4 2006; radio data to Q4 2005*

Recent market activity

The number of fixed-line only households and the proportion of fixed-line call volumes in comparison to mobile continues to be high in Germany compared to neighbouring countries, despite recent reductions in mobile call tariffs.

Deutsche Telekom's share of the fixed-line voice market has continued to fall, although the incumbent reversed its declining market share of broadband users during the first half of 2007 through the introduction of simplified tariff packaging. The operator dropped its T-One dual-mode fixed-mobile convergence offering in March 2007 due to low uptake.

In June 2007 the EC referred the German government in the European Court of Justice for amendments to German law which would allow Deutsche Telekom regulatory holidays. In a separate case BNetzA ruled that Deutsche Telekom will be required to offer naked DSL bitstream access from April 2008 onwards.

The majority of mobile operators have upgraded their 3G networks to HSPA in major urban areas and are now offering 'mobile broadband' tariffs that compete with fixed-line DSL offerings. T-Mobile has concentrated on deploying EDGE in rural areas where neither 3G or DSL services are available. Plans by three of Germany's mobile operators to invest jointly in a mobile TV network have been approved by the Federal Cartel Office regulator.

One of Germany's larger broadcasters, ProSiebenSat1, was acquired by SBS to form one of Europe's largest broadcasting groups.

Italy

Basic country data, 2006

Size (Sq Km)	**301,230**
Population (m)	**58.1**
Households (m)	**22.1**
GDP (£bn)	**1,007**
GDP per capita (£)	**17,278**

Communications legislation and regulatory environment

The communications market is regulated by the Autorità per le Garanzie nelle Comunicazioni (AGCOM), the independent communications regulator established in 1997. AGCOM spans the broad responsibilities of supervising and enforcing compliance with legislation in the telecommunications, media and press-publishing sectors.

The Ministry of Communications reviews filings of declarations for general authorisations for electronic communications, grants public broadcasting licences, and approves the national spectrum allocation plan.

The Italian telecoms market has been fully liberalised since January 1998, in accordance with EU directives.

Telecoms market data

	2003	2004	2005	2006
Revenues (£m)				
Fixed-line	8,589	8,643	8,562	8,034
Mobile	9,061	9,997	11,024	11,612
Internet	757	1,081	1,401	1,589
Total	18,407	19,721	20,987	21,236
Take-up (m)				
Fixed-line connections	29.9	29.1	28.0	26.0
Mobile subscriptions	56.6	62.5	71.5	80.5
Broadband connections	2.5	5.1	7.1	8.8
Penetration (%)				
Fixed-line (individuals)	52%	50%	48%	45%
Mobile (individuals)	98%	108%	123%	139%
Broadband (households)	11%	23%	32%	40%

Largest telecoms operators, Q4 2006

Fixed-line	Telecom Italia Tele 2 Italia Wind	32.4m lines 2.6m customers* 2.3m customers
Mobile	TIM Vodafone Italia Wind	32.4m subscriptions 26.2m subscriptions 14.7m ubscriptions
Broadband	Telecom Italia FastWeb Wind	5.6m connections 1.1m connections 0.8m connections

**June 2007*

Broadcasting market data

	2003	2004	2005	2006
TV revenues (£m)				
Subscription	799	1,084	1,364	1,745
Public funding	1,036	1,067	1,067	1,088
Advertising	2,709	3,029	3,184	3,208
Total	4,544	5,180	5,615	6,042
Radio revenues (£m)				
Subscription	0	0	0	0
Public funding	437	444	449	453
Advertising	294	355	352	372
Total	730	800	801	825
TV take-up (m)				
TV homes (m)	22.4	22.5	22.6	22.8
Multichannel homes (m)	5.1	7.1	9.8	11.8
Digital TV homes (m)	3.3	5.4	8.3	10.4
Penetration in TV homes (%)				
Multichannel homes (m)	23%	32%	44%	53%
Digital TV homes (m)	15%	25%	37%	47%

Major channels' / stations' audience share, 2005-2006

TV	RAI 1 Canale 5 RAI 2	23.0% 21.0% 11.3%
Radio*	RAI Elemedia Gruppo Finelco	18.0% 11.0% 8.0%

** Television data refer to Q4 2006; radio data to Q4 2005*

Recent market activity

Telecom Italia has managed to slow its declining share in fixed-line voice through the introduction of flat-rate tariffs, but the incumbent is facing stiff competition from local-loop unbundlers.

Much of the competitive activity in the past year has focused on the provision of 'bundled' communications services; three of the four biggest broadband providers are offering quad-play bundles. Vodafone Italia acquired Tele2's fixed line assets in Italy in October 2007 and along with Telecom Italia, is deploying fixed-mobile converged services, following approval from AGCOM.

The auction of WiMAX licences commenced in October 2007. The licences are intended to provide wireless broadband coverage to areas which are currently not able to access broadband services over fixed lines.

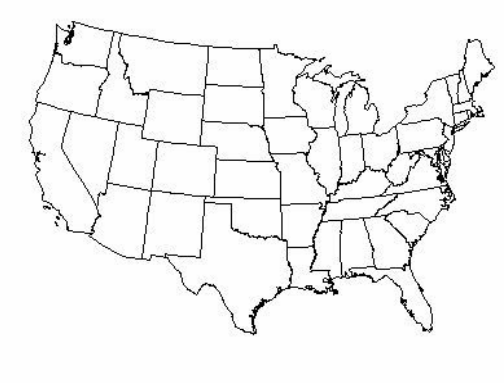
Mobile data revenue accounts for the highest proportion of total mobile revenue of any of the European countries covered in the report and Italy has the highest penetration of 3G connections in Europe. Operators are now upgrading their networks to HSPA and flat-rate data tariffs have been introduced by most mobile operators.

The first MVNOs launched in Italy during 2007. Internet service provider Tiscali and fixed-line provider Fastweb have announced plans to launch MVNO services bundled with their current offerings.

Telefonica in conjunction with a consortium of banks acquired 100% of Olimpia, a holding company with an 18% stake in Telecom Italia. The deal was subject to approval from the Brazilian regulator Anatel (where Telefonica and Telecom Italia both have investments in separate mobile operators), which was given in October 2007.

Digital switchover commenced in Sardinia in March 2007 with RAI, Mediaset and Telecom Italia Media switching off their analogue channels.

USA



Basic country data, 2006

Size (Sq Km)	**9,158,960**
Population (m)	**297.0**
Households (m)	**112.2**
GDP (£bn)	**7,198**
GDP per capita (£)	**24,017**

Communications legislation and regulatory environment

The communications market is regulated by the Federal Communications Commission (FCC), an independent US government agency, reporting directly to Congress. The FCC was established by the Communications Act of 1934 and is charged with regulating interstate and international telecoms and information services.

Other authorities involved in the regulation of the communications sector include the National Telecommunications and Information Administration (NTIA) which has responsibility for spectrum, and telecommunications policies, and the federal and state courts which review regulatory decisions. The NTIA sits in the Department of Commerce.

The FCC only operates on a federal level. There are Public Utility Commissions (PUCs) in each state, and these regulate all intrastate telecoms services, and implement FCC regulations on a state level. PUCs also regulate other utility services such as water and electricity. Below the PUCs there are local governments, and it is these that are responsible for implementing cable policies. Spectrum is regulated at a federal level only.

Within the FCC there is a Consumer and Governmental Affairs Bureau, which is responsible for consumer education and policy, and for responding to complaints and enquiries. The Department of Justice (DOJ) and the Federal Trade Commission (FTC) handle complaints of anti-competitive or deceptive behaviour, and oversee merger regulation.

