

Interactive content and convergence:

Implications for the information society

A Study for the European Commission
(DG Information Society and Media)

By Screen Digest Ltd, CMS Hasche Sigle,
Goldmedia GmbH, Rightscom Ltd

Annexes

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screen Digest

GOLD MEDIA

rightscom

C/M/S/ Hasche Sigle

Rechtsanwälte Steuerberater



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Information Society and Media



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Screen Digest Limited

screendigest

Screen Digest Limited
Lymehouse Studios
30/31 Lyme Street
London NW1 0EE
telephone +44/20 7424 2820
fax +44/20 7424 2838

Contact: Vincent.Letang@screendigest.com,
+44/204 424 2843

Author: Screen Digest, Rightscom,
Goldmedia, CMS Hasche Sigle
Editor: Ben Keen, Vincent Letang
Layout: Tom Humberstone, Leander
Vanderbijl

The opinions expressed in this study are those of the authors and do not necessarily reflect the views of the European Commission.

The observations, opinions or suggestions in this report do not necessarily reflect the opinion of the authors, unless explicitly marked as such.

Deliverables of the study

Volume One: Executive summary and Main Final Report

Volume Two: Annexes [this document]

Table of contents

Methodology	5	17. Malta	64
1.1. General methodology	5	18. The Netherlands	66
1.2. Television	6	19. Poland	69
1.3. Broadband	6	20. Portugal	72
1.4. Music and movies	7	21. Slovakia	74
1.5. Radio	8	22. Slovenia	76
1.6. Publishing	9	23. Spain	78
1.7. Games	10	24. Sweden	82
		25. United Kingdom	84
Glossary	13		
2.1. Technical terms and acronyms used in the report	13		
2.2. Definition of the indicators and business models mentioned in the report	17		
Stake-holder consultation	19		
Country profiles	25		
1. Austria	26		
2. Belgium	28		
3. Cyprus	30		
4. Czech Republic	32		
5. Denmark	35		
6. Estonia	37		
7. Finland	39		
8. France	41		
9. Germany	47		
10. Greece	51		
11. Hungary	52		
12. Ireland	54		
13. Italy	56		
14. Latvia	59		
15. Lithuania	61		
16. Luxembourg	63		

1 Methodology

1.1. General methodology

1.2.1. Geographical scope

As often as possible we monitor market data for the whole of Europe. In some cases however markets remain too small for measuring.

We use the term **‘Europe’** synonymic to EU25 if not mentioned otherwise. While EU15 refers to the 15 member states prior to the accession of ten candidate countries on May 1st 2004 (AT, BE, DE, DK, ES, FI, FR, GR, IE, IT, LU, NL, PT, SE, UK), NMS10 or the term “new member states” refers to those ten countries (CY, CZ, EE, HU, LT, LV, MT, PL, SI, SK).

In some cases, for some indicators, data or forecasts are provided for a smaller sample of countries. In which case we mention it. For instance, for broadband numbers, EU14 refers to Western EU15 minus Luxembourg. EU20 refers to the EU14 plus the following 6 new member States: Poland, Hungary, Czech Republic, Slovenia, Slovakia, Estonia.

1.2.2. Sources

Most of the data in this report is compiled, checked and harmonised by Screen Digest and Goldmedia from company and trade body reports. We also mention some aggregated market data sourced from third-party sources like EITO, IFPI, WAN, etc.. For instance advertising historical data mentioned is coming from media agencies.

1.2.3. Forecasts

Whether based on proprietary or third-party actuals, forecasts in the report are made or endorsed by the authors.

Forecasts on digital content market growth are based on:

- Our broadband data actuals and forecasts
- Our assumptions on drivers and obstacles and their likely evolution. For instance, we do believe that broadband offerings and penetration are going to grow at a high pace between now and 2010 all over Europe, and we believe market players are likely to overcome the difficulties created by the necessary adaptation of copyright to in the new media environment.
- Our forecasts in the report are all based on *medium* scenarios (not worst-case nor maximum cases). For instance, penetration and usage rates are expected to grow at a the current pace in the near future and at a faster pace in the mid-term resulting in typical S-shape curves. The acceleration in usage uptake and market growth in new technologies is typically due to: (i) market players and consumer overcoming initial chicken-and-egg conditions (few offering because of few users) and (ii) network effects and me-too effect driving consumer uptake and market growth once pioneering consumers and opinion leaders have been converted.
- Bottom-up methodology (forecasting country by country) and top-down consistency tests: benchmarking penetrations and market growth across Europe and comparing Europe to the USA or Asia which in some cases have seen services available for more time or are ahead in the product cycle

1.2. Television

The television data and forecasts in this report are based on Screen Digest's Television Intelligence database.

Data has been prepared in-house based on historical and current data gathered first-hand directly from the companies concerned or from trade bodies with which Screen Digest maintains a regular relationship. Models are built company-by-company and technology-by-technology. Totals are then derived from the component parts and are thus wholly granular in a bottom-up approach.

Forecasts do not rely simply on statistical curve fits or other basic modeling techniques which SD find inadequate in forecasting highly volatile, fast-growing new media markets. Forecasts are based on specialised analysts' in-depth understanding of the markets concerned and the players involved and are developed on a ground-up basis taking into account both past and current growth rates and the individual factors that go into contributing to a market size or value. Over the last six months, the numerous meetings with players in the context of this research have been used to validate/refine our assumptions and forecasts.

All inputs required are thus overseen by a senior analyst who will apply his own market knowledge and take into account company guidance and information and feedback obtained from interviews with senior industry executives knowledgeable of the market or market factor being examined.

Assumptions vary model by model but a pay television revenue model, for example, would include future pricing scenarios, total subscriber take-up and subscriber take-up by tier of service. Another example would be on-demand revenue models which require a greater range of inputs including: buy-rates, pricing, content mix (movie, tv, sport, adult etc.), technology mix (nVoD, VoD, VoD+PVR), platform type (cable, DTH, DSL, DTT) and impact of PVR and other devices on buy rate.

Online TV: TV programming distributed over the open Internet - including news, sports, and genre programming (such as children's entertainment, comedy and drama), but excluding music videos and user-generated content.

Online TV revenues: total consumer level revenues from online TV, excluding sales tax or value-added tax.

1.3. Broadband

The broadband data and forecasts in this report are based on Screen Digest's 'Broadband Digital Media Intelligence' database.

Data has been prepared in-house based on historical and current data gathered first-hand directly from the companies concerned or from trade bodies with which Screen Digest maintains a regular relationship. Models are built sector-by-sector, technology-by-technology and in some cases company-by-company. Totals are then derived from the component parts and are thus wholly granular in a bottom-up approach.

Forecasts do not rely simply on statistical curve fits or other basic modelling techniques which SD find inadequate in forecasting highly volatile, fast-growing new media markets. Forecasts are based on specialised analysts' in-depth understanding of the markets concerned and the players involved and are developed on a ground-up basis taking into account both past and current growth rates and the individual factors that go into contributing to a market size or value. Over the last six months, the numerous meetings with players in the context of this research have been used to validate/refine our assumptions and forecasts.

Screen Digest continuously monitors and analyses a number of specific factors in every European territory.

These include:

- PC penetration
- Regulatory issues (such as local loop unbundling and cable market developments)
- Telecommunications/cable market dynamics (that is, the competitive state of the market from competing broadband technologies)
- Broadband strategies and packaging by the market leaders (specifically marketing, speeds and pricing)
- Emerging online content markets (music, movies, TV and games)
- Consumer hardware uptake (PCs, home media hubs, portable devices)

Online penetration is defined as internet access through PC only. Households and individuals with only a *mobile* internet access (via their mobile phone or PDA for instance) are not taken into account for calculating the penetration. Online penetration estimates are based on national statistical institutes. When

national surveys are made in the middle of the year, penetration is extrapolated to get end-year estimates.

Broadband and technology indicators

PC households: total number of households with a PC.

PC penetration: total number of PC-enabled households as a proportion of all households in a territory.

Online households: total number of households with connection to the internet, either dial-up or broadband.

Online penetration: the ratio of total number of online households as a proportion of all households in a territory.

Broadband: any Internet connection above 150kbit/s. Broadband connections are fixed connections to the home or office and do not include mobile phones, or WiFi hotspots. Technologies accounted include, DSL, cable, Fibre-to-the-home (FTTH) and satellite.

Broadband penetration: referred to for the purposes of this report as total number of broadband lines per capita.

Wireless fidelity (Wi-Fi): a generic term for any type of 802.11 network, whether 802.11b, 802.11a or 802.11g. These different speed networks enable users to connect wirelessly to the broadband internet.

Wi-Fi hotspot: a specific geographic location in which an access point provides public wireless broadband network services to users through a WLAN.

1.4 Music and movies

All inputs required are overseen by senior analysts who will apply his own market knowledge and take into account company guidance and information and feedback obtained from primary sources and interviews conducted with senior industry executives knowledgeable of the market or market factor being examined.

SD takes into account company guidance from the major operators and content owners in each specific sector -- such as the incumbent telcos, cable companies, leading altnets/ISPs, major Internet and tech companies, the

music Majors and the Hollywood studios. This is done through regular contact with the companies concerned. Over the last six months, some of the stake-holders interviews led in the course of this EC assignment gave valuable inputs to validate/refine the models.

Finally SD conducts mathematical growth analysis, charting the rate of historic net additions, both year-on-year, and quarterly growth rates, projected forward (for example, in the case of broadband connectivity taking into account potential market maturity as set against PC penetration, and the total number of households both online and offline). Assumptions vary model by model, but an online movies revenue model, for example, would include future pricing scenarios and consumer propositions, performance in relation to existing sources of film distribution, and a wide range of inputs including: buy-rates, pricing, content mix and business model type.

Music and movies - definitions of indicators and sub-markets

A la carte: the business model whereby content is sold to the end-consumer in a single transaction. The content can be sold on a single or bundled basis.

Buy-rate: the total number of transactions in a period as a ratio of the total number of users in the addressable market during that period.

Transaction: a single (paid) sales exchange between the end-consumer and the service provider.

Digital Retail: a method of selling digital content that gives the customer ownership over the files they have downloaded, allowing the customer to use the content as many times as they like – the digitally distributed equivalent of conventional retail channels. Digital retail is also known as both ‘download-to-own’, ‘electronic sell-thru’ and ‘digital sell through’

Digital music: recorded music content that has been encoded for distribution over a digital platform.

Online music: digital recorded music content distributed over the open Internet.

Total music revenues: consumer level revenues generated by recorded music sales on all physical and digital formats, excluding sales tax or value-added tax.

Digital movies: feature film content that has been encoded for distribution over a true on-demand digital platform, whether walled garden or over the open Internet.

Online movies: digital movies distributed over the open Internet.

Box office revenues: consumer level revenues generated from the theatrical release of feature films, excluding sales tax or value-added tax.

Movie revenues from physical format sales: also known as 'home video revenues'. Consumer level revenues generated through the rental or retail of feature films on physical media, such as DVD or VHS, excluding sales tax or value-added tax.

Walled Garden movie VoD revenues: consumer level revenues generated by the rental of digital movies over set-top box-based video-on-demand platforms, excluding sales tax or value-added tax.

Total movie revenues: consumer level revenues generated by all movie distribution windows, but excluding revenues from the sale of pay-TV and free TV rights to pay-TV operators and broadcasters, excluding sales tax or value-added tax.

1.5. Radio

Data and forecasts on radio in this report are provided by **Goldmedia**

Apart from a large ad hoc stakeholder consultation between February and July 2006, Goldmedia used a variety of sources in order to compile the market data for this report: ranging from company reports and trade bodies to national regulatory authorities and national statistical offices as well as specific scientific and market research or consumer surveys amongst others.

When it comes to market data and forecasting Goldmedia's steps generally are:

1. ascertaining historic and actual market data
2. identifying drivers and obstacles
3. building market models and scenarios (worst, realistic, best) using predictive algorithms based on models for typical

technology adoption, product life cycles and analogies for instance, taking into account the drivers and obstacles identified

4. constant review of the models based on market player feedback, market developments, consumer adoption and consumer surveys

All these steps are made country by country and totals are added up in the end.

The most important sources for market data are company data, trade bodies, interviews, consumer surveys and regulators.

Other important sources for validating the underlying figures for market models and predictive algorithms are for instance: historic broadband data for example are derived from the EC's Communications Committee (CoCom) and European Competitive Telecommunications Association (ECTA) and from own data.

Other sources are the European Information Technology Observatory (EITO), the European Audiovisual Observatory and the European Conference of Postal and Telecommunications Administrations (CEPT) for instance.

For figures on advertising markets we also use (apart from sources already mentioned) the European Interactive Advertising Association (EIAA), the World Advertising Research Centre (WARC), the Interactive Advertising Bureau (IAB), Mediaedge:cia and Nielsen Media Research.