US law limits the number of broadcasting stations that a single entity can own in a given area. The DOJ and FTC also ensure that companies owning several stations are not in breach of antitrust laws. There are restrictions on the cross-ownership of multiple broadcasting outlets. In 1996 the FCC commenced a review of media ownership rules, which is ongoing.

Telecoms market data

	2002	2003	2004	2005
Revenues (£m)				
Fixed-line	74,145	68,604	62,927	58,550
Mobile	42,134	46,990	52,599	60,533
Internet	32,763	35,362	36,662	38,577
Total	149,042	150,957	152,188	157,660
Take-up (m)				
Fixed-line connections	189.4	183.0	176.5	168.5
Mobile subscriptions	138.8	155.3	175.5	197
Broadband connections	18.3	26.4	36	47
Penetration (%)				
Fixed-line (individuals)	66%	63%	60%	57%
Mobile (individuals)	48%	54%	60%	67%
Broadband (households)	16%	23%	31%	40%

Largest telecoms operators, Q4 2006

Fixed-line	AT&T Verizon Bell South	46.3 network access lines in service 27.7 lines 18.8 lines
Mobile	AT&T Mobility Verizon Sprint Nextel	61.0 subscriptions 59.1 subscriptions 53.1 subscriptions
Broadband	Comcast AT&T Verizon	11.5 connections 8.5 connections 7.0 connections

Broadcasting market data

	2003	2004	2005	2006
TV revenues (£m)				
Subscription	25,677	28,613	31,340	33,590
Public funding	271	281	289	311
Advertising	31,782	33,127	33,577	36,173
Total	57,729	62,020	65,206	70,075
Radio revenues (£m)				
Subscription	71	217	568	963
Public funding	0	0	0	0
Advertising	10,505	10,770	10,972	11,658
Total	10,576	10,986	11,540	12,621
TV take-up (m)				
TV homes (m)	108.2	109.6	110.2	111.6
Multichannel homes (m)	88.8	91.9	97.1	101.2
Digital TV homes (m)	44.5	50.8	60.2	68.4
Penetration in TV homes (%)				
Multichannel homes (m)	82%	83%	87%	90%
Digital TV homes (m)	41%	46%	54%	61%

Major channels' / stations' audience share 2005-2006

TV	CBS NBC ABC	8.3% 8.0% 7.7%
Radio*	Clear Channel Communications Viacom Cox Radio	13.5% 10.8% 4.0%

** Television data refer to Q4 2006; radio data to Q4 2005*

Recent market activity

Fixed-line connections continue to fall, mainly driven by losses from the residential market. The decline has been caused by increased take-up of VoIP via cable connections, mobile substitution and converged services using a combination of WiFi and mobile. In contrast, the number of mobile users continues to grow and there have been significant increases in mobile voice and data usage.

Several high profile MVNOs closed during 2007, but the overall number of providers increased due to cable providers launching MVNO services as part of communication bundles.

Consolidation between mobile operators continued during 2007; Verizon is set to acquire Rural Cellular Corporation, T-Mobile has agreed to buy Suncom Wireless Holdings, AT&T bought Dobson Communications and Sprint Nextel purchased Northern PCS.

Expanding 3G coverage from leading operators AT&T Mobility and Verizon Wireless, combined with a greater choice of handsets led to strong growth in 3G subscribers. Sprint Nextel started field testing mobile WiMAX and plans to launch services in 2008 covering 100 million people by the end of the year.

Time Warner and CBS launched the US's fifth broadcast network, CW, in September 2006, by merging their UPN and WB units. The network targets young adults and its programming is made available online the day after broadcast. Broadcasters are responding to the strong uptake of HDTV by providing more HD channels. HBO announced it will convert all of its channels to HD by Q2 2008 and rival Starz stated that it will be launching three new HD channels alongside the current Starz HD channel.

Canada

Basic country data, 2006

Size (Sq Km)	**9,220,970**
Population (m)	**32.8**
Households (m)	**12.8**
GDP (£bn)	**689**
GDP per capita (£)	**21,169**

Communications legislation and regulatory environment

Jurisdiction over telecoms and broadcasting is exercised by the Canadian Radio-television and Telecommunications Commission (the CRTC), a public independent agency established in 1968 constituted by the Canadian Radio-television and Telecommunication Act of 1985. CRTC operates under the provisions of the 1991 Broadcasting Act and 1993 Telecommunications Act and Bell Canada Act of 1987. These Acts allow it to regulate and supervise all aspects of the Canadian broadcasting system, as well as to regulate telecommunications common carriers and service providers that fall under federal jurisdiction.

The CRTC reports to the Parliament of Canada through the Minister of Canadian Heritage. Responsibility for spectrum lies with the Department of Industry. The regulator cannot apply fines to service providers although there have been calls for it to be able to do this. Competition aspects are handled by the Competition Bureau of Canada.

Canada has media ownership rules and also has conditions around non-Canadian ownership of cultural industries. Many complaints against broadcasters are dealt with by the Canadian Broadcast Standards Council, an independent broadcast industry association.

The CRTC's telecommunications regulatory focus is currently directed primarily at incumbent wireline carriers and pricing regulation.

Telecoms market data

	2003	2004	2005	2006
Revenues (£m)				
Fixed-line	7,352	7,200	6,942	6,720
Mobile	3,562	4,225	4,900	5,742
Internet	820	1,001	1,186	1,395
Total	11,734	12,426	13,028	13,856
Take-up (m)				
Fixed-line connections	19.2	19.1	19.1	19.2
Mobile subscriptions	13.3	14.9	16.9	18.7
Broadband connections	4.5	5.4	6.4	7.5
Penetration (%)				
Fixed-line (individuals)	60%	60%	59%	59%
Mobile (individuals)	42%	46%	52%	57%
Broadband (households)	37%	44%	51%	58%

Largest telecoms operators, Q4 2006

Fixed-line	Bell Canada Telus Rogers	12.1 lines 2.9 lines 0.7 residential customers
Mobile	Rogers Wireless Bell Mobility Telus Mobility	6.8 subscriptions 5.9 subscriptions 5.1 subscriptions
Broadband	Bell Canada Rogers Telus	2.5 connections 1.3 connections 0.9 connections

Broadcasting market data

	2003	2004	2005	2006
TV revenues (£m)				
Subscription	599	637	679	756
Public funding	379	372	379	406
Advertising	1,354	1,419	1,443	1,552
Total	2,452	2,553	2,635	2,840
Radio revenues (£m)				
Subscription	0	0	0	12
Public funding	160	160	160	166
Advertising	560	579	627	678
Total	720	739	787	856
TV take-up (m)				
TV homes (m)	n/a	n/a	12,354	12,555
Multichannel homes (m)	n/a	n/a	10,665	11,001
Digital TV homes (m)	n/a	n/a	4,704	5,373
Penetration in TV homes (%)				
Multichannel homes (m)	n/a	n/a	85%	86%
Digital TV homes (m)	n/a	n/a	37%	42%

Major channels'/stations' audience share

Data unavailable.

Recent market activity

The number of fixed-lines in Canada continues to grow, but at a slow rate. The fixed-line market is dominated by incumbent operators but the introduction of VoIP by cable operators and increased fixed-to-mobile substitution has reduced their market share. Broadband availability is high at over 90% and take-up is being driven by an increasing number of bundled offerings and lower pricing.

Backed by the government, the regulator has focused on promoting competition in the provision of local fixed-line services by de-regulating the market. At the end of 2006 the Minister for Industry replaced the 75% market share test for forbearance with the required presence of facilities-based competition.