Especially for underlying figures on installed base of certain technology we also cross-check with numbers from other analysts like Screen Digest, Forrester, Jupiter, Juniper, Arbitron, and Bridge Ratings for instance.

Furthermore Goldmedia has been monitoring the industry for years and has built an own database on many of the issues of this study and can build on various consulting and research projects in this field. Goldmedia constantly presents and discusses its market data and forecasts on conferences and in dialogues with top management and market research departments as well as regulators in this industry thanks to ongoing and well-established contacts.

Radio indicators

Digital Radio: The term digital radio here encompasses broadcast digital radio, online radio, podcasting and mobile radio.

Broadcast Digital Radio: Broadcast digital radio generally encompasses radio services distributed via a variety of platforms: dedicated radio broadcast standards like DAB, DRM(+) and HD-Radio/IBOC as well as radio services broadcast via digital TV platforms (terrestrial, cable or satellite) like DTT/DVB-T, DVB-C or DVB-S. In this study the term ‘broadcast digital radio’ does not encompass DVB-H- or DMB-services (though both are broadcast standards) as services dedicated to mobile usage are referred to as mobile radio (see below). When we refer to a certain platform we use the name of the technical standard.

Online Radio: Online radio, also referred to as Internet radio, webcasting or streaming, here means transmitting radio programmes, from broadcast radio stations as well as from independent online only providers, via the Internet, i.e. streaming digital radio content via the TCP/IP protocol. Referring to radio content here means that pure music services (so called music flatrates for instance) are not called online radio in this report, even though they are often branded as radio services. Radio here means that it contains editorial content (and most of the time music as well).

Podcasting: Podcasting both means the special way of distribution and the content. The latter mostly consists of spoken word/ editorial content and music to an extent – thus classical radio content. This content is distributed via the Internet, downloaded to a PC and then sometimes transferred to an MP3 player on which it is listened to. Thus podcasting is also referred to as radio on demand.

Mobile Radio: Mobile digital radio or simply mobile radio in this report means radio services that are dedicated to mobile usage on handhelds or mobile telephones for instance. This definition encompasses services which use mobile broadband as well as services using mobile broadcast standards (or both). Thus this section covers radio services using 2.5G/3G networks like EDGE, UMTS, HSDPA as well as radio services using

broadcast standards like DMB, which is based on DAB, or DVB-H, based on DVB-T. To be exactly: if not mentioned otherwise, DMB always refers to T-DMB.

Listeners: When describing usage figures in the radio section we use the term weekly listeners and if not mentioned otherwise the term listeners here always means weekly listeners. Thus in these figures we only include people who use/listen to a service at least once a week. In contrast to other surveys we do not include listeners who say they have listened to a service “within the last three or six months”, “recently” or “ever”.

Penetration: If not mentioned otherwise, the term penetration in the radio section always refers to penetration of population, e.g. listeners per inhabitants.

1.6. Publishing

Publishing data have been collected by **Rightscom**.

Sources for the data have been chosen on the basis of industry credibility and currency, and mainly come from industry associations. Official data does not align well with the industry’s own sectoral identities. Neither official nor unofficial data methods accommodate convergent services at all satisfactorily, though US sources are more advanced in doing so.

1.6.1. Newspapers

The principal source is the annual World Association of Newspapers (WAN) report World Press Trends, 2006, supplemented by information from the Newspaper Association of America’s surveys, as the NAA provides more detailed information about usage of online newspaper sites and the contribution of online ad revenue than its European counterparts.

Consumer behaviour information comes from specific surveys e.g. by the Pew Internet and American Life Project, the European Interactive Advertising Association, and the Telegraph Media Group.

1.6.2. Magazines

Data comes from the International Federation of the Periodical Press (FIPP), World Magazine Trends, 2006.

Forecasts for the share of magazine adspend come from Zenith Optimedia, based on member agencies’ country reports.

1.6.3. Books

Data was supplied by the Federation of European Publishers (FEP) in its annual European Book Publishing Statistics.

1.6.4. Internet advertising and online revenues for publishers

Information was drawn from the regular publications of the **Interactive Advertising Bureau (IAB)**. In the USA, the data is compiled from surveys carried out by Price Waterhouse Coopers, which uses data supplied directly from companies selling advertising online. IAB Europe data is compiled from reports supplied by member countries, not all of which are comparable e.g. some omit search engine advertising. There are discrepancies between IAB data and other sources in some important cases e.g. France, which reports advertising at ratecard value. This makes international comparisons difficult. IAB data is considered the most comprehensive available. The share of search in advertising is an important metric for the publishing industry, but is not uniformly available for each country.

Only the Online Publishers' Association in the USA provides regular time-series on paid content revenues by type. European information is based on ad hoc surveys of interactive publishers.

Yet Goldmedia and Screen Digest have built a specific model to estimate and forecast online revenues made by newspaper and magazine publishers up to 2010. The model is based on anecdotal example of actual online revenues or ratios, current advertising revenues, interviews with online publishers and internet market experts.

1.7. Games

The data and forecasts for games markets are provided by Screen Digest, which is tracking the games industry on a regular basis.

1.7.1. Market sizing

The sizing and forecasting of the different games markets are generally approached using two separate research methods. For market sizing (the historical market size up until the most recent full calendar year) Screen Digest uses a 'bottom-up' approach that identifies and researches all existing companies that offer sales and services within each sector. This approach allows for the analysis of revenue generated from consumer spend on subscriptions or sales (depending on business

model), with the result of generating a global and segmented - commonly by geography, business model or platform - view of the size of the different games markets.

Market sizing information comes from three main sources: industry interviews with stakeholders within each games sector, publicly available financial reports, presentations and interviews, and (where applicable) retail sales data from third-party market research companies.

1.7.2. Forecasts

Market forecasts are generated using a combination of market growth and inhibitor assumptions, the examination of historical market data and growth rates, the top line and segmented data of markets that are expected to impact the potential growth of a market, feedback from industry sources and stakeholders, and general analyst expertise in the games industry and its markets. Examples of associated markets that provide a 'top down' view of the potential of a particular games market include broadband penetration rates (for dependent massively multiplayer online games, games on demand services and online console gaming) and digital television penetration (for interactive TV games).

As market forecasting up to five years in advance is not an exact science, Screen Digest continually updates its assumption models through assessment and analysis of industry events that are expected to have an impact on the market. Examples of industry events which may impact a market include the introduction of new services or new business models, acquisitions and mergers between companies, or the introduction of competing technologies and platforms.

Finally, for the accuracy of both market sizing and forecasts, Screen Digest continually tracks the actual size of each games market and updates annual market growth projections on an ongoing basis taking into account quarterly and half-yearly performances of different sectors.

1.7.3. Game indicators - definition of some game sub-markets

Massively multiplayer online game

(MMOG): online games that involve gameplay within a persistent, always on and often shared game world, and that are designed to be played by hundreds, thousands and even hundreds of thousands of users.

Application streaming (also Games on Demand): application streaming (commonly marketed as Games on Demand or GoD) is a broadband-only service where games application data is downloaded to a user's PC on a continual basis as and when needed. Often, the game interface is installed on the user's PC, giving the semblance of a full game installation and the actual game application is run on the local PC rather than on the server. The server therefore simply acts as a remote hard drive from which, for example, level information (layout, art, animation, artificial intelligence data, etc.), is drawn at the appropriate time just as the application would have done with a local hard-drive. Games on Demand services are run under a subscription business model.

Games on Demand market: consumer spend excluding VAT on Games on Demand subscription services.

Browser based casual games: casual games that are served and played within, through or downloaded from a PC internet browser. Browser based casual games include content delivered under a number of business models including digital download (download-to-own), subscription and pay per play.

PC games with free online play: multiplayer pc games that offer some form of online gameplay for free.

Interactive television (iTV) games: games that are played through the interactive TV channels of digital TV networks.

Interactive television games market: consumer spend excluding VAT on iTV games from both PPP and subscription business models.

Mobile games: games that are played on mobile phones and devices.

Mobile games market: for the purposes of this report the mobile games market represents the consumer spend on downloadable mobile games.

Online games market: represents consumer spend excluding VAT on online subscription game services, digital download of content, and pay-to-play browser casual games.

Retail games market: represents consumer spend on retail games.

2 Glossary

2.1. Technical terms and acronyms used in the report

A

ACAP

Automated Content Access Protocol.

ARPU

Average Revenue Per User. Equivalent to the average revenue generated by each subscriber in a given period (commonly monthly or yearly).

AOP

Association of Online Publishers (UK)

B

Blu-Ray Disc

Blu-ray, also known as Blu-ray Disc (BD) is the name of a next-generation high definition optical disc format jointly developed by the Blu-ray Disc Association (BDA), a group of the consumer electronics, personal computer and media manufacturers (including Apple, Dell, Hitachi, HP, JVC, LG, Mitsubishi, Panasonic, Pioneer, Philips, Samsung, Sharp, Sony, TDK and Thomson). Competitor to the HD-DVD format.

Buy-rate

The total number of transactions in a period as a ratio of the total number of users in the addressable market during that period.

C

Casual gaming market

Represents consumer spend excluding VAT on browser casual games under a variety of different business models. These business models are pay-per-play, subscription and download.

Chargeback

A way for consumers to challenge a payment on a credit card and have the funds returned to the credit card owner.

D

DAM

Digital Asset Management systems.

DIF

Digital Interoperability Forum (<http://www.difgroup.com>).

Digital Retail

A method of selling digital content that gives the customer ownership over the files they have downloaded, allowing the customer to use the content as many times as they like – the digitally distributed equivalent of conventional retail channels. Digital retail is also known as both ‘download-to-own’, ‘electronic sell-thru’ and ‘digital sell through’.

Digital Rental

Also known as digital pay per view (PPV) for movies. Commonly customers choose content on an a la carte basis and pay to watch it for a limited period. Content can be downloaded or streamed.

DREL

Digital Rights Expression Languages.

DRM

Digital Rights Management.

DTT

Digital Terrestrial Television is a platform for television delivery that makes use of over the air transmission in digital format. Digital Terrestrial Television has been launched in the UK, France, Italy, Spain, Netherlands, Finland, Sweden and Germany. DTT may be offered on a free-to-air or pay TV business model.

DTH

Direct-to-home satellite television.

DVB

The Digital Video Broadcasting Project is an industry-led consortium of over 270 broadcasters, manufacturers, network operators, software developers, regulatory bodies and others in over 35 countries committed to designing global standards for the delivery of digital television. Digital television technology 'family' of standards used in Europe and in several other countries (DVB claims 110m receivers worldwide). DVB-T is the terrestrial version, used for DTT. DVB-S is the satellite version.

DVB-H

DVB-H is a variant to DVB-T developed for mobile transmission to hand-held devices (<http://www.dvb.org>).

DVR

Digital Video Recorder. Also known as PVR (Personal Video Recorder). Recording consumer device using local hard-drive disc. If using remote storage capacity often called a nDVR or Network-based DVR.

E**EADP**

European Association of Directory Publishers.

EBU

European Broadcasting Union. Also known as UER (Union Européenne de Radio-Diffusion) (<http://www.ebu.ch>).

EPD

Electronic Paper Displays. EPDs resemble paper in that they can be read in bright sunlight or dim environments and from any angle, and are also extremely thin. Because they don't require power to maintain an image, EPD devices can work for long periods from batteries.

EICTA

European Information & Communications Technology Industry Association. The trade association for IT and consumer electronics.

EDGE

Enhanced Data rates for GSM Evolution. Often referred to as 2.5G as EDGE enhances GPRS. EDGE allows for 384 kbits/s in areas where there is no UMTS coverage.

EPC

European Publishers Council

F**FTTH**

Fibre to the Home. One of the 'last mile' technologies used to connect households to two-way broadband services. Compared to xDSL, FTTH gives greater capacity, for a higher deployment cost.

H**HD DVD**

High definition version of the DVD optical disc developed by the DVD Forum - an international association of hardware manufacturers, software firms, content providers and other users of Digital Versatile Discs. Competitor to the Blu-ray* format.

HSDPA

High-Speed Downlink Packet Access. HSDPA extends W-CDMA, the technology behind UMTS 3G. Sometimes referred to as 3.5G. HSDPA (at the moment) allows for up to 3.6 Mbit/s in UMTS-Networks.

I**ICT**

Information and Communication Technologies.

IPA

International Publishers Association

IPR

Intellectual Property Rights.

IPTV

Internet Protocol Television (IPTV) is the delivery of television content using Internet protocol within a 'walled garden' network (as opposed to open internet), over a broadband network. IPTV has been widely used by telecoms operators to offer TV over their DSL networks. IPTV can also be used by cable companies both within their own network infrastructure and as a means of expanding their service reach outside their areas of operation over unbundled third-party DSL networks.

M**MDTV**

Mobile broadcast Digital TV (as opposed to 3G-based mobile TV).

MHP

Multimedia Home Platform.

Mobile TV

Unless otherwise mentioned, the term encompasses transmission of television feeds and of on demand television/video programmes, over either broadcast network/technologies (e.g. DAB, DVB-H) or point-to-point technologies (3G).

Mobile retail

Mobile 'over the air' distribution refers to download/streaming of content (e.g. music, games, video) directly to mobile devices through wireless networks, and differs from 'sideloaded' distribution.

MMS

Multimedia Messaging Service is a standard for mobile telephony systems that allow sending messages that includes multimedia content (images, audio, video) and not just text as in short message service (SMS).

MPEG

Moving Picture Experts Group. Working group of IEC* charged with the development of technical standards for video and audio compression and encoding. MPEG-2 was standardised in 1994 and then used by most digital TV operators.

MVNO

Mobile virtual network operator.

O**OMA**

Open Mobile Alliance.

On-demand TV

The delivery of TV content on request. Content is usually selected from a menu of available material and viewed one or more times within a period of time. There are a number of related terms and acronyms associated with this form of television as follows:

Online TV

TV programming distributed over the open Internet --- including news, sports, and genre programming (such as children's entertainment, comedy and drama), but excluding music videos and user-generated content.

Online TV revenues

Total consumer level revenues from online TV, excluding sales tax or value-added tax.

OPA

Online Publishers' Association (USA)

OTA

Over the air. OTA mobile distribution refers to download/streaming of content to mobile devices through wireless networks, and differs from 'sideloaded' distribution.

P**Pay-per-play (PPP)**

A form of business model often used by browser based casual and iTV game operators. Consumers pay each time to play a game.

PEGI

Pan European Game Information is a system for the classification of games content.

PPV

Pay-per-view refers to the business model used for on-demand television, where a charge is made for each piece of content viewed, that can apply to VOD services.

PVR

A Personal Video Recorder (commonly known in the US as a DVR or Digital Video Recorder) is a type of set-top box that contains a hard disc onto which content can be recorded and stored. The PVR gives the end user VOD-like functionality and can also be combined with an nVOD service to give local access to content that is sold on a PPV basis.

PAL

Phase-Alternating Line. Analogue colour broadcasting system used in Europe. PAL displays 625 horizontal lines television system (576 visible lines), 720 pixels per line and a refresh rate of 50 Hz (50 interlaced fields per second or 25 full frames per second). Also referred to as 576i.

PSB

Public Service Broadcaster.

R**Red button interactive TV**

By 'red button' we refer to interactive TV services offered on traditional broadcast digital TV (e.g. satellite TV), with a return-path. Some of classic 'Red Button' functions can even be implemented without a return-path, in which case 'interactivity' is provided by the data pre-pushed to the set-top box (e.g. weather forecasts, EPG). The 'red button' on the remote control was initially invented by BskyB in the UK and became popular across the board as the entry point to interactive TV services such as Electronic Programme Guides, information services, t-commerce, casual games, etc .

The technically limited 'Red Button iTV' differs from the full interactivity offered on two-way broadband networks (online TV or IPTV).

S**Sideloaded**

Mobile content can either be delivered "over the air" (OTA) direct to a device through GSM 2.5G, 3G or wifi, or "sideloaded". Sideloaded content is downloaded to a PC over a broadband connection and then transferred over a local link (typically a cable or Bluetooth connection) to the device.

U**User created content**

Refers to content generated in-game by consumers, which is often unique to them. User created content is currently most prevalent in massively multiplayer online games. Also known as 'user generated content'.

V**VOD**

Stands for Video-on-Demand and sometimes for clarity referred to as true Video-on-Demand. Refers to an on-demand television system in which content is stored on a server and streamed in real-time to the viewer. VOD systems allow the customer to start viewing the content at any time as well as to pause and rewind the content.

nVOD

Stands for near Video-on-Demand and refers to an on-demand television system in which multiple channels are used to show the same piece of content at staggered start times. The gap between each available viewing time is a factor of the number of channels dedicated to the service and the amount of content on offer, but would commonly be 15 minutes or half an hour. nVOD systems are used by satellite pay television operators like BskyB which lack a broadband back-channel allowing true Video-on-Demand and by cable companies that have yet to fully upgrade their networks.

W**WAP**

Wireless Access Protocol.

Walled Garden Networks

Set-top box-based digital TV networks, offering services such as interactive TV and video-on-demand platforms. Differs from 'online TV' offering similar services through open internet.

Web 2.0

Second-generation of internet-based services, using user-generated content, such as social networking sites (eg MySpace.com).

2.2. Definition of the indicators and business models mentioned in the report

Technology

PC households: total number of households with a PC.

PC penetration: total number of PC-enabled households as a proportion of all households in a territory.

Online households: total number of households with connection to the internet, either dial-up or broadband.

Online penetration: the ratio of total number of online households as a proportion of all households in a territory.

Broadband: any Internet connection above 150kbit/s. Broadband connections are fixed connections to the home or office and do not include mobile phones, or WiFi hotspots. Technologies accounted include, DSL, cable, Fibre-to-the-home (FTTH) and satellite.

Broadband penetration: referred to for the purposes of this report as total number of broadband lines per capita.

Wireless fidelity (Wi-Fi): a generic term for any type of 802.11 network, whether 802.11b, 802.11a or 802.11g. These different speed networks enable users to connect wirelessly to the broadband internet.

Wi-Fi hotspot: a specific geographic location in which an access point provides public wireless broadband network services to users through a WLAN.

All content business models

A la carte: the business model whereby content is sold to the end-consumer in a single transaction. The content can be sold on a single or bundled basis.

Transaction: a single (paid) sales exchange between the end-consumer and the service provider.

Subscription: a business model by which a customer is provided access to content or

service on an unlimited basis, in return for a periodic fee.

Revenues: unless otherwise indicated, consumer level revenues generated by a particular business line or service excluding sales tax or value-added tax.

Sideloaded: Mobile content can either be delivered “over the air” (OTA) direct to a device through GSM 2.5G, 3G or wifi, or “sideloaded”. Sideloaded content is downloaded to a PC over a broadband connection and then transferred over a local link (typically a cable or Bluetooth connection) to the device.

Music

Digital music: recorded music content that has been encoded for distribution over a digital platform.

Online music: digital recorded music content distributed over the open Internet.

Total music revenues: consumer level revenues generated by recorded music sales on all physical and digital formats, excluding sales tax or value-added tax.

Movies

Digital movies: feature film content that has been encoded for distribution over a true on-demand digital platform, whether walled garden or over the open Internet.

Online movies: digital movies distributed over the open Internet.

Box office revenues: consumer level revenues generated from the theatrical release of feature films, excluding sales tax or value-added tax.

Movie revenues from physical format sales: also known as ‘home video revenues’. Consumer level revenues generated through the rental or retail of feature films on physical media, such as DVD or VHS, excluding sales tax or value-added tax.

Walled Garden movie VoD revenues: consumer level revenues generated by the rental of digital movies over set-top box-based video-on-demand platforms, excluding sales tax or value-added tax.

Total movie revenues: consumer level revenues generated by all movie distribution windows, but excluding revenues from the sale of pay-TV and free TV rights to pay-TV operators and broadcasters, excluding sales tax or value-added tax.

Games

Digital download: a method of selling digital content that gives the customer ownership over the files they have downloaded, allowing the customer to use the content as many times as they like – the digitally distributed equivalent of conventional retail channels. Digital download is also known as ‘download-to-own’, ‘digital retail’, ‘electronic sell-thru’ and ‘digital sell through’.

Digital download market: consumer spend excluding VAT on digital downloads.

Premium content: retail equivalent PC and console games content.

Subscription: a business model by which a customer is provided access to content or service on an unlimited basis, in return for a periodic fee.

Revenues: unless otherwise indicated, consumer level revenues generated by a particular business line or service excluding sales tax or value-added tax.

Massively multiplayer online game (MMOG): online games that involve gameplay within a persistent, always on and often shared game world, and that are designed to be played by hundreds, thousands and even hundreds of thousands of users.

Application streaming (also Games on Demand): application streaming (commonly marketed as Games on Demand or GoD) is a broadband-only service where games application data is downloaded to a user’s PC on a continual basis as and when needed. Often, the game interface is installed on the user’s PC, giving the semblance of a full game installation and the actual game application is run on the local PC rather than on the server. The server therefore simply acts as a remote hard drive from which, for example, level information (layout, art, animation, artificial intelligence data, etc.), is drawn at the appropriate time just as the application would

have done with a local hard-drive. Games on Demand services are run under a subscription business model.

Games on Demand market: consumer spend excluding VAT on Games on Demand subscription services.

Browser based casual games: casual games that are served and played within, through or downloaded from a PC internet browser. Browser based casual games include content delivered under a number of business models including digital download (download-to-own), subscription and pay per play.

PC games with free online play: multiplayer pc games that offer some form of online gameplay for free.

Interactive television (iTV) games: games that are played through the interactive TV channels of digital TV networks.

Interactive television games market: consumer spend excluding VAT on iTV games from both PPP and subscription business models.

Mobile games: games that are played on mobile phones and devices.

Mobile games market: for the purposes of this report the mobile games market represents the consumer spend on downloadable mobile games.

Online games market: represents consumer spend excluding VAT on online subscription game services, digital download of content, and pay-to-play browser casual games.

Retail games market: represents consumer spend on retail games.

3 Stakeholder consultation

Organisations interviewed (individually or in focus groups) and organisations which transmitted written contributions. In all, we received 179 testimonies.

<i>Company</i>	<i>Category</i>	<i>Country</i>	<i>Contact names</i>
7 Digital	Music	UK	Ben Drury
94,3 r.s.2	Radio	DE	Stefan Hampe
ACTE	TV	EU	Ross Bigam
AFDESI	TV	EU	Jean Dacié
Agence France Presse (AFP)	Publishing	FR	Pierre Louette
AIDAA	Authors society	EU	Nathalie Wood
Alcatel	Mobile	FR	Herbert Mittermayr
Allied Newspapers Co	Publishing	MT	Vincent Buhagiar
Antena 3 TV	TV	ES	Francisco Sierra Hernando
Apple Computer Europe	Music	EU	Josiane Morel, Sebastien Evrard
APT (Association of TV producers)	TV	IT	Claudio Cappon
ARD Digital	TV	DE	Michael Albrecht
ARD Sales & Services	TV	DE	Dr. Robert Lackner
ARP	Movies	FR	Michel Gomez
Asociación Española de Radiodifusión Comercial (AERC)	Radio	ES	Alfonso Ruiz de Assin
BBC	TV	UK	Khalid Hadadi
Bertelsmann	All	DE	Irene Braam
Betty TV AG	TV	DE	Cornelius Everding
BEUC	Consumer ass.	EU	Cornelia Kutterer
BigFM	Radio	DE	Kristian Kropp
bmco forum Broadcast Mobile Convergence	TV	DE	Prof. Dr. Claus Sattler
BMW Group	Others	DE	Matthias Unbehaun
Boonty	Games	FR	Mathieu Nouzareth
British Music Rights	Music	UK	Florian Koempel
British Screen Advisory Council	Movies	UK	David Elstein
BSkyB	Mobile	UK	Stephen Nuttall
BT Germany	All	DE	Felix Muller