Penetration of mobile services and use of mobile data is currently the lowest among the 12 comparator countries covered in this report. Growth in the number of mobile users has slowed although revenue is increasing at a faster rate due to increased mobile voice use.

Mobile operators are continuing to extend coverage of 3G services and upgrade their networks to provide faster data speeds and promote greater take-up of mobile data services.

Wireless number portability was introduced in March 2007 in areas where wireline portability already exists.

The proposed buyout of Bell Canada Enterprises (owner of Bell Canada), led by the Ontario Teachers' Pension Plan and two US investors, is still subject to regulatory approval. Hearings will be held in early 2008.

In August 2007 CanWest, one of Canada's largest international media companies, and Goldman Sachs acquired the remaining shares in Alliance Atlantis for £1.07bn, a company that specialises in broadcasting, production and motion picture distribution. This acquisition is also subject to regulatory approval. A public hearing is being conducted in the fourth quarter of 2007.

In the same month, CanWest also took control of TEN, which held a majority share in the Ten Television Network through its ownership of TGL. These acquisitions add to CanWest's assets, which include an array of newspaper titles, television networks and radio companies in Canada, the US, Australia, New Zealand and the UK.

Japan

Basic country data, 2006

Size (Sq Km)	**374,744**
Population (m)	**127.2**
Households (m)	**47.7**
GDP (£bn)	**2,373**
GDP per capita (£)	**18,581**

Communications legislation and regulatory environment

The telecoms and broadcasting markets are regulated by various divisions within the Ministry of Internal Affairs and Communications (MIC). The Ministry of Finance and the Ministry of Economy, Trade and Industry also have some jurisdiction over telecoms operators. The responsible competition authority is the Fair Trade Commission.

The former state-owned incumbent telecoms operator, NTT, was privatised in 1985, and is the current holding company of several telecoms companies that were formerly part of its business. Post privatisation, the Japanese Government has enacted an NTT Law, which states that at least one-third of the total equity of NTT shall be owned by the Japanese government, and that foreign ownership in NTT may not exceed 33.3%.

In the broadcasting sector, there are foreign ownership restrictions on terrestrial and satellite platform operators, although there are no such restrictions on cable television broadcasters. Cross-ownership of media companies is limited with the intention of preventing concentration of media control and securing diversity of speech and expression.

Telecoms market data

	2003	2004	2005	2006
Revenues (£m)				
Fixed-line	19,449	18,370	17,874	17,236
Mobile	33,785	33,415	33,207	33,828
Internet	1,749	2,710	3,546	4,284
Total	54,982	54,496	54,627	55,348
Take-up (m)				
Fixed-line connections	70.7	69.6	67.4	67.0
Mobile subscriptions	79.8	85.5	90.2	94.9
Broadband connections	13.6	18.6	22.4	25.8
Penetration (%)				
Fixed-line (individuals)	56%	55%	53%	53%
Mobile (individuals)	63%	67%	71%	75%
Broadband (households)	29%	40%	47%	54%

Largest telecoms operators, Q4 2006

Fixed-line	NTT Softbank KDDI	44.3m lines 1.2m lines (Otoku Line service)* 1.8m lines (metal plus service)
Mobile	NTT DoCoMo KDDI Softbank	52.2m subscriptions 26.7m subscriptions 15.5m subscriptions
Broadband	Yahoo! Japan NTT East NTT West	5.2m connections 5.9m connections 5.0m connections

** March 2007*

Broadcasting market data

	2003	2004	2005	2006
TV revenues (£m)				
Subscription	4,426	5,026	5,657	5,732
Public funding	3,340	3,351	3,301	3,367
Advertising	9,691	9,779	10,020	9,421
Total	17,457	18,156	18,978	18,520
Radio revenues (£m)				
Subscription	0	0	0	0
Public funding	982	998	1,014	1,063
Advertising	903	896	887	824
Total	1,885	1,894	1,900	1,887
TV take-up (m)				
TV homes (m)	47.9	48.0	48.0	48.1
Multichannel homes (m)	33.3	38.4	41.5	45.1
Digital TV homes (m)	12.2	18.5	24.8	32.1
Penetration in TV homes (%)				
Multichannel homes	72%	82%	88%	95%
Digital TV homes	26%	39%	53%	67%

Major channels' audience share, Q4 2006

TV	Fuji TV NTV TV Asahi	18.5% 19.41% 16.5%

Recent market activity

Traditional fixed-line connections continue to fall in number as VoIP, mobile and other communication methods increase in popularity. Incumbent operator NTT is defending market share by offering competing VoIP services but there is increasing competition from alternative players offering integrated communication services.

The number of DSL connections is declining, now accounting for approximately half of all broadband connections. Penetration of fibre to the home is increasing and is now a contributor to the overall growth of broadband penetration.

3G subscribers at the end of 2006 accounted for over 50% of the total mobile subscriber base in Japan. NTT DoCoMo has lost market share to KDDI and, more recently, Softbank. The introduction of number portability in October 2006 fuelled further competition; Softbank

cut its monthly tariffs and the introduction of flat-rate voice and data tariffs is having a negative effect on ARPU. The launch of new services such as mobile TV and m-commerce services are intended to halt this decline.

Following the recommendation from the Ministry of Communications that operators should stop subsidising the price of new handsets, all three mobile operators have announced plans to introduce lower monthly tariffs for those purchasing handsets at a higher price.

Japan's public service broadcaster, NHK, has suffered revenue reductions since 2004 amid increasing levels of non-payment of its *voluntary* public licence fee. The operator has since established new management with a view to potentially reducing the licence fee in return for the abolition of its door-to-door licence fee collection.

Annex A: Basic data used in the report

A.1 Financial years

Calendar year for all countries except Japan

A.2 Exchange rates

Source: IMF

Basis: Average during 2006

	Local currency	Local / GDP
UK	GBP	1.00
Euro area	EUR	1.47
USA	EUR	1.84
Canada	EUR	2.09
Japan	USD	213.98
Poland	PLN	5.71
Sweden	SEK	13.58
Brazil	BRL	4.00
Russia	RUR	50.03
India	INR	83.36
China	CNY	14.67

A.3 Population figures

Source: US Census bureau

Basis: Mid-year figures

A.4 Households

Source: IMF

Basis: Mid-year figures

Note: for households, Multiple Dwelling Units (MDUs) are not explicitly considered. One subscriber or one telco line equates to one person or household, or one SIM card to one person in case of mobiles.

Annex B: International price benchmarking

B.1 Introduction and objectives

Based on the approach adopted for the 2006 International Communications Market Report, we have developed and refined our methodology with the aim of finding the best possible approach to identifying and comparing the pricing of communications services between countries. We have applied the methodology to a limited set of tariffs from major operators in the UK, France, Germany, Italy and the US.

The key objectives were as follows:

- to identify and compare the pricing that is available for consumers buying fixed-line voice services, pre-pay and post-pay mobile services, broadband and pay-TV services;
- to identify and compare the pricing that is available by purchasing communications services within 'bundled' tariffs (for example, 'triple-play' services which typically offer a single bill for the delivery of fixed-line voice, broadband and television services);
- to compare pricing across a wide range of usage scenarios for communications services, from those with basic needs to those with sophisticated consumption;
- to incorporate the cost of hardware such as set-top boxes or mobile handsets in order to reflect the real prices that consumers pay, and to compare like-with-like by allowing for equipment subsidies when they are included within propositions from service providers; and
- to represent average or typical use as accurately as possible across the five countries in order to avoid biases associated with comparing pricing based on usage characteristics that are more typical of one country than another.