BT Movio	Mobile telecom	UK	Dominic Strowbridge
Bundesverband Digitale Wirtschaft (BVDW)	Others	DE	Ingo Horak
Burda	Publishing	DE	Marc Mangold
BVDW	All	DE	Ingo Horak
Cable Europe (formerly ECCA)	Cable	EU	Gilone d'Udekem, Caroline van Weede
CACC	Other	CZ	Zdenek Vanicek
Canal Plus Cyfrowy	TV	PO	Dominique Lesage
Canal+	TV	FR	Alastair McNeil
CCP Games	Games	ICE	Hilmar V. Pétursson
CEPI	Movies	EU	Siada El-Ramly
Cinecentrum Deutsche Gesellschaft für Film und Fernsehproduktion mbH	TV	DE	Andreas Knoblauch
Cinecitta - Italian Audiovisual Observatory	Movies	IT	Alessandra Priante
Clicmobile	Mobile	FR	Alex Kummerman
CNC	Regulator	FR	Jean Menu
Constantin Film	Movies	DE	Yara Kes
CricInfo	Publishing	UK	Will England
Cyfrowy Polsat	TV	PO	Dominic Libicki
Cyprus Radio Television Authority (CRTA)	Regulator	CY	Maria Psaras
Danmarks Radio - DR Interactive	TV	DK	Peter Olaf Looms
DDM – Direction du Développement des Médias	Regulator	FR	Frédéric Bokobza
De Telegraaf	Publishing	NL	Marianne Zwagerman
Deutsche Telekom	Telecoms	DE	Dr. Gernot Lang
Deutsche Telekom (T-Online, MusicLoad)	All	DE	Tae-Won Song
Deutsche Welle	Radio	DE	Jochen Spangenberg
DIF – Digital Interoperability Forum	TV	EU	Sheila Cassells
DVB Project	Mobile	EU	Peter MacAvock
EBU - European Broadcasting Union	TV, radio	EU	Jean Reveillon, Michael Wagner, Javier Tola
EICTA	Technology	EU	Leo Bauman
Eidos	Games	UK	Simon Protheroe
Elion	Telecom	EE	Valeri Raag
Elstein David	TV	UK	David Elstein
EMAP	Publishing	UK	Will Currie
Endemol France	TV	FR	Axel de Charentenay
Endemol Italia	TV	IT	Dr. Claudio Cappon
Ericsson	Technology	SE	Per Nordloff
Ericsson	Mobile	SE	Lasse Wieweg
Eurocast	Radio	EU	Beate Appel
Eurocinema	Movies	EU	Yvon Thiec
European Federation of Magazine Publishers	Publishing	EU	David Mahon
European Newspaper Publishers Association (ENPA)	Publishing	EU	Valtteri Niiranen, Hannah MacAusland, Sophie Scrive
European Publishers' Council	Publishing	EU	Angela Mills-Wade
Exent	Games	IS	Yoav Tzurya
Extreme Sports	TV	UK	Alistair Gosling
Fastweb	All	IT	Alessandro Petazzi
Federation of European Publishers (FEP)	Publishing	EU	Anne Bergman-Tahon
film20	Movies	DE	Georgia Tornow
First Hop	Games	FI	Timo Ahomaki, Timo T. Laaksonen

Flash Networks	Games	ICE	Itay Gissin
France Telecom	Telecoms	FR	Stefane France, Jean-Paul Simon, Goradana Grahovac
France Televisions	TV	FR	Jean-Paul Commin
Free/Iliad	ISP	FR	Michael Boukobza
Fremantle Media	TV	UK	Claire Tavernier
FRESH IT	TV	ES	Jose Luis Vazquez
FUB	TV	IT	Sebastiano Trigila
Funcom	Games	NO	Jørgen Tharaldsen
GESAC	Authors society	EU	Victoriano Darias
Glu	Games	UK	Greg Ballard
Google	Movies	UK	Patrick Walker
Granada International	Movies	UK	Martin Blakstadt
Grupo Media Capital SGPS SA	All	PT	Pedro Morais Leitao
Guardian Unlimited	Publishing	UK	Emily Bell
Heinrich Bauer Verlag	All	DE	Michael Medelin
Hessen Digital Radio	Others	DE	Dirk Risse
Hewlett Packard	Technology	EU	Irena Bednarich
Hitradio FFH	Radio	DE	Hans-Dieter Hillmoth
Homechoice (Video Networks)	Movies	UK	Jonathan Sykes
Hungarian Cable Association (HCA)	TV	HU	Ferenc Kéry
IBM Media and Entertainment Division	Games	NL	Marcel Baron
ICPM/CIEM – International Confederation of Music Publishers	Music	EU	Jenny Vacher
IFPI	Music	EU	Francine Cunningham, Olivia Regnier
Infospace	Mobile	UK	Alan Welsman
Initiative Marketing Digital Radio (IMDR)	Radio	DE	Axel Rudolph
Inmobia	Movies	DK	Mads Galsgaard
InteracTIV	Others	DE	Sascha Müller
Interdeco	Publishing	FR	Antoine Clement
Introversion Software	Games	UK	Mark Morris
iTVP	TV	PO	Leszek Bogdanowicz
IVF – International Video Federation	Movies	EU	Charlotte Lund-Thomsen
Jamba! AG	Music	DE	Jakob Kuznicki
Kabel Deutschland	Telecoms	DE	Michael König, Annette Schumacher
Karneval	TV	CZ	Robert Gardner
KDG	Cable	DE	Marja Von Oppenkowsky
KRRIT	TV	PO	Karol Jakubowicz
La Banque Audiovisuelle (vodeo.tv)	TV	FR	Frederic Pie
La Stampa	Publishing	IT	Anna Masera
Lambert Erik	Movies	IT	Lambert Erik
Largardere Active Mobile	Games	FR	Nicolas Gaume
Levira	Telecom	EE	Indrek Lepp
Liberty Global	Cable	EU	Chris Hutchins
Ljubljanski Kabel	TV	SO	Damir Cibic
Lovefilm	Movies	UK	Simon Calver
M6 Web	TV	FR	Xavier Marvaldi
MBlox	Mobile	UK	Andrew Bud
MCPS-PRS	Authors society	UK	Jez Bell
Media Capital	All	PT	Fernando Lopes

Metaboli	Games	FR	Thibaut de Robien
Microsoft MSN Video	TV	EU	Joe Michaels
Mobile Interaction	Games	SE	Peter Lindstrom
Momac	Publishing	NL	Laurens Rutten
MotorFM	Radio	DE	Markus Kühn
MTG Radio/RIX FM	Radio	SE	Christer Modig, Rich Marston
MTV	Mobile	UK	Angel Gambino
MTV Networks GmbH	TV	DE	Christoph Urban
Music Choice	Music	EU	Margot Daly
National consumer Council (NCC)	Consumer association	UK	Jill Johnstone
NBC Universal	Movies	EU	Alessandra Silvestro
Nokia	Technology	FI	Lauri Kivinen, Mika Lauhde
Nova Communications/4fun.TV	TV	PO	Ross Newens
NRJ Group	Radio	FR	Christophe Montague
O2	Music	DE	Oliver Thienhaus
O2 Germany	Music	DE	Markus Haas, Dr. Jörg Zumholz
OFCOM	Regulator	UK	Tim Suter
ONO	Telecoms	ES	Amalia Pelegrín
ORF	Radio	AT	Andi Gall
ORTT	Regulator	HU	Jozsef Bartha
PACT	Movies	UK	John Macvay
Pearson Education	Publishing	UK	Lorna Cocking
Phonofile Denmark	Music	DK	Jesper Bang Olson
Player One	Mobile Games	UK	Pete Russell
Polskie Radio	Radio	PO	Tomasz Siemoniak
Polskie Radio	Radio	PO	Przemylav Hensel
Premiere	TV	DE	Sabine Christmann
Private Media	TV	ES	Tim Clausen
ProSiebenSat.1 Media AG	TV	DE	Els Hendrix
Qualcomm	Mobile	UK	Jeffery Brown
Radiozentrale	Radio	DE	Lutz Kuckuck
RAI	TV	IT	Andrea Fabiano, Tonio Di Stefano
RAI New Media	TV	IT	Dr. Roberto Sergio
RDF Media	TV	UK	Alice Robertson
Red Bee Media	All	GB	John Pink
Red Bee Media	Technology	UK	John Pink
Rs2 Berlin-Brandebourg	Radio	DE	Stephan Hampe
RTÉ	TV	IE	Dr. Anne O'Connor
RTK	Regulator	LT	Algimantas Kaziliunas
RTL Radio GmbH	Radio	DE	Christoph Homann
SACD	Authors Society	FR	Pascal Rogard, Janine Lorente
SACEM	Authors Society	FR	Thierry Desurmont, Catherine Kerr-Vignale
SAKT	TV (cable)	SK	Vladimir Izák
Sanoma Uitgevers	Publishing	NL	Patrick Bernhart
SBS Broadcasting	TV	LU	Bart Soepnel
SES Astra	Others	DE	Werner Litza
SF Anytime/Bonnier	Movies	SE	Henrik Nilsson
SFR	Mobile telecom	FR	Robert Clarke, Frederic Dejonckheere
Sky Italia	TV	IT	Luca Di Mauro

Sogecable	TV	ES	Pablo Romero
Sony BMG Music Entertainm	Music	UK	Thomas Hesse
Sony Electronics	Technology	EU	Roger Vercaammen
Sony Music	Music	EU	Ekkehard Kuhn
Sveriges Radio	Radio	SE	Kerstin Brunberg
TDF (Broadcast Mobile Convergence Forum)	TV	FR	Bernard Pauchon
Tele Video Media	TV	PO	Marek Grzegorzewicz
Tele2	Telecoms	SE	Jan Tjernell
Telecom Italia	Telecoms	IT	Domenico di Martino
Telefonica Imagenio	Telecoms	ES	Joaquin Garcia Orbea, Jose Antonio Castillo Colaldo, Rachel Villacana
Telefonica Moviles	Mobile Telecoms	ES	Paloma Castellano Sanz, Luisa Rodriguez, Jose Ignacio Casas Alvarez, Rocio Mohon
Telekom Austria	Telecoms	AT	Michael Seitlinger
Terraplay	Games	SE	Sven Halling
TIGA	Games	UK	Fred Hasson
Tiscali UK	ISP	UK	Richard Ayers
TPEmiTel	Telecoms	PO	Jaroslav Mroczkowski
TuneTribe	Music	UK	John Strickland
TV2 Norway	TV	NO	Helge Høibraaten
TVN	TV	PO	Tomasz Berezowski
UFA Film TV Produktion	Movies, TV	DE	Dr. Susanne Stürmer, Nadja Wecke
UK Film Council	Movies, TV	UK	John Woodward
Universal Music Group	Music	FR	Pascal Negre
UPC Polska	TV	PO	Marek Sowa
VECAI	Cable	DE	Ad Van Loon
Video Networks (Homechoice)	TV	UK	Jonathan Sykes
Virgin Mega	Music	FR	Laurent Fiscal
Visiware	Games	FR	Laurant Weil
Vivendi Games	Games	EU	Sabrina Munoz
Vivendi Universal	All	EU	Sylvie Forbin
Vodafone D2 GmbH	Telecoms	DE	Johannes Becher, Dr. Isabell Tilly, Dr. Stephan Korehnke
Vodafone Group	Mobile	UK	Graeme Ferguson
Walt Disney TV International	Movies	UK	Will Harrison
Warner Music	Music	UK	Paul Downton
Wegener	Publishing	NL	Henk Janssen
Yahoo	Internet	UK	John Gisby
Zone Vision	TV	UK	Tanya Gugenheim

4 Country profiles

Each country profile includes a databox with some indicators of market uptake and a European benchmark.

Penetration ratios at end-2005, market size values for 2005.

EU14 above refers to Western EU15 minus Luxembourg. EU20 above refers to the EU14 plus the following 6 new Member States: Poland, Hungary, Czech Republic, Slovenia, Slovakia, Estonia.

Some country profiles are more developed than others. This is due to differences in development level of the

different digital content markets, and feedbacks from stake-holder consultation, although the consultants gathered testimonies and data from every Member States.

Databox

		Source	Comments
PC penetration per household	%	SD	Benchmark: EU20 average (59.9%)
Internet access per household	%	SD	Benchmark: EU20 average (46.2%)
Broadband access per capita	%	EC	Benchmark: EU20 average (12.6%)
Digital TV (free and pay)	%	SD	% of all TV households. Benchmark: EU20 average (30.6%)
Pay TV PVR subscribers	%	SD	Benchmark: EU15 (0.7%)
Games : online-capable video consoles	%	SD	Benchmark EU15: percentage of the total number of games consoles (18%)
Movies : online revenues	€m	SD	Total EU14 indicated as benchmark (€2.8m)
Movies: number of downloads/streams	000s	SD	
Music: a la carte download revenue	€m	SD	Total EU14 indicated as benchmark (108.9)
Music: number of single downloads	000s	SD	
DAB: number of services	units	GM	
DAB: coverage	%	GM	Percentage of population
Mobile: penetration	%	ITU	Can be superior to 100% (multiple subscriptions)
Mobile: 3G penetration	%	SD	Benchmark: average penetration taken on a sample of 6 markets with 52% of total EU population (UK, France, Spain, Italy, Denmark, Belgium) – 11%
Mobile: music revenues	€m	IFPI	IFPI music revenues include full track music downloads, master tones (excerpts of songs) and ringback tones. They do not include midi ringtones. Europe Total (\$75.1m, €59.3m) indicated as benchmark.

Source: Screen Digest

1. Austria

Broadband and TV

Main stakeholders in the TV and Broadband marketplace include:

- Free-to-air television channels: ORF 1, ORF 2 (publicly owned)
- Cable pay TV services: Ligest, Telekabel (UPC), Kabelsignal, Telesystem Tirol, BKF, Salzburg AG
- IPTV services: aonDigital TV (operated by Telekom Austria over DSL)
- Incumbent telecommunications provider Telekom Austria
- iNode, alternative broadband provider which supplies DSL over the incumbent and its own unbundled network
- Cable operator UPC which offers cable broadband and telephony in addition to its cable TV service
- Alternative provider Tele2 which provides mobile and fixed telephony, and DSL broadband
- Telecommunications regulatory body: Rundfunk und Telekom Regulierungs (RTR)

The Austrian incumbent is only partially privatised, with the State still holding a 25 per cent share in the company. Broadband penetration remains approximately average for Europe, although the penetration in rural areas still remains low. The Federal Ministry for Transport, Innovation and Technology

(BMVIT) has pledged €20m for the rolling out of broadband infrastructure to overcome this poor penetration in affected areas. The various provinces will also match this figure in contributions. The number of broadband lines at the end of 2005 reached approximately 1.15m. In April 2006, the incumbent reported that 90 per cent of households had DSL enabled. The technology held about 61 per cent broadband market share at the end of 2005, and is showing increasing dominance. The cable sector dominated by UPC, together with unbundling of the incumbent's local loops (LLU), has offered competition to Telekom Austria which maintains a relatively low broadband market share in retail and wholesale. There were only around 147,000 unbundled lines at the end of March 2006. The largest of the LLU operators is Tele2 UTA, formed after its merge with UTA Telekom in October 2004.

UPC, cable operator and the second largest broadband provider in the country acquired unbundled DSL provider, iNode, in March 2006. The cableco now has access to its own cable infrastructure in addition to iNode's unbundled DSL network which had an estimated 62,000 customers at the time of acquisition. UPC offers dual and triple play packages of broadband and digital TV over cable and fixed telephony. The company also offers fixed-mobile telephone services and a mobile and broadband dual bundle. It is speculated that the company will also launch

Databox: Austria

2005		Austria	Europe
PC penetration per household	%	58.0	59.9
Internet access per household	%	50.7	46.2
Broadband access per capita	%	14.0	12.6
Digital TV (free and pay)	%	15.4	30.6
Pay TV PVR subscribers	%	0.0	0.7
Games : online-capable video consoles	%	17.1	18.0
Movies : online revenues	€m	0.0	2.8
Movies: number of downloads/streams	000s	0.1	
Music: a la carte download revenue	€m	1.4	108.9
Music: number of single downloads	000s	1,400.0	
DAB: number of services	units	5	27.4
DAB: coverage	%	19.0	32.9
Mobile: penetration	%	99.8	97.2
Mobile: 3G penetration	%	0	11.0
Mobile: music revenues	€m	2.27	59.3

Sources: Screen Digest, Goldmedia, EC, ITU, IFPI

an IPTV service given its unique position with access to cable and DSL networks. AonDigital TV, the first IPTV service in the country, operated by incumbent Telekom Austria, launched initially in Vienna in March 2006.

offers music downloads on the portal www.one4music.de.

Mobile content

There are five mobile network operators; 3, A1 Mobilkom (part of the Telekom Austria group), ONE, Tele.ring and T-Mobile. In addition, there are several MVNOs (mobile virtual network operators), mostly budget MVNOs such as Tele2. Schwarzfunk is the MVNO of internet social networking portal uboot.

All of the operators have launched 3G networks. Mobilkom supplies content from the Vodafone Live portal, although it is not part of the Vodafone group. Both Mobilkom and ONE have launched high speed HSDPA (3.5G) networks in 2006, although only laptop cards (and not actual handsets) are available at the time of writing. The transmission services arm ORS of public broadcaster ORF is behind the first pilot of broadcast mobile TV using DVB-H technology in Austria, which will end in May 2007. Operators 3 and Mobilkom are also involved.

Digital radio

In 1993, parliament enacted legislation licensing one private commercial operator in each federal state ("Bundesland", two operators in Vienna). In 1998, further deregulation was enacted alongside the cable and satellite television law. 53 new operators went on air. Until now ORF's radios dominate the market. No private competitor has yet managed to reach the market share of the ORF.

In Vienna there are three T-DAB transmitters and in Tirol there are two transmitters in operation for test purposes. These transmitters cover 19 per cent of the country. The following stations are transmitted: FM 4, Ö1, Ö2, Ö3 and Radio Vorarlberg.

There is currently no interest for a nationwide coverage of T-DAB on the part of the radio operators according to RTR. For this reason no decision on a start date for regular transmissions has been made.

All public radios (ORF) (excluding Ö1, total 13) and a few private radio station (e.g. Radio Arabella) stream their program live over the net. Additionally Radio Arabella also

2. Belgium

Broadband and TV

Main stakeholders in the Belgian TV and Broadband marketplace include:

- Free-to-air analogue broadcast channels, publicly owned: één, Ketnet/Canvas, BVN (Dutch-speaking); La Une, La Deux (French-speaking)
- Main unencrypted channels available via cable, privately owned: VTM, Kanaltwee (VMMa, Dutch-speaking); VT4, VIJFtv (SBS Broadcasting, Dutch-speaking); Vitaya (Media Ad Infinitum, Dutch-speaking); RTL TVI, Club RTL (RTL Group, French-speaking); Kanaal Z, Canal Z (former Dutch, latter French-speaking); AB3, AB4 (AB Group, French-speaking)
- Cable operator Telenet (Liberty Global Consortium owns 21.5 per cent) offers four services: cable TV (including on-demand content), fixed and mobile telephony (including VoIP), and broadband cable internet
- Cable TV operators Teledis, Interelectra and Brutele (owned by various intermunicipalities), Coditel (owned by Suez Lyonnaise des Eaux). All four also supply broadband and landline telephony services
- Cable TV platform BeTV in which Applications Câble Multimedia SA has the majority stake (68 per cent)
- Cable operator UPC offers broadband cable internet
- DTH television platform TV Vlaanderen
- Incumbent telco Belgacom, which has an IPTV platform Belgacom TV and offers landline telephony, mobile telephony (through Proximus) and DSL broadband internet
- Alternative telcos Scarlet and Tele2 which offer broadband DSL and telephony over the incumbent and their own unbundled networks
- Telecommunications regulator : Institut Belge des Service Postaux et des Telecommunications (IBPT)
- ISPA Belgium, Internet Service Providers Association, which promotes the interests of Belgian companies providing internet services

Belgium boasts a very high coverage of DSL and cable infrastructure, and had over 2m broadband connections in total at the end of 2005. Belgium still suffers from relatively low penetration of online households however, with 48 per cent of households with internet access at the end of 2005. DSL is the more dominant form of broadband with 64 per cent of total connections at the end of 2005, cable holding 36 per cent. As yet there is no fibre rollout in the country.

Cable operator Telenet is the only cableco capable of offering quad-play (broadband 20Mbps, fixed and mobile telephony, television) following its launch of

Databox: Belgium

2005		Belgium	Europe
PC penetration per household	%	68.9	59.9
Internet access per household	%	47.9	46.2
Broadband access per capita	%	19.9	12.6
Digital TV (free and pay)	%	7.3	30.6
Games : online-capable video consoles	%	13.8	18.0
Movies : online revenues	€m	0.0	2.8
Movies: number of downloads/streams	000s	0.1	
Music: a la carte download revenue	€m	3.6	108.9
Music: number of single downloads	000s	3533.0	
DAB: number of services	Units	15	27.4
DAB: coverage	%	98.0	32.9
Mobile: penetration	%	90.8	97.2
Mobile: 3G penetration	%	0.38	11.0
Mobile: music revenues	€m	0.54	59.3

Sources : Screen Digest, Goldmedia, EC, ITU, IFPI

Mobile Virtual Network Operator (MVNO) Telenet Mobile in July 2006. Another cableco UPC also provides broadband speeds of 20Mbps to consumers. Telenet will begin offering a discounted package price for consumers subscribing to two, three or all four of the services in Flanders from 4th September 2006. Previous to this date, the cableco had offered no discount to customers taking more than one service. Despite this lack, Telenet counted 176,000 triple play customers at the end of 2005. Telenet also launched a VoIP service in July 2004. By the end of 2005, the telephony service had 175,000 customers.

Incumbent telco Belgacom began offering VDSL in November 2004 (17Mbps). In July 2005 it launched its IPTV service 'Belgacom TV' which is available in the Brussels, Ghent and Liege regions and has 55 television channels, VoD capability and a PVR. The service had 42,000 subscribers at the end of March 2006. Alternative DSL providers, such as Scarlet and Tele2 have launched ADSL 2+ products in response to Belgacom's higher bandwidth offering, though have yet to supply IPTV services. Scarlet is the more popular of the two, boosted by the acquisition of Tiscali Belgium broadband subscribers in December 2004. Tele2, the other dominant DSL provider offers residents high-speed DSL internet access up to 4Mbps, and the option of receiving discounts if subscribed to in conjunction with fixed telephony. Versatel, which owns its own unbundled network, announced in August 2006 its intention to buy the Belgian and Dutch operations of Tele2 to complete before end of 2006, a merger on which the two companies have already been working on for a year.

Digital radio

Belgium has one of the strongest markets with a market share of more than 11 per cent in 2005 and more than 500 radio stations. But there are differences between the north and the south of the country. There not only different cultural and linguistic backgrounds but also separate regulations. As a result, different developments in the two regions of the country can be surveyed.

In the south the private radio is more fragmented than in the north (Flanders). The private radio has the highest audience figures and radio's advertising share is obviously over ten per cent.

The radio market has developed much slower in the North. The public radio network

VRT still dominates the audience market (over 80 per cent listener share).

DAB was launched in 1997. It covers 98 per cent of the country. The VRT network carries ten audio stations. Four channels are exclusive to DAB Digital. The RTBF network carries five audio stations, all being simulcasts of existing analogue stations. The RTBF multiplex retains several slots for commercial radio, but these have not yet been allocated. Data services are expected to be trialled over the coming year. The VRT-operated DTT platform is also offering nine radio stations (5 public).

VRT radios were streaming over the Internet and podcast. And VRT has started a peer-to-peer streaming project by Studio Brussel (1. June 2006). (Source: www.digitalradio.be). Also a dozen private stations offer Internet streaming (NJR, Radio Contact, Q-Music, 4 FM) and podcasts (Radio Nostalgie).

Mobile content

There are three mobile network operators; Base (owned by KPN), Mobistar (part of the Orange group) and Proximus (Belgacom Mobile, Vodafone is a 25 per cent shareholder).

Belgium has one of the most vibrant MVNO markets with over 30 MVNOs.

Of the three operators, only Mobistar and Proximus have launched 3G networks. However, Base plans to launch 3G in Q3 2006. Proximus launched an HSDPA network in July 2006. Network operator Bouygues offers i-mode content to users. Proximus supplies content from the Vodafone Live portal, and Mobistar distributes content sourced by Orange group.

3. Cyprus

Broadband content and television

Stakeholders in the Cypriot TV/broadband marketplace include:

- The terrestrial broadcasters CyBC/, Antenna TV, Mega and Sigma.
- The terrestrial pay-TV channels Lumiere (LTV) and Alpha.
- The local TV sector, which encompasses five stations.
- The DTH/IPTV sector, which is served by Nova Cyprus, MiVision and AthenaSAT.
- The incumbent telco CyTA and a growing number of alternative providers.
- The regulatory sector, which includes (amongst others) the Cyprus Radio Television Authority (CRTA, interviewed), the Ministry of Communications and Works (MCW) and the Office of the Commissioner for Electronic Communications and Postal Regulation (OCECPR).

Cyprus has a highly developed TV industry served by not only a three-channel public broadcaster (CyBC) but also three national and five regional/local commercial stations. LTV and its sister service Alpha are long-established pay-TV operations, with the former claiming 62,000 subscribers (as of 2005) and also being behind the DTH platform Nova Cyprus.

There is also a second DTH-delivered service in Cyprus (AthenaSAT), while the

incumbent telco CyTA operates an IPTV platform (MiVision) that already includes an EPG and VoD and is soon also expected to offer interactive TV applications and VoIP. MiVision is believed to have already secured around 8,000 subscribers at the end of 2005. Digital terrestrial services have meanwhile yet to be introduced in Cyprus.

Issues

The situation in the Republic of Cyprus is made complicated by the fact that it has several regulatory authorities that need to closely work together to enact legislation. According to one stakeholder, legislative actions are currently being pursued on a number of fronts. Firstly, amendments will be made to the **1998 Radio and Television Stations Law, which does not cover digital broadcasting.**

Secondly, the CRTA and Ministry of Culture are working on legislation that will address digital content services, and thirdly, a number of bodies including the CRTA are attempting to devise a strategy for the introduction of DTT. Further legislative developments are expected by the end of 2006.

The Republic of Cyprus's TV industry has close links to Greece: Antenna TV and Mega TV are local versions of their Greek counterparts, and LTV is a shareholder in the leading Greek subscription TV company Multichoice Hellas.