Although the methodology this year presents an evolution of the approach used last year the intention remains to refine this methodology further.

B.2 Overview of methodology

Our methodology is basket-based, comparing the pricing of communications services available to five 'typical' households across the five comparator countries. The basic principles are as follows:

- We constructed five 'typical' household types, which collectively may be seen as representative of the average population across our comparator countries.
- We defined a basket of communications services (fixed-line voice, broadband, pre-pay and post-pay mobile, and television) appropriate to each household type, breaking down the baskets into as much detail as practical (for example, mobile calls are broken down into calls to national fixed lines, calls to off-net mobiles, calls to on-net mobiles and international calls).

- The composition of the baskets was adjusted to ensure that, collectively, they were broadly in line with average per-household use across our comparator countries.

- We then examined tariffs from the three largest providers within each country for each type of communications service and identified the tariff from each provider which offered the lowest price (based on tariffs available in October 2007) for the defined basket.

- In addition, we examined 'bundled' tariffs (services which offer a single contractual relationship for the delivery of multiple services), and identified where our households could get better value by subscribing to the bundled tariff.

- We also considered the costs of connection and hardware (equipment) that would be incurred by households.

- All sales taxes and surcharges have also been included, in order to reflect the prices that consumers actually pay (although we do not account for differences in other areas of personal taxation policy within each country).

- All prices have been converted back to UK currency, using a Purchasing Power Parity (PPP) adjustment based on OECD comparative price levels in August 2007 (the latest period for which data were available).

- In order to provide both an illustration of representative prices for the individual services in each country, and an illustration of the best value that consumers could get for their full 'basket' of services, we have provided two types of analysis for each basket:

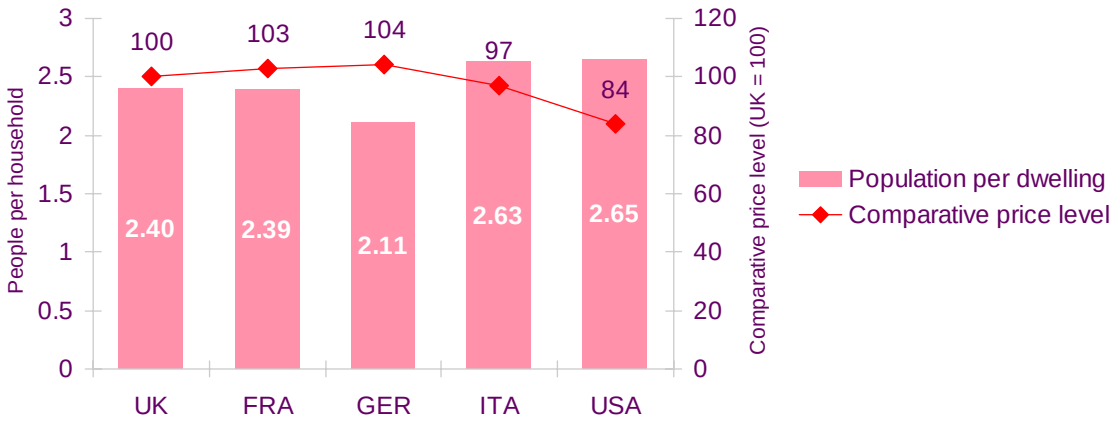
    i) the first, which we call 'average single service' pricing, illustrates the price of each individual service as defined by the average of the lowest price tariff from each of the three largest operators for each service in each country, weighted by the market share of the service provider in order to ensure fair representation; and

    ii) the second, which we call 'best offer' pricing, identifies the lowest price a consumer could pay for this basket of services, including, where appropriate, by purchasing 'bundled' services.

B.3 Geographic scope

Pricing comparisons are made between five countries – the UK, France, Germany, Italy and the United States. These countries have broadly similar socio-demographic, economic and communications-usage characteristics; high-level parameters such as population per household and comparative price levels (which is a proxy for cost of living) suggest that an economically fair comparison can be made.

Figure B.1 Demographic characteristics of core countries



Source: OECD / IMF / US census bureau

B.4 Household types

For this study we make reference to five hypothetical 'typical' households, and have defined their requirements for communications services. These household types are designed to be collectively broadly representative of the overall population of the five countries; however, in order to provide comparison across the full range, from very basic to advanced communications-service users, we have created significant variation in the contents of the baskets of communications services.

Household 1 - Two adults, low income and retired

Household 1 is a retired low-income couple. They have significantly below-average disposable income and very little is available for spend on communications services. They are not confident technology users and have only a fixed telephone line which they use for all calls. They watch free-to-view digital terrestrial television.

Services and usage profile:
- below average call minutes from the home
- no mobile
- TV licence

Equipment requirements:
- one standard TV set
- one set-top box for digital terrestrial television

Household 2 - Two adults, early retired, late adopters of technology

Household 2 consists of a younger retired couple, who are slowly embracing new communications technologies and have a slightly below-average disposable income to spend on communications services. In addition to a fixed-line phone, they have one pre-pay mobile between them and a basic broadband connection. They are not technology 'savvy', and do not require top-end equipment or frequent equipment upgrades.

Services and usage profile:
- average call minutes from the home
- one basic pre-pay mobile phone

- subscribe to a basic broadband internet access package
- TV licence

Equipment requirements:
- one standard set-top box
- one free-to-view DTV decoder
- one standard PC

Household 3 - One young adult, mobile-only

Household 3 is a young professional with an above-average income to spend on communications services. He or she has no fixed line in their home, so uses a mobile phone for all voice as well as internet browsing. He/she subscribes to entry-level pay-TV in order to get additional entertainment channels. This individual is technology 'savvy' and has high-specification equipment.

Services and usage profile:
- above-average overall call minutes but only from mobile
- a premium post-pay mobile package with above-average call minutes from mobile to national, on-network, off-network and international, some SMS and MMS messages
- uses mobile to access the internet (mobile data)
- subscribes to basic pay-TV package
- TV licence

Equipment requirements:
- one premium post-pay mobile handset
- one premium flat-screen TV
- One free-to-view DTV decoder

Household 4: Two adults, two teenagers, networked family

Household 4 consists of two adults and two teenagers with a slightly above average disposable income to spend on communications services. They are technology 'savvy', but are cost-conscious and use fixed-line for voice within the home. They subscribe to high-speed internet access and own a mix of high-specification and basic equipment.

Services and usage profile:
- Significantly above-average call minutes from the home
- two adults on a standard mobile contract with average call minutes from mobile to national, on-network, off-network and international destinations
- two children with pre-pay mobiles with below-average call minutes and above-average messaging
- subscribe to basic pay-TV package
- subscribe to high-speed internet access package
- TV licence

Equipment requirements:
- one standard mobile handset on contract
- one premium mobile handset on contract
- two standard pre-pay mobile handsets
- one standard set-top box
- three standard TV sets
- one premium TV set
- one free-to-view DTV decoder

- one laptop PC
- one premium PC

Household 5 - Two adults, professional, no children, networked couple

Household 5 is a young couple with no children and significantly above-average disposable income to spend on communications services. The adults are technology 'savvy', and subscribe to a premium pay-TV package in order to receive the best package of live top-tier football (or NFL in the US) and first-run movies from Hollywood studios. They have high-specification equipment.