Databox: Cyprus

2005		Cyprus	Europe
PC penetration per household	%	Na	59.9
Internet penetration per household	%	32	46.2
Broadband penetration per capita	%	6.2	12.6
Digital TV (free and pay)	%	Na	30.6
Games : online-capable video consoles	%	Na	18.0
Movies : online revenues	€m	0	2.8
Movies: number of downloads/streams	000s	0	
Music: a la carte download revenue	€m	0	108.9
Music: number of single downloads	000s	0	
DAB: number of services	Units	0	27.4
DAB: coverage	%	0	32.9
Mobile: penetration	%	86.0	97.2
Mobile: 3G penetration	%	0	11.0
Mobile: music revenues	€m	0	59.3

Sources : EC, Screen Digest, ITU, Goldmedia

Besides being in the vanguard of developments in the new media sector in Cyprus itself, the incumbent telco CyTA is pursuing an active strategy overseas. In March 2006, for instance, **Actel Kft** (a company in which it holds a majority stake) launched an IP-delivered triple-play service in Hungary.

Digital radio

Pluralistic radio and television were introduced in Cyprus in 1990 and 1992 respectively, putting an end to the state monopoly. The state channels have lost the lead in the numbers of viewers and listeners to private channels. No DAB or DTT activates are currently known. The four private stations and more than 15 private stations are streamed.

Mobile content

There are two mobile network operators; Cytamobile (part of the Vodafone group) and Areeba.

4. Czech Republic

Broadband and television

Stakeholders in the Czech marketplace include:

- The terrestrial broadcasters CT, TV Nova and Prima TV.
- The cable industry, dominated by the MSOs UPC and Karneval (interviewed).
- The DTH sector, served by the platforms UPC Direct and Czech Link.
- The incumbent telco Telefónica O2 Czech Republic, formerly known as Czech Telecom.
- The DTT sector, in which the Czech Digital Group (CDG), national transmission company CRa and Czech Telecom are multiplex operators.
- The regulatory Radio and TV Council (RRTV) and Czech Telecom Office (CTO).

Although the public broadcaster CT and national commercial stations TV Nova (owned by the US investment company CME) and Prima TV (backed by Sweden's Modern Times Group - MTG) continue to play the main role in the country's TV industry, there have been significant developments in other sectors of the market since the country acceded to the EU in May 2004.

For instance, following a long period of prevarication, **DTT services were finally introduced in the Czech Republic in Q4 2005**. As of mid-2006 viewers in Prague, Brno

and Ostrava were already able to receive up to 12 free-to-air (FTA) digital terrestrial channels. Furthermore, in April 2006 the RRTV granted digital licences to six of 30 companies – Febio TV, Ocko, RTA, TV Pohoda, TV Barrandov and Z1 – that had taken part in a contest.

The incumbent telco Telefónica O2 Czech Republic is meanwhile gearing up for the launch of what will be one of the country's first national IPTV service. Due to make its debut in autumn 2006, it will be based on Telefónica's Imagenio service in Spain and target ADSL subscribers with an offer of around 30 TV channels. Additional services like VoD will be introduced at a later date.

The first IPTV service to make its debut in the Czech Republic was one operated by Mattes AD, an ISP based in Frydek-Mistek. Part of a triple-play offer, it has been available in Northern Bohemia since September 2005.

The Czech Republic's two leading MSOs, though both **triple-play companies since the first half of 2006**, have meanwhile been in no particular hurry to launch digital TV services. Karneval took the first step by starting trials in 2005, introducing a 47-channel service in June 2006.

DTH services are provided principally by UPC Direct, which has been available since Q4 2000 and currently claims around 120,000 subscribers. Czech Link, a service jointly owned by Liberty Global and the CDG, has a limited programme offer and an unknown number of viewers, which is believed to be far lower.

Databox: Czech Republic

2005		Czech Rep	Europe
PC penetration per household	%	35.7	59.9
Internet access per household	%	21.1	46.2
Broadband access per capita	%	4.9	12.6
Digital TV (free and pay)	%	5.2	30.6
Games : online-capable video consoles	%	na	18.0
Movies : online revenues	€m	0	2.8
Movies: number of downloads/streams	000s	0	
Music: a la carte download revenue	€m	0	108.9
Music: number of single downloads	000s	0	
DAB: number of services	units	0	27.4
DAB: coverage	%	0	32.9
Mobile: penetration	%	115.2	97.2
Mobile: 3G penetration	%	0	11.0
Mobile: music revenues	€m	Na	59.3

Sources : Screen Digest, ITU, Goldmedia

Specific issues

Inadequacies of legislation are considered as the main obstacle to the uptake of digital broadcasting services. Although the country passed an **Electronic Communications Act in February 2005**, it failed to make any mention of digital broadcasting. This is likely to be addressed in amendments to the **Radio and TV Operation Act**, but there is as yet no sign of these being implemented.

While cooperation between the RRTV and CTO have recently been improved, there is still an alleged lack of understanding between the CTO and Anti-Monopoly Office (UOHS). Some stakeholders suggested that these problems could be resolved by creating an industry-wide regulator on the lines of the UK's Ofcom.

It was also suggested that issues such as **content rights for IPTV services** would best be addressed on a European rather than Czech level.

While NGN (New Generation Network) platforms such the IPTV services soon to be launched by Telefónica, O2 Czech Republic and (quite probably) alternative telcos are likely to be relatively unregulated, other, more established services like cable will be 'over-regulated'.

Despite on-going problems with legislation, the biggest obstacle to the exploitation and development of digital content in the Czech Republic is generally accepted to be *economic*. One stakeholder from the cable industry referred to a lack of investment and insisted on the need for "rock-solid funding" and the adoption of "new commercial/business models of a European nature".

Another meanwhile made the point that up until now **dubbing material into the Czech language had been difficult for programmers on cost grounds**. It would be even more so for premium content for VoD services once they are introduced.

The stakeholder also spoke of a "chicken and egg" situation in which it was unclear if the provider of the set-top box or of the content would make the initial investment. At the same time, he praised the activities of the Czech public broadcaster CT, which like its counterparts in other parts of Central and Eastern Europe has begun to launch digital TV channels. These were proof that some programmers are willing to invest in niche

services, which can only benefit the market and development of digital content.

On the other hand, a note of caution is struck on the prospects for the holders of the six digital licences awarded in April 2006. Only those prepared to invest in the development of quality channels and offer product for VoD and NVoD that can be monetised are likely to succeed.

It should be noted that of the six licence holders, three are already well established in the marketplace. Febio TV's owner Febio, for instance, is one of the leading independent production companies in the Czech Republic and claims to have produced over 1,000 films and TV programmes to date. It regularly supplies content to the country's three leading broadcasters CT, TV Nova and Prima TV and has just appointed Richard Rybnicek, the director of the Slovak public broadcaster STV, to head up its new digital operation. Barrandov is meanwhile a world-famous production house and Ocko the Czech Republic's first and to date only dedicated music channel.

Digital radio

The Czech radio market has been characterised by an incredible boom in new radio stations in the last ten years. Thus Prague is the most competitive radio market in the Czech Republic and in Europe (number of station per inhabitants). About 30 radio stations broadcasts in Prague, not to mention the other commercial stations outside Prague.

Terrestrial radio and television digital broadcasting in the Czech Republic has been under technical and legislative development for several years. Several coordinated networks of transmitters for terrestrial digital radio broadcasting T-DAB and three networks of terrestrial digital transmitters DVB-T were made available in 2005. (CRo1, CRo2, Radio Prologas, Evropa 2, Expresradio, Classic FM have a DVB-T license.)

Nevertheless, DAB transmissions have not yet been launched. But the infrastructure is in place to provide coverage in Prague (20 per cent of the Czech population). There is a plan to increase coverage to 40 per cent with services in Brno and Ostrava six months after roll-out. One year later coverage should be extended to all regional cities, reaching nearly 95 per cent of the population (outdoor reception).

Public Czech Radio applied for a DAB broadcasting licence. The new digital

radio stations CRo 4 - Radio WAVE, Radio Cesko, Radio Leonardo and Radio D-dur are provided by Czech Radio. These programs are also transmitting via DVB-T and Internet.

The public Czech Radio offers podcasts, mp3-downloads and streams of their program. The private Station Evropa 2 offers also podcasts and more than 25 analogue radio stations stream their program.

Mobile content

There are three mobile network operators; Eurotel, T-Mobile and Vodafone.

5. Denmark

Broadband-based media and TV

Main stakeholders in the TV and Broadband marketplace:

- Free-to-air/free-to-view analogue and digital television channels: Kanal 4 (TV Denmark), Kanal 5, The Voice, TV 3, 3+ (privately owned); TV 2, Zulu, DR 1, DR 2 (publicly owned)
- Pay TV services: Canal Digital (DTH and cable), Canal Plus Premium (DTH and cable) Viasat (DTH and cable), TDC Kabel TV (cable), Telia Stofa (cable)
- IPTV services: TV2 Sputnik (FTTH and DSL), FTH Bredband (FTTH), TDC TV (DSL)
- Incumbent telecommunications operator TDC Tele Denmark which offers cable and DSL broadband in addition to its cable television and IPTV services
- Alternative DSL provider Tele2 on the incumbent and its own network, which also provides mobile, fixed and IP telephony
- Alternative provider Telia, which offers DSL while its subsidiary cable operator Telia Stofa supplies cable broadband access, in addition to cable television services and telephony
- Cable operator A+ which offers ADSL and fixed wireless broadband, and telephony, in addition to cable broadband

- Telecoms regulators: IT-og Telestyrelsen (ITST); government body National IT and Telecoms Agency

Denmark has more bandwidth per inhabitant than any other country according to findings from ITU (approximately 35Mbps per head in 2004). The country boasts a high level of broadband penetration. The broadband market has developed significantly despite the government's low intervention approach – preferring initiatives and public funding rather than a set of guiding regulations. There were an estimated 1.35m broadband connections at the end of 2005. DSL is the dominant broadband technology, accounting for 62 per cent of broadband connections at the end of 2005; cable accounted for 29 per cent.

The second largest broadband provider after the incumbent is Telia, followed by Telenor's Cybercity. Telia has found some success in gaining market share from the incumbent in the cable broadband market. The incumbent stands out in a European perspective, since it also owns a cable infrastructure, making resistance by competitors all the more difficult. Cybercity has proved a competitor in the DSL broadband market, finding success through unbundling of the incumbent's local loop (ULL). Denmark was one of the first countries in Europe to introduce ULL in 1998. Despite its early introduction, there were still only 140,000 unbundled lines at the end of 2005.

Databox: Denmark

2005		Denmark	Europe
PC penetration per household	%	85.5	59.9
Internet access per household	%	81.3	46.2
Broadband access per capita	%	24.8	12.6
Digital TV (free and pay)	%	18.6	30.6
Games : online-capable video consoles	%	15.9	18.0
Movies : online revenues	€m	0.0	2.8
Movies: number of downloads/streams	000s	1.2	
Music: a la carte download revenue	€m	1.3	108.9
Music: number of single downloads	000s	953.0	
DAB: number of services	units	17	27.4
DAB: coverage	%	99.0	32.9
Mobile: penetration	%	100.7	97.2
Mobile: 3G penetration	%	2.1	11.0
Mobile: music revenues	€m	0.23	59.3

Sources : Screen Digest, ITU, Goldmedia

The first **IPTV service**, FTH Bredband launched in December 2002, followed by TV2 Sputnik's nationwide offering in March 2005. The incumbent TDC responded in May 2005 with its IPTV service as part of a triple play package, initially available in 19 communities. Operator Dansk Bredband has a IPTV service distributed over fibre expected to launch in September 2006.

Digital radio

Denmarks Radio (DR) is the public broadcaster and in general it still dominates the radio market. On average local radio stations have a combined market share of almost 30 per cent. In some regions the local stations have a combined market share higher than DR. In 2003 radio frequencies were auctioned. Talpa Radio International and Sky Radio bought most of the frequencies. Due to financial problems Sky Radio stopped its involvement in the Danish radio market in 2005.

The coverage of the national and the two regional networks will be increased to reach nearly 100 per cent during 2006 and 2007. 17 programs are transmitted (including a lot of digital only stations). The DAB digital Radio market in Denmark is growing (Sales of DAB radios: 200,000; listeners: 450,000 - April, 2006). The number of listeners is expected to reach nearly one Million by the end of 2006. The commercial target is to sell another 200,000 DAB radios in Denmark during 2006.

DR runs thirteen Digital Audio Broadcast (DAB) stations and eleven additional web radio stations and an extensive website, a version of which is accessible via mobile phone. DR also offers podcasts.

Radio 100 FM offers music downloads and NRJ, Radio 2, The Voice and Radio 100 FM stream their programme.

Mobile content

There are four mobile network operators; 3, Sonofon, TDC and TeliaSonera.

Denmark has over a dozen MVNOs, largely budget operators such as Tele2, easyMobile and debitel.

Of the four network operators, only Sonofon has not deployed a 3G network. 3 is reported to be in the process of upgrading its network to use HSDPA. TDC is involved in a DVB-H trial.

6. Estonia

Broadband content and television

Stakeholders in the Estonian digital marketplace include:

- The terrestrial broadcasters ETV, TV3 and Channel 2.
- The cable industry, in which Starman and STV are the leading players.
- The transmission company Levira (interviewed), operator of a pilot DTT service.
- Viasat, which is owned by Sweden's Modern Times Group (MTG) and operates a satellite-delivered pay-TV platform.
- The incumbent telco Elion (interviewed), operator of the country's first IPTV service.
- The regulatory Estonian Broadcasting Council (RHN).
- There are three mobile network operators; EMT, Elisa and Tele2.

Estonia has a well-earned reputation for early adoption of new technologies, with 60 per cent of people aged 6-74 being Internet users as of mid-2006 and a broadband penetration (13.3 per cent) above the average EU25, being the only new Member State in that case.

Much of the recent progress in Estonia's TV industry has been down to the activities of the leading telco and IT provider Elion, which is owned by the listed company Eesti Telekom. It entered the cable sector in May

2005 by jointly launching analogue and digital TV services, and in doing so became the first triple-play operator in the country. Elion also launched **Estonia's first IPTV platform in April 2006**. Within two months **DigiTV** was already available in 35 towns and larger settlements and had secured 7,000 subscribers. By 2010, the telco expects to be offering triple-play services to up to 160,000 homes.

Elion's move into digital broadcasting has prompted Starman and STV, the country's two leading MSOs, to also launch digital TV services and become triple-play companies. Both are expected to introduce such additional services as VoD and PPV in the near future.

The transmission company Levira, which is backed by Télédiffusion de France (TDF), has meanwhile played a leading role in efforts to introduce digital terrestrial broadcasting into Estonia. Although the development of a trial service it launched in May 2004 was put on hold 18 months later, Levira was awarded frequencies for three national multiplexes at the beginning of 2006. If all goes according to plan, a full DTT service employing MPEG-4 compression will make its debut in November 2006.

DTH services have been available in Estonia for some time but do not attract a large number of subscribers. MTG's pay-TV channel TV1000, for instance, was watched in only around 4,000 homes in Q4 2005.

Databox: Estonia

2005		Estonia	Europe
PC penetration per household	%	43.1	59.9
Internet access per household	%	36.1	46.2
Broadband access per capita	%	13.3	12.6
Digital TV (free and pay)	%	8.5	30.6
Games : online-capable video consoles	%	0	18.0
Movies : online revenues	€m	0	2.8
Movies: number of downloads/streams	000s	0	
Music: a la carte download revenue	€m	0	108.9
Music: number of single downloads	000s	0	
DAB: number of services	units	0	27.4
DAB: coverage	%	0	32.9
Mobile: penetration	%	108.7	97.2
Mobile: 3G penetration	%	0	11.0
Mobile: music revenues	€m	0	59.3

Sources: Screen Digest, Goldmedia, EC, ITU

Digital radio

The public service radio station Eesti Raadio (ER) broadcasts on four different channels (general info channel, the commercial wing for young listeners, the classics channel and the Russian channel). There are 18 private radio stations, most of which are situated in the region of Tallinn. Only the four programs of ER are transmitted nationwide. The radio market is dominated by foreign media companies: Sky Media Group (SKY RADIO, SKY+, RUSSKOJE RADIO); Trio Group (US-Metro Media and Estonian businessmen; KUKU, UUNO, ELMAR, EEVA, RAADIO 100, KATJUSCHA); Modern Times Group (Sweden, STAR-FM, POWERHITRADIO). In the 1990s a lot of stations were founded. The advertising market is too small, so more than ten stations closed. Up to now there has been a keen competition on the radio market.

Currently, there is no interest in implementing T-DAB networks or stations in Estonia but there is one experimental T-DAB transmitter which has been working since 2000. Estonia will not submit T-DAB requirements during the RRC06. Nearly all radio stations stream their programmes.

Specific issues

One of the biggest problems mentioned is **content rights**. It is reported that channel providers are confused as to what contract conditions should be applied in the case of IPTV. Some stake-holders are not yet sure of the content rights that would apply to digital terrestrial services, and in particular those that are currently not delivered by cable and/or satellite. Furthermore, they emphasised that there is still insufficient legislation in place to address the licensing of digital channels.

The lack of clarity with rights extends to 3G mobile TV services. It is reported that some content providers have been reluctant to provide mobile rights for their services or are charging excessive fees.

Important developments in the legislative field can be expected in the near future. If enacted, a new law on public service broadcasting will allow ETV to add two thematic channels, offering 24-hour news and cultural/educational programming, to its existing single national channel. This will help provide additional content for Levira's soon-to-be-launched DTT platform.

Amendments to the existing 1994 Broadcast Law, or a new piece of legislation, may meanwhile result in changes to the modus

operandi of TV3 and Channel 2. The two commercial stations currently constitute a duopoly, with no competition allowed against them on a national level. As a result of this privileged status they may have no incentive to launch digital TV services.

It is generally believed that ETV, which no longer carries commercials, is insufficiently funded to produce content for digital services. Action will be required by the government to alleviate its financial difficulties.

There is also a **technical challenge involved for stakeholders such as Elion to upgrade their infrastructure to ADSL2+ technology**. Even so, it expects its IPTV service DigiTV to be available nationally by the end of 2006.

7. Finland

Broadband media and TV

Main stakeholders in the Finnish TV and Broadband marketplace include:

- Principal free-to-air/free-to-view analogue and digital channels: YLE-1, YLE-2, YLE-24 (publicly owned); MTV 3, Nelonen, Sub TV, Urheilukanava (sports), The Voice (privately owned)
- DTT free-to-view platform: Digita Oy (owned by international TDF Group)
- Pay TV services: Viasat (DTH and cable), Canal Digital (DTH and cable), Canal Plus Premium (DTH and cable), SW Television / Welho (cable), Sonera Oyj (cable), Tampereen Tietoverkko Oy (TTV) (cable), Oulu TV (cable), Turun Kaapelitelevisio Oy (cable)
- IPTV services: Maxinetti (operated by Maxisat), Aland TV (Alands Datakommunikation), DNA TV (operated by Finnet)
- Incumbent operators TeliaSonera Finland and ILEC Elisa Communications which provide broadband access via DSL and telephony. TeliaSonera offers cable television services as Sonera Oyj and also Elisa as TTV
- Cableco SW Television / Welho which offers broadband internet access via cable and ADSL in addition to cable television and telephony services

- Finnish Communications Regulation Authority (FICORA)

Finland had just over one million broadband connections at the end of 2005. The take up of broadband DSL has been fragmented, with different regions adopting the technology at different rates. Cable infrastructure is developed in urban areas yet remains less prevalent than DSL which is the dominant form. Approximately one in every eight broadband connections was cable at the end of 2005. Alternative solutions such as powerline broadband, fixed wireless and broadband via satellite have experienced limited growth, with the total 'other' broadband connections at the end of 2005 reaching just below 7,000.

IPTV services have already appeared, with DNA TV service, operated by the Finnet consortium of operators, the latest to launch in February 2006. Its competitors, Maxinetti, and Aland TV operate only in restricted regions, in Helsinki and the Aland Islands respectively. Canal Digital expects to launch an IPTV service during 2006.

Mobile content

There are three mobile network operators; Elisa, Finnet and TeliaSonera.

In addition, there are around 10 MVNOs (mobile virtual network operators), mostly budget MVNOs. Jippii is the MVNO started

Databox: Finland

2005		Finland	Europe
PC penetration per household	%	65.8	59.9
Internet access per household	%	60.0	46.2
Broadband access	%	22.4	12.6
Digital TV (free and pay)	%	42.9	30.6
Pay TV PVR subscribers	%	Na	0.7
Games : online-capable video consoles	%	15.9	18.0
Movies : online revenues	€m	0.1	2.8
Movies: number of downloads/streams	000s	29.2	
Music: a la carte download revenue	€m	2.6	108.9
Music: number of single downloads	000s	2,546	
DAB: number of services	units	13	27.4
DAB: coverage	%	40.0	32.9
Mobile: penetration	%	99.6	97.2
Mobile: 3G penetration	%	Na	11.0
Mobile: music revenues	€m	0.33	59.3

Sources: Screen Digest, Goldmedia, ITU, EC, IFPI

by the mobile content company of the same name.

With Nokia based in Finland, a thriving community of mobile companies (including mobile content companies) has grown up around the world's leading handset supplier. Nokia itself has made various forays over the last few years into content, although it has so far failed to replicate its success in the handset arena into equivalent success in the content sector. Recently, Nokia has made a number of acquisitions of content companies and it is apparent the handset giant is moving into mobile content aggressively. Acquisitions include full track mobile music service provider LoudEye and mobile mapping company gate5.

Examples of other Finnish mobile content companies include:

- Mobile content service providers FirstHop and Mobile Avenue.
- Portals WES and Jippii
- Mobile games companies Mr Goodliving (acquired by RealNetworks) and Digital Chocolate's European operations, previously independent mobile games producer Sumea.

The network infrastructure provider Digita won a DVB-H licence, and a commercial service will launch before December 1 2006. The company will build and manage the network, but not provide programming.

All three of the network operators have launched 3G services, and Elisa has launched a commercial HSDPA (3.5G) network.

Digital radio

The Finnish radio sector is characterised by a dual system of both public and commercial broadcasting. Only one nationwide private radio (Radio Nova) exists and has a listening share of 12 per cent. The public radio network (YLE) broadcasts national and regional radio stations and still dominates the market. International ownership has significantly increased. Major international players like NRJ, S.A., Metromedia International and SBS Broadcasting are all active in the Finnish radio market. Ten licenses for special broadcasting services with a regional reach are issued for programming such as for example youth music, classical music, Russian language programmes. (Source: Association of Finnish Broadcasters, YLE, Ministry for Transport and Communications)

DAB-transmissions by YLE were ended in August 2005. Instead of DAB, DVB-H is now the platform of choice. Only a few hundred DAB receivers were sold, while possible DAB-reception still covers 40 per cent of all Finland. The four digital channels by YLE are now being broadcasted on DVB-T and partly via the Internet. Three commercial channels offer radio via digital TV as well. Visual radio was and is tested via DVB-H (see chapter on mobile radio).

8. France

Broadband content and television

The television market is shaped by TF1, Europe's most dominant broadcaster (55 of advertising market share) and the other commercial broadcaster M6. Both have developed or acquired a number of successful digital channels (e.g. LCI and Eurosport are part of TF1 group). France Television group has a variety of channels (France 2, France 3 and France 5, plus France 5 and other niche channels on digital networks). The two pay TV operators, Canal Plus and TPS, are operating mainly on DTH, but they are also distributed on cable, DTT and IPTV. They have announced their intention to merge back in December 2005 and the clearing process by the Ministry of Economy has just come to a positive conclusion early September, with the new entity accepting a list of conditions to prevent dominant position on the market.

France's broadband lines reached just shy of ten million at the end of 2005 and broadband's penetration is relatively high in European terms. Unbundling of the Local Loop (ULL / LLU) is well progressed and offers healthy competition to the incumbent in the country with at least five major operators that fully or partially unbundle France Telecom's exchanges. There were 3.35 million unbundled lines as of June 2006. Free Telecom and Neuf Cegetel are the two network operators with the largest number of

ADSL customers on unbundled lines, with an estimated three million unbundled customers between them at the end of March 2006.

The principal cable operators, UPC France and NC Numericable also offer resistance to France Telecom's dominance of the market. Both offer discount triple play packs (through ISP Noos and Numericable respectively) for subscribing to cable broadband, television and telephony services.

DSL is the most popular form of broadband technology in the country. France has several next-generation television services delivered over ADSL2+ unbundled networks, with most offering VoD and PVR capability in addition to distribution of digital television. Club Internet television (operated by Club Internet/T-Online France) launched most recently in August 2006, offering a triple play package including broadband and telephony. Neuf TV (operated by Neuf Cegetel) started in November 2004, while Free Box (operated by Iliad-owned Free Telecom) and Orange's television service (originally branded MaLigne TV) both launched late 2003. Neuf Telecom merged with Cegetel in August 2005 to create Neuf Cegetel. Neuf Cegetel also offers a triple play package while Orange now only offers broadband bundled with its television service, with VoIP telephony as an additional extra. As of 1 June 2006 France Télécom's Orange (mobile), Wanadoo (consumer ISP) and TV services integrated under the Orange brand. Alice, owned by Telecom Italia, also offers

Databox: France

2005		France	Europe
PC penetration per household	%	52.0	59.9
Internet access per household	%	39.0	46.2
Broadband access per capita	%	16.0	12.6
Digital TV (free and pay)	%	34.7	30.6
Pay TV PVR subscribers	%	0.7	0.7
Games : online-capable video consoles	%	18.4	18.0
Movies : online revenues	€m	0.7	2.8
Movies: number of downloads/streams	000s	257.1	
Music: a la carte download revenue	€m	9.4	108.9
Music: number of single downloads	000s	8,600	
DAB: number of services	units	29	27.4
DAB: coverage	%	25.0	32.9
Mobile: penetration	%	79.4	97.2
Mobile: 3G penetration	%	3.4	11.0
Mobile: music revenues	€m	11.7	59.3

Sources : Screen Digest, Goldmedia, ITU, EC, IFPI

triple play with its Alice Box IPTV service that launched in November 2005. The TPS and Canal Plus pay TV services are both also available over DSL.