Services and usage profile:
- above-average call minutes from the home, with significantly above-average international calls
- two post-pay mobile contracts with significantly above-average call minutes from mobile to national and international networks
- subscribe to premium pay-TV package with the best football (or NFL) and films package, plus a DVR service (digital video recorder; also know as personal video recorder (PVR) or digital television recorder (DTR))
- subscribe to high-speed internet package
- TV licence

Equipment requirements:
- two high-end mobile handsets
- one standard TV set
- one high end TV set
- one free-to-view DTV decoder
- one personal video recorder (DVR)
- one premium PC
- one laptop PC

B.5 Constituents of the price of baskets of communications services

The communications services requirements for each household were broken down into as much detail as was practical, in order to identify prices for the following:

Fixed-line voice:
Services
- Voice calls in home to national destinations (minutes)
- Voice calls in home to local destinations (minutes)
- Voice calls in home to international destinations (minutes)
- Voice calls in home to mobile destinations (minutes)
- All voice calls were defined as lasting for three minutes

Mobile phone:
Equipment/installation:
- Type of premium contract handset
- Installation/connection charges for premium mobile
- Type of standard contract handset
- Connection charges for standard mobile
- Pre-pay package (terminal, connection charges)

Services (varies by terminal)
- Line rental contract for mobile
- On-net voice calls from mobile (minutes)

- Off-net voice calls from mobile (minutes)
- Voice calls from mobile to national fixed/mobile (minutes)
- Voice calls from mobile to international fixed/mobile (minutes)
- SMS messages from mobile
- MMS messages from mobile
- Data downloaded from internet on mobile
- All voice calls were defined as lasting three minutes

Television:
Equipment/installation:
- Standard TV set
- Premium TV set
- Free-to-view DTV decoder
- Type of standard set-top box
- Type of premium set-top box
- Installation/connection charges for set-top box

Services
- Pay-TV (standard package)
- Pay-TV (premium package)
- TV licence fee

Internet:
Equipment/installation
- No of basic PCs
- No of premium PCs
- No of laptop PCs
- Installation/connection charges for broadband

Services
- Broadband (standard)
- Broadband (premium)

B.6 Basket composition

The details of each household basket are provided in the write-up of the findings.

Figure B.2 summarises usage across all of the baskets, together with how these can be extrapolated to represent average use across the whole of the population of our comparator countries. (It should be noted that for practical reasons we restricted our analysis to five baskets. Each household has been weighted according to the approximate share of the population that it represents across the comparator countries, and scaled up so that the whole of the population is represented. As such we can provide an approximation of 'average' use, but its accuracy is limited by the restriction of the study to five household types.)

Figure B.2 Summary of basket contents

	Household 1	Household 2	Household 3	Household 4	Household 5	Weighted average per household
Weighting	*15%*	*15%*	*20%*	*35%*	*15%*	*Total: 100%*
Number of people	2	2	1	4	2	2.5
Outbound fixed minutes per month	225	430	0	880	500	481
Number of mobile connections	0	1	1	4	2	2.05
Outbound mobile minutes per month	0	60	380	300	320	238
Outbound SMS per month	0	0	60	240	90	110
Broadband subscriptions	0	1	0	1	1	2.35
Pay-TV subscriptions	0	0	1	1	1	0.7

Source: IDATE (assumptions based on data from operators and regulators)

Figure B.3 details average use of communications services across the five comparator countries. There is significant variation, which must be taken into account when analysing any of the individual baskets. However, in terms of average use, our household baskets collectively are broadly in line with average use across the comparator countries.

Note that we have not sought to make our baskets an exact reflection of overall average use, because we have limited our analysis to five baskets and have aimed to look at a wide range of household types (from basic to sophisticated) within these five baskets.

Figure B.3 Average use of communications services across comparator countries

	UK	France	Germany	Italy	USA	Average
People per household	2.40	2.39	2.11	2.63	2.65	2.44
Fixed-only households[1]	13%	18%	22%	8%	N/A	15%
Outbound fixed minutes per access line per month[2]	372	270	351	278	N/A	318
Mobile connections per household	2.76	1.96	2.19	3.66	2.07	2.53
Mobile-only households[1]	13%	18%	10%	38%	N/A	20%
Outbound mobile minutes per household per month[3]	272	299	122	273	N/A	242
SMS per household per month[3]	143	48	48	N/A	N/A	80
Broadband connections per 100 households[4]	52	48	38	40	51	46
Pay-TV subscriptions per 100 households[1]	43	45	68	18	91	53

Source: IDATE / European Commission
Notes:
All data is for 2006
1 Fixed-only and mobile-only households data sourced from European Commission, Special Barometer 274 (April 2006), based on fieldwork in November-December 2006
2 Access lines includes both business and residential (separate data are not available)
3 Mobile minutes and SMS includes business use (separate data not available)
4 Broadband connections includes some SME connections (separate data are not available)

B.7 Tariff data

For practical reasons, tariff data were collected from the three leading operators by market share in each of the countries, correct as of October 2007.We believe that using the prices of the largest operators is appropriate, both because they are the best reflection of the general consumer experience and because they are in large part defined by the competitive environment in which they operate.

Tariff data were collected for each service on a standalone basis (i.e. fixed-line voice, broadband, mobile and pay-TV). We then also identified 'bundled' tariffs that were available (i.e. when more than one service is available as a package from one provider, such as 'triple-play' offers which combine fixed-line voice, broadband and television), and identified those instances where households could achieve a lower price for part or all of the basket of services by purchasing a bundle in place of single services.

B.8 Equipment and connection costs

As part of our basket compositions, we have included connection fees and equipment costs. Connection fees have been included within overall service costs, because they represent part of the total price paid to the provider of the communications service. Equipment costs have been detailed separately, with the exception of mobile handsets, which are typically

purchased in association with a post-pay or a pre-pay connection and are sometimes subsidised by the operator, and therefore cannot be separated from the overall service cost.

We have amortised the price of equipment in a straight line as follows:

- mobile handset prices are amortised over 24 months (the longest length of any of our mobile contracts); and
- PCs, television sets and audio-visual equipment are amortised over 60 months

We have used the same specification of equipment in all countries, and the same brand and model wherever possible. When equipment is purchased separately from the service we have used the lowest price available on a leading price comparison web site which operates in all five countries.

B.9 Purchasing power parity adjustment

All prices have been converted back to UK currency, using a Purchasing Power Parity (PPP) adjustment based on OECD comparative price levels in August 2007 (the latest period for which data were available), and the IMF average exchange rate for August 2007. Comparative price levels represent the number of specified monetary units necessary to buy the same representative basket of consumer goods and services, relative to any specified country (in this case, the UK), and enable a comparison of relative consumer pricing for any product or service.

Figure B.4 Purchasing Power Parity conversion rates

	Local currency	Local / GDP	Comparative price level	PPP
UK	GBP	1.00	1.00	1.00
France	EUR	1.48	1.03	1.52
Germany	EUR	1.48	1.04	1.53
Italy	EUR	1.48	0.97	1.43
USA	USD	2.01	0.84	1.69

Source: IMF / OECD
Notes: Exchange rate is average during August 2007 (IMF); Comparative price level is for August 2007 (OECD)

B.10 Analysis

Having identified the lowest prices for each single service from each of the three largest operators in each country, and the lowest-price 'bundled' services appropriate to meet the needs of all, or part of, each basket, we performed two types of analysis, which are detailed in the write-up of the findings:

i) The 'average single service' pricing available for each of the components in every basket (fixed-line voice, broadband, post-pay mobile, pre-pay mobile, pay-TV). This was calculated as the average of the lowest price tariffs from each of the three largest operators for each service in each country, weighted by the market share of the service provider in order to ensure fair representation.

ii) The 'best offer' pricing available for the overall basket. This identifies the lowest price that a consumer could pay for this basket of services, including, where appropriate, by purchasing 'bundled' services. This was calculated by identifying the lowest price

from any tariff for each component of every basket, together with the lowest-price bundled services suitable for the basket, and identifying the overall lowest price available.

We believe both types of analysis are important for providing an overall understanding of comparative pricing.

Single-service pricing provides a useful comparison of the relative costs of communications services, and, because it is an average weighted by market share, it also provides a good indication of the prices that many consumers are actually paying. However, an important limitation is that single-service offers are sometimes not available from leading suppliers. For example, in the UK, Carphone Warehouse only offers broadband together with fixed voice, while BSkyB only offers broadband together with television.

We believe the inclusion of 'bundles' within 'best offer' pricing is also essential to understand the pricing of communications services, which are increasingly being delivered as multi-service propositions. (Examples in the UK include the 'free' broadband offer with TalkTalk's voice service, or Sky's *See, Surf, Talk* 'triple-play' offer which provides TV, voice and broadband, or Virgin's 'quad-play' offer which includes TV, voice, broadband and mobile.) However, a limitation is that 'bundled' service offerings are typically not available to all consumers, as they are generally geographically constrained to areas where premises are connected either to a cable network or to an unbundled telephone exchange. And although focusing on the 'best offer' provides insight to the lowest prices available to some customers, it is not as good a reflection of the prices that consumers are actually paying as the weighted average analysis which is possible when looking at single-service pricing.

B.11 Limitations

As already noted, this benchmarking methodology and output is intended to build on the approach used in last year's International Communications Market Report, and we intend to continue to develop and improve it further. We welcome feedback at: marketintelligence@ofcom.org.uk

We highlight the following limitations to the analysis:

- In looking only at tariffs offered by the three largest operators in each country, lower prices which might be available from smaller operators seeking to disrupt markets are not included, purely for practical reasons. Nevertheless, we believe that using the prices of the largest operators is appropriate, both because they are the best reflection of the general consumer experience and because they are in large part defined by the competitive environment in which they operate.

- The analysis assumes a wholly rational consumer who has a full understanding of his or her usage requirements and is prepared to shop around and undertake some often quite complex calculations to identify the tariffs which offer the best value. Clearly, in the real world many consumers do not act in this way, but we believe the assumption is necessary in order to provide meaningful international comparisons.

- In order to calculate the weighted average, we have used market share calculations based on operators' retail customers, where available, and based on wholesale customers where not. It should be noted that market share calculations are based on the overall subscriber base, not the subscriber base for the particular tariff.

- Tariffs are often highly complicated and sometimes have components that we have been unable to incorporate into our model. Three examples from the UK are:

  - fixed-line voice tariffs available from the UK's three largest operators which offer a 'flat rate' for national calls of up to one hour in duration – our model has all calls at three minutes in duration, so the benefit from making longer calls is not included;
  - a pre-pay mobile tariff which includes much-reduced rates after the first three minutes of use every day – our model assumes use is distributed evenly throughout the month; and
  - fixed-line and mobile tariffs which include free or reduced call rates to nominated 'friends and family' numbers – our model does not include any discounts for these types of tariffs.

- Pay-TV services constitute a component of three of the baskets we examine. However, it has not been possible to compare like-for-like subscriptions because of differences in the composition of basic and premium channel bundles across the five countries. As a consequence, quantitative comparison of international TV pricing is arguably less meaningful than for telecoms services. This issue is also present in the pricing of triple-play (voice, broadband and TV bundles), where there is large variation in TV content across our comparator countries.

- For some communications services in some countries there are only two operators with nationwide coverage and/or significant market share. In these instances, we have identified the best-value tariff from each of them and calculated a blended average based on their market shares.

- Some services are not available nation-wide. This is particularly true of IPTV services, but is also true for cable TV and broadband.

- A number of inclusive minutes and messages are typically bundled within phone tariffs. We assume that consumers use their allocation of inclusive services in the most cost-effective manner.

- In order to provide like-for-like comparison we have defined the mobile components within baskets as either post-pay or pre-pay. However, a consequence of this is that differences in the characteristics of the national markets are not captured within the model. For example, the UK fixed-line market is characterised by segmentation strategies where the leading operators do not generally offer post-pay contracts at less than £20 a month, and a large number of minutes are typically bundled with contract connections. (Data from GfK indicate that over 70% of UK mobile contracts included 300 or more minutes in the first half of 2007). Therefore, the low usage pattern of post-pay subscribers in Basket 4 and Basket 5 would potentially be better served by a pre-pay contract.

- We have placed no limitation on the length of the contracts. As longer contracts typically provide better value, they are over-represented in this analysis. For example, of the 30 post-pay mobile tariffs which are used in the analysis, 28 of the contracts last for 24 months.

- In defining mobile baskets only in terms of outbound calls, we are excluding a characteristic of the US market, where mobile customers are typically charged for inbound calls (as a result of a different interconnection charging model in the US whereby the network receiving a call pays a termination rate). This makes like-for-like comparison of mobile and fixed-line voice prices problematic, as calls to mobile from fixed are typically set at a low or all-inclusive price (again, as a result of the US interconnection model).

Annex C: International online survey methodology

This research was conducted in October 2007 by Synovate for Ofcom. The survey was conducted using CAWI (Computer Assisted Web Interviewing) across seven countries: the UK, France, Germany, US, Italy, Japan and Canada. Sample sizes were around 1000 adults in each country, designed, and where necessary weighted, to reflect national profiles of internet customers in terms of gender and age.

All respondents were internet users at home and therefore this data is not representative of each country's population, and does not provide data on market penetration. Rather, it provides an illustration of comparative levels of use across markets amongst internet users. Given that the samples are all internet users at home, countries with low internet penetration will present inflated usage figures overall, as these adults are likely to be high end users and early adopters.

The table below shows sample size and spread for each country.

	Base		Gender %		Age %		
Country	**Respondents**	**Broadband users**	**Male**	**Female**	**18-24**	**25-44**	**45-64**
UK	**1000**	**972**	51	49	14	48	37
France	**1001**	**892**	51	49	19	54	27
Germany	**1001**	**908**	56	44	20	52	28
US	**1002**	**914**	51	49	14	50	36
Italy	**1004**	**860**	51	49	19	54	27
Japan	**1002**	**860**	54	46	22	54	23
Canada	**1000**	**955**	51	49	14	50	36

Glossary

1G First Generation Cellular Mobile Wireless. The first generation of cellular wireless was based on analogue technology. The systems were designed only to carry voice services.

2G Second generation of mobile telephony systems. Uses digital transmission to support voice, low-speed data communications, and short messaging services.

2.5G In mobile telephony, 2.5G protocols extend 2G systems to provide additional features such as packet-switched connections (GPRS) and higher-speed data communications.

3G Third generation of mobile systems. Provides high-speed data transmission and supports multimedia applications such as full-motion video, video-conferencing and internet access, alongside conventional voice services.

3.5G Refers to evolutionary upgrades to 3G services starting in 2005-2006 that provide significantly enhanced performance. High Speed Downlink Packet Access is widely expected to become the most popular 3.5G technology (see HSDPA).

3GPP Third Generation Partnership Project. The 3GPP was formed in December 1998 as a collaboration agreement bringing together a number of telecommunication standards bodies, referred to as Organizational Partners. The original aim of the 3GPP was to produce globally applicable technical specifications for third-generation mobile systems based on evolved GSM core networks and the radio access technology UTRA (Universal Terrestrial Radio Access).

3G LTE Aims to achieve an upgraded version of 3G W-CDMA services having up to 100 Mbps downlink speeds and 50 Mbps uplink speeds. The target for completing the first stage of the development was 2007, with service offerings perhaps by 2009.

4G Fourth-Generation Cellular Mobile Wireless. 4G technologies are still in the early research stage and no consistent industry definition exists yet. NTT DoCoMo in Japan are one of the leading companies in driving 4G. Technologies such as VSF (Variable Spreading Factor), OFCDM (Orthogonal Frequency and Code Division Multiplexing) and VSF CDMA (Code Division Multiple Access) are being proposed, along with a target data rate of over 100 Mbps for downlink and 20 Mbps uplink. 4G is likely to include MIMO technologies (see MIMO). It is likely to be well into the next decade before the technology is commercially deployed.

Access network Electronic Communications Network which connects end-users to a service provider; running from the end-user's premise to a Local Access Node and supporting the provision of access based services. It is sometimes referred to as the local loop or last mile.

ADSL Asymmetric Digital Subscriber Line. A digital technology that allows the use of a standard telephone line to provide high speed data communications. Allows higher speeds in one direction (towards the customer) than the other.

ADSL1 The first generation of ADSL, capable of data speeds of up to 8Mbit/s towards the customer and up to 640kbit/s from the customer.

ADSL2/ADSL2+ Improved versions of ADSL, offering high speeds, especially on shorter telephone lines. In the case of ADSL2+, up to 24Mb/s can be delivered towards the customer.

AM Amplitude Modulation. Type of modulation produced by varying the strength of a radio signal. This type of modulation is used by broadcasters in three frequency bands: medium frequency (MF, also known as medium wave: MW); low frequency (LF, also known as long wave: LW), and high frequency (HF, also known as short wave: SW). The term AM is often used to refer to the medium frequency band (see MF below).

ATT Analogue Terrestrial Television. The television broadcast standard that all television industries launched with. Most countries in this study are planning to phase out ATT in the next ten years.

Bit-rate The rate at which digital information is carried within a specified communication channel.

Bitstream A wholesale service providing conveyance of data traffic from an end user's premise to a point of interconnection made available by the incumbent to a competitive provider.

Bluetooth Wireless standard for short-range radio communications between a variety of devices such as PCs, headsets, printers, mobile phones, and PDAs.

Broadband A service or connection generally defined as being 'always on' and providing a bandwidth greater than narrowband.

CAGR Compound Annual Growth Rate. The average annual growth rate over a specified period of time. It is used to indicate the investment yield at the end of a specified period of time. The mathematical formula used to calculate CAGR = (present value/base value) (1/#of years) – 1

CDMA Code Division Multiple Access. The basis for the primary 2G technology; and the later evolution of mobile technology in the US and related markets. A technology that allows a band of spectrum to be shared by multiple concurrent users. Rather than subdividing the spectrum (FDMA) or determining use on a round robin basis (TDMA), unique codes are used to differentiate subscribers so they can simultaneously use the same spectrum.

Contention ratio An indication of the number of customers who share the capacity available in an ISP's broadband network. Figures of 50:1 for residential broadband connections and 20:1 for business are typical).

Co-regulation The sharing of regulation between a statutory body (e.g. Ofcom) and its licensees.

CPS Carrier Pre-selection. The facility offered to customers which allows them to opt for certain defined classes of call to be carried by an operator that has been selected in advance and has a contract with the customer. CPS does not require the customer to dial a routing prefix or use a dialler box.

DAB Digital Audio Broadcasting. A set of internationally accepted standards for the technology by which terrestrial Digital Radio multiplex services are broadcast in the UK.

Data packet In networking, the smallest unit of information transmitted as a discrete entity from one node on the network to another.

Digital dividend The spectrum that will be released by the switch to all-digital television.

Digital switchover The process of switching over the current analogue television broadcasting system to digital, as well as ensuring that people have adapted or upgraded their televisions and recording equipment to receive digital TV.

DMB Digital Mobile Broadcasting. A variant of the DAB digital radio standard for mobile TV services, and an alternative to DVB-H (see DVB, below).

Downlink speed Also downlink or download. Rate of data transmission from a network operator's access node to a customer, typically measured in Megabits per second.

DSL Digital Subscriber Line. A family of technologies generally referred to as DSL, or xDSL, capable of transforming ordinary phone lines (also known as 'twisted copper pairs') into high-speed digital lines, capable of supporting advanced services such as fast Internet access and video-on-demand. ADSL, HDSL (High data rate Digital Subscriber Line) and VDSL (Very high data rate Digital Subscriber Line) are all variants of xDSL).

DTR See DVR

DTT Digital Terrestrial Television, currently most commonly delivered through the Freeview service.

DVB Digital Video Broadcasting. A set of internationally accepted open standards for digital broadcasting, including standards for distribution by satellite, cable, radio and handheld devices (the latter known as DVB-H).

DVD Digital Versatile Disc. A high capacity CD-size disc for carrying audio-visual content. Initially available read-only, but recordable formats are now available.

DVR Digital Video Recorder (also known as Personal Video Recorder and Digital Television Recorder). A digital TV set-top box including a hard disc drive which allows the user to record, pause and rewind live TV.

EDGE Enhanced Data Rates for GSM Evolution: An extension to GSM/GPRS standards that can support data rates in excess of 200Kbit/s. EDGE is a relatively inexpensive way for GSM operators to provide data services without rolling out a UMTS network. Recently developed EDGE – Evolution allows data rates of up to 1Mbit/s.

Ex ante regulation Regulation to address behaviour before it happens.

Fibre-to-the-cabinet Access network consisting of optical fibre extending from the access node to the street cabinet. The street cabinet is usually located only a few hundred metres from the subscriber premises. The remaining segment of the access network from the cabinet to the customer is usually a copper pair but could use another technology, such as wireless.

Fibre-to-the-home A form of fibre optic communication delivery in which the optical signal reaches the end user's living or office space.

Fibre-to-the-building A form of fibre-optic communication delivery in which an optical fibre is run directly onto the customers' premises.

FM Frequency Modulation. Type of modulation produced by varying the frequency of a radio carrier in response to the signal to be transmitted. This is the type of modulation used by broadcasters in part of the VHF (Very High Frequency) band, known as VHF Band 2.

GDP Gross Domestic Product.

GPS The GPS (Global Positioning System) is a 'constellation' of 24 well-spaced satellites that orbit the Earth and make it possible for people with ground receivers to pinpoint their geographic location.

GSM Global Standard for Mobile Telephony, the standard used for 2G mobile systems.

HD Radio Hybrid Digital Radio. A radio standard developed in the US for terrestrial broadcasters, offering high-quality audio.

HDTV High-Definition Television. A technology that provides viewers with better quality, high-resolution pictures.

Headline connection speed The theoretical maximum data speed that can be achieved by a given broadband. A number of factors, such as the quality and length of the physical line from the exchange to the customer, mean that a given customer may not experience this headline speed in practice.

HSDPA High Speed Datalink Packet Access, an evolution of 3G mobile technology, often known as 3.5G, which offers higher data speeds.

HSUPA High Speed Uplink Packet Access – an upgrade to 3G mobile technology that allows data to be sent from customer's devices more quickly.

Interconnection The linking of one Public Electronic Communications Network to another for the purpose of enabling the persons using one of them to be able (a) to communicate with users of the other one; (b) to make use of services provided by means of the other one (whether by the provider of that network or by another person).

International roaming A service offered by mobile operators that allows customers to use their phone abroad. The home operator has agreements with foreign operators that allows customers to make and receive calls, send and pick up text messages, and use some of the other mobile services (such as access to voicemail or topping-up credit on pre-pay phones). The exact services available and the charges for their use vary between operators.

Internet A global network of networks, using a common set of standards (e.g. the Internet Protocol), accessed by users with a computer via a service provider.

IP (Internet Protocol) The packet data protocol used for routing and carriage of messages across the Internet and similar networks.

IPTV Internet Protocol Television. Television and/or video signals that are delivered to subscribers or viewers using Internet Protocol (IP), the technology that is also used to access the Internet. We use the term to mean delivery over a 'closed intranet', typically operated by ISPs and local-loop unbundlers, rather than over the public internet. IPTV services are hosted on servers placed in the exchange, which means they can be delivered with assured QoS since the ISP has more control over the network.

ISDB Integrated Services Digital Broadcasting. A separate broadcasting standard developed in Japan. during the early 1980s, which led to the development of the ISDB standard. Japan

started terrestrial digital broadcasting using the ISDB-T standard through NHK and commercial broadcasting stations on 1 December 2003.

ISDN Integrated Services Digital Networks. A standard developed to cover a range of voice, data, and image services intended to provide end-to-end, simultaneous handling of voice and data on a single link and network.

ISP Internet Service Provider. A company that provides access to the internet.

ITU International Telecommunication Union.

LLU (Local Loop Unbundling) LLU is the process whereby incumbent operators (in the UK this means BT and Kingston Communications) make their local network (the lines that run from customer's premises to the telephone exchange) available to other communications providers. The process requires the competitor to deploy its own equipment in the incumbent's local exchange and to establish a backhaul connection between this equipment and its core network.

Local Loop The access network connection between the customer's premises and the local PSTN exchange, usually a loop comprised of two copper wires.

MMS Multimedia Messaging Service. The next generation of mobile messaging services, adding photos, pictures and audio to text messages.

Mobile termination rate The 'per minute' fees that mobile phone companies charge other carriers to deliver incoming calls to users on their networks.

Multichannel In the UK, this refers to the provision or receipt of television services other than the main five channels (BBC ONE & TWO, ITV1, Channel 4/S4C, Five) plus local analogue services. 'Multichannel homes' comprise all those with digital terrestrial TV, satellite TV, digital cable or analogue cable, or TV over broadband. Also used as a noun to refer to a channel only available on digital platforms (or analogue cable).

Multiplex A device that sends multiple signals or streams of information on a carrier at the same time in the form of a single, complex signal. The separate signals are then recovered at the receiving end.

MVNO An organisation which provides mobile telephony services to its customers, but does not have allocation of spectrum or its own wireless network.

Narrowband A service or connection providing data speeds up to 128kbit/s, such as via an analogue telephone line, or via ISDN.

Next-generation core networks (NGN) Internet Protocol based core networks which can support a variety of existing and new services, typically replacing multiple, single service legacy networks

Next-generation access networks (NGA) Broadband access networks that connect the end-user to the core network capable of a bandwidth quantity and quality significantly in excess of current levels (a benchmark of 20Mbit/s or more is often used).

OECD Organisation for Economic Cooperation and Development.

Oftel Office of Telecommunications, whose functions transferred to Ofcom on 29th December 2003.

PAYG Pay-as-you-go.

Pay-per-view A service offering single viewings of a specific film, programme or event, provided to consumers for a one-off fee.

PDA Personal Digital Assistant.

Peaktime In the UK, the period during which: a radio station broadcasts its breakfast show and, on weekdays only, also its afternoon drive-time show; a television station broadcasts its early- and mid-evening schedule. Typically used by Ofcom to refer to the period between 18:00 and 22:30 each day (including weekends).

Peer to peer distribution The process of directly transferring information, services or products between users or devices that operate on the same hierarchical level.

Podcasting Away for digital audio files to be published on the internet, which can then be downloaded onto computers and transferred to portable digital audio players.

PSB Public Service Broadcasting, or Public Service Broadcaster. The Communications Act in the UK defines the PSBs to include the BBC, ITV1, Channel 4, Five and S4C.

PSTN Public Switched Telephony Network.

PVR See DVR

Quad-play Supply of TV, broadband, landline and mobile from a single supplier for a single subscription fee.

Radio Authority The statutory body responsible for the licensing and regulation of non-BBC radio services between 1990 and 2003. It was one of the bodies replaced by Ofcom.

RAJAR Radio Joint Audience Research The pan-industry body which measures radio listening.

Regulatory holiday A commitment by a regulator not to impose regulatory measures on a given product or service for a specified period of time.

Service bundling (or multi-play) A marketing term describing the packaging together of different communications services by organisations that traditionally only offered one or two of those services.

Service provider A provider of electronic communications services to third parties whether over its own network or otherwise.

Share (Radio) Proportion of total listener hours, expressed as a percentage, attributable to one station within that a defined area.

Share (TV) Proportion of total TV viewing to a particular channel over a specified time, expressed as a percentage of total hours of viewing.

SIM card (Subscriber Identity Module) A removable smart card used in mobile phones to authenticate the mobile subscriber and store data. Each card has a unique number known as International Mobile Subscriber Identity (IMSI).

Simulcasting The broadcasting of a television or radio programme service on more than one transmission technology (e.g. FM and MW, DAB and FM, analogue and digital terrestrial television, digital terrestrial and satellite).

Streaming content Audio or video files sent in compressed form over the internet and consumed by the user as they arrive. Streaming is different to downloading, where content is saved on the user's hard disk before the user accesses it.

Sub-loop unbundling A variant of LLU where a competitive operator takes control of only a portion of a customer's local loop, allowing them to install their equipment closer to the customer and potentially offer higher-speed services. In Sub-loop unbundling, the point of handover is commonly the Primary Connection Point (PCP) or street cabinet.

TD-CDMA Time Division Code Division Multiple Access. One of the family of 3G mobile technology standards.

Telecommunications, or 'Telecoms' Conveyance over distance of speech, music and other sounds, visual images or signals by electric, magnetic or electro-magnetic means.

Triple-play Supply of TV, broadband and landline from a single supplier for a single subscription fee.

TVWF Television Without Frontiers. A range of provisions designed to achieve coordination of the legal, regulatory and administrative frameworks of European Union member states with respect to television broadcasting, adopted by the European Council in 1989 and amended in 1997.

VDSL Very high bit rate DSL. This is currently the fastest version of DSL and can transmit very high data rates on short reaches of the local loop.

VoD Video on Demand A service or technology that enables TV viewers to watch programmes or films whenever they choose to, not restricted by a linear schedule. Also Near Video on Demand (NVoD), a service based on a linear schedule that is regularly repeated on multiple channels, usually at 15-minute intervals, so that viewers are never more than 15 minutes away from the start of the next transmission.

VoIP Voice over Internet Protocol. A technology that allows users to send calls using Internet Protocol, using either the public Internet or private IP networks.

WCDMA Wideband Code Division Multiple Access. One of the family of 3G mobile technology standards.

Web 2.0 A perceived second generation of web-based communities and hosted services - such as social-networking sites and wikis, which facilitate collaboration and sharing between users.

WiFi hotspot A public location which provides access to the internet using WiFi technology.

WiMAX A wireless MAN (metropolitan area network) technology, based on the 802.16 standard. Available for both fixed and mobile data applications.

Wireless LAN or WiFi (Wireless Fidelity) Short range wireless technologies using any type of 802.11 standard such as 802.11b or 802.11a. These technologies allow an over-the-air connection between a wireless client and a base station, or between two wireless clients.

WLR Wholesale Line Rental A regulatory instrument requiring the operator of local access lines to make this service available to competing providers at a wholesale price.

Table of Figures