Digital radio

French radio also consists of a dual system: the public radio network Radio France and the private radio sector. Three public broadcasting companies exist, Radio France, RFO for the distant territories and RFI for French expatriates. Commercial radio is mainly in the hands of groups such as RTL and NRJ.

At present about 25 per cent of France households can already receive T-DAB. However, France has decided to implement T-DAB and DVB-T (7 MHz channel) in Band III. But, the five biggest French radio broadcasters are vehemently opposed to using DAB. According to the French network provider VDL, there are six public services and 23 commercial radio stations are on air in Paris over DAB (most simulcast). DAB networks have also been launched in Lyon, Marseille, Nantes and Toulouse.

CSA authorized a T-DMB trial in Paris (start: October 2005, duration: 6 months, broadcast radio and television programs, all simulcast). Most analogue stations are streaming their programme via the Internet.

Mobile content

There are three mobile network operators; Bouygues, Orange and SFR (a joint venture between Vivendi and Vodafone).

In addition, there are over 20 MVNOs (mobile virtual network operators) including music affiliated Universal Music Mobile, Virgin and NRJ as well as several budget MVNOs, such as Debitel and Tele2.

France is a major market for mobile content in Europe. However, of the three operators, only SFR and Orange have launched 3G networks. Network operator Bouygues offers i-mode content to users. The Orange group of network operators is based in France.

There are French companies involved in producing content for all of the major content categories. Index Multimedia (previously 123 Multimedia) is one of Europe's largest mobile content aggregators. France's Musiwave is Europe's leading mobile music service provider, although the company was acquired by Openwave (US) in January 2006.

Mobile TV services are offered by SFR (in conjunction with broadcaster Canal Sat)

and Orange. SFR and Canal Plus have been involved in a DVB-H trial, although spectrum will not be available until 2007. French network infrastructure company Alcatel is to launch a satellite to broadcast S-band DVB mobile TV services.

France occupies a key role in the mobile gaming sector. Many publishers and developers are based in the France:

- Major mobile games publishers Gameloft and In-fusio are based in France. Gameloft is easily the largest mobile games publisher in terms of head count, with over 900 employees worldwide. Console and PC games publisher Ubisoft is a major shareholder in the company.
- developers, including Kaolink, Magic Productions and Infra Worlds.

Issues

The copyright issue is significant when porting content onto mobile platforms. There are reports of conflicting rights for the French Open tennis tournament (Roland-Garros): the 'mobile' rights were acquired by SFR whilst the 'broadcasting' rights are traditionally controlled by France Television. The latter was then unable to carry out a mobile TV experiment in partnership with another mobile operator, Orange.

Before mobile TV, the biggest 'mobile' revenue or even 'interactive' revenue related to television remains 'low-tech' premium-rate voting or chatting through mobile phones during quiz shows and reality TV shows. Here some broadcasters consider that the revenue share retained by mobile operators is too high, to the extent that it sometimes jeopardizes the very profitability of an initiative and discourages marketing efforts. They believe such a high share is not justified, reflects a dominant position and a market that is not competitive enough.

On the other hand, unlike in other countries (Germany in particular) there are reports of good co-operation between TV producers and broadcasters when it comes to exploiting programme on online and mobile platform. There are several reports of successful mobile co-exploitation of short programme hits like Kaamelot (CALT production, M6) or Samantha (France Television).

Digital publishing

General

Publishers and ISPs formed a group in mid-2005 to launch a micro-payment service, Kiosque Internet Plus, which aimed to facilitate the sale of online content by offering buyers a way of aggregating payments. In the first six months, the service had a turnover of €6.3m, in 2.7m transactions with an average value of €2.3.

Newspapers

The online site of Le Monde, lemonde.fr, concluded a partnership in 2006 with Sporever for the sharing of content to cover major sporting events. Lemonde.fr also signed a deal with the dating site Parship.fr, which is owned by German publishers, Holtzbrinck. Lemonde.fr has also had a hosted blogging service for subscribers since 2004, making it one of the first newspapers in the world to offer this service. Readers' blogs are listed and ranked on the site next to blogs written by the paper's own staff, without any distinction.

In April 2006, the free press publishing group Spir Communication, which is owned by Ouest France, reported a 111% annual rise in revenues from its Internet activities, which include the property classified site Logic Immo, the general classifieds site Top Annonces, and the leading French automobile site Caradisiac. This compares with a 3.2% overall rise in turnover.

The classified newspaper ParuVendu also reported a 47% increase in revenue from its online operations, compared with a rise of 9.2% overall. Internet revenues amounted to €12.6m, or 3.7% of the total.

Magazines

Hachette Filipacchi Medias (HFM), in partnership with Yahoo, announced the launch in March 2006 of Public TV, a web based video service, based on the content in its weekly celebrity magazine, Public. Public TV content is produced by HFM in its news department studios, and features short daily and weekly shows and free video clips. HFM has also started a digital kiosk service for selling its magazines.

Lagardere, which owns HFM, has stated that it expects magazines overall to gain a 10-15% share of online advertising globally by 2010, and its own magazines to have a 0.5% share in 2010 and 1% in 2015.

Magazines are also deploying content on mobile phones, with men's titles in the forefront. Services have been launched on Orange World, Vodafone Live and i-Mode by HFM (Maximal) and Emap (FHM, Max).

HFM and Sporever announced the creation of a collective company to develop audiovisual services for mobile phones in March 2006. Its projects will be focused on providing practical information, news coverage and interviews, and games on mobile phones..HFM will contribute brand and editorial content and Sporever its expertise in audiovisual production and marketing in mobile services.

Books

In July 2006, a deal was announced between Nouveau Monde and SNCF to make audio extracts from books available from the SNCF website in a downloadable form for listening on MP3 players. For the summer, this will be on a free trial basis, and the selection of titles changes each month.

In June 2006, the publisher La Martiniere, filed suit against Google France and Google, for violation of copyright in connection with the company's scanning and digitisation programme with international libraries.

User-generated content

Blogging is extremely popular in France ; according to Mediametrie, in the first quarter of 2006, 7.3m Internet users read at least one blog in the previous month, and 3.2m Internet users had already created a blog, representing more than 1 in 10 of all users, while 4m had made at least one post on a blog. The majority of bloggers are young (47% are 16-25 years old and 35% aged 11-15), and 54% are female.

Electronic publishing issues

It is reported that labour market regulation can make it difficult to adjust skill requirements to the new services publishers need to deploy.

Specific issues

DRM interoperability

A new French Copyright Act (Loi 'Droit d'auteur et droit voisin' - DAVSI) implementing the EU copyright directive (2001/29/EC), was passed during the summer of 2006. So far, none of the Members States legislations had specifically addressed the question of interoperability.

In regard to the issue at hand, the draft – aiming at opening up the market for digital music - originally arranged for a broad DRM-interoperability provision. DRM technology providers would have been *forced* to interoperate with each other by handing over exclusive copy-protection technologies. Whereas some stakeholders were in favour of such regulation, others criticised that such a bill would not require DRM technology vendors to provide their own interoperability features, but would give anyone with a proprietary playback technology the right to demand that major companies provide “interoperability” with it.

After several modifying proposals, the interoperability provisions have been extensively restricted by the French Senate. The compromise final bill provides for companies to share the technical data essential to interoperability (see more details in the legal section of the main report, 3.1.4.5).

Piracy

Resilient levels of peer-to-peer piracy are still referred to as the main factor holding back legitimate online content business.

ISPs were long accused by content-owners of not fighting illegal peer-to-peer in an effective way. However a Charter on Online Music was signed by most ISPs, telcos and music publishers in 2004, under the auspices of the Ministry of Culture, agreeing to intensify the fight against piracy and the education of consumers.

However the new French copyright passed in the summer of 2006 has raised concerns throughout the right-holders community. An early version of the text included amendments, introduced by some individual MPs, that made peer-to-peer downloading legal, provided a so-called ‘global licence’, a blanket fee, be paid through the ISP. Only consumer associations, some internet users associations and one collecting society of musicians were backing the idea. The French Government, supported by all other trade bodies of the creative industries, entered a Parliamentary battle to have the article removed. The new law still include penalties for P2P copyright infringement but they are, according to creative industries trade bodies, much less deterrent than what they used to be.

VOD

France is one of the Member States where VOD is already well developed with a number of VOD services launched pay TV operators (Canal+, TPS), free-to-air operators (TF1, France Television), broadband operators (France Telecom, Free), independent VOD operators (Glowria). Those are focusing on feature film but there is also an array of specialist players like state TV Archive INA (www.ina.fr) or TV documentary specialist Vodeo/ La Banque Audiovisuelle (www.vodeo.fr).

Case study: INA

The French National Institute for Audiovisual Archives (INA) put 100,000 audiovisual documents online on 27 April 2006, to be viewed by the mainstream public and not only researchers or TV professionals. The material includes 3,000 hours of televised news from the last 30 years, as well as magazines, sports, talk shows, cult series etc. This represents a third of all the archives of public TV and radio broadcasting in France. 80 per cent of the catalogue can be viewed for free, the most valuable document being available for VOD or download-to-own. VOD tariffs go from €1 to €12 depending on genres and duration. Prepaid schemes are available, as well as ‘Internet Plus’ allowing customers to pay through their ISP bill. INA chose to protect content with Thomson watermarking and DivX encryption technology. Some content can be downloaded on PCs, MP3 players or even burned on DVDs.

One of the main challenge in exploiting archive material is the clearing of rights, but INA managed to clear underlying rights for online and mobile exploitation with collecting societies (SCAD, SCAM, SACEM) which, globally, will receive 46 per cent of the revenues. Technical costs and taxes are estimated to take 22 per cent of revenues; the rest (32 per cent) will be re-invested in digitisation of the rest of the archives, which should be made available entirely by 2015.

So far the new service has been hugely successful. The INA website was expecting to double its average audience from 350,000 to 700,000 visits per months with the new service but the first *day*, more than six million requests to connect were made. Between 27 April and May 1st, 60m connections were attempted, showing enormous curiosity. One of the most appealing service to mass market visitors is the ability to download the broadcast news of your day of birth (between 1977 and 1996 so far).

Case study: video.tv

La Banque Audiovisuelle (LBA) was created with the aim of gathering, organising, managing, and enhancing the value of television productions that have been aired and in keeping with the contractual obligations binding each program. LBA has created video.tv as an independent VOD service for TV documentary programmes to the French-speaking market.

LBA claims there is a market failure in the documentary economy, that VOD could help to solve. About 2,300 documentary programmes are produced each year for French TV; according to LBA no more than 6 per cent are published on DVD. Despite the growing success of non-film DVDs, only about a hundred are distributed in specialist stores like FNAC. Therefore there is no significant secondary market for most TV documentaries – on a thematic channel, a 52' programme on some years old can be sold for as little as €1,200.

On video.tv 2,500 programmes are available for VOD or download-to-own, or to be burnt on a DVD on demand. A full package service offered to documentary content owners (video.tv manages rights clearing and digitisation for them, against revenue sharing)

The business model involves no minimum guarantee to the content owner, who generally receive 50 per cent of the net revenues. Once distribution is agreed (generally on a non-exclusive basis), Vodeo supports mastering and storage costs, and then keeps 33 per cent of consumer revenue. The average cost of putting a programme online for sale is estimated by Vodeo at €250 (including digitising, clearance etc. but not counting hosting costs).

Agreements with producers and broadcast include some success stories like *Homo Sapiens* or *L'Odyssee de la Vie* (Transparence Productions) with more than 1,600 downloads already. On the latter programme, France Television Distribution was granted seven-days IP exclusivity after first broadcast, and then the programme became available exclusively on Vodeo.tv.

The biggest challenges mentioned by LBA include: access to content rights (some French broadcasters tend to pre-empt exclusive new media rights when commissioning a documentary), clearance of underlying rights (particularly complex with archive material involving numerous copyright-holders, and resulting in many orphan works), and DRM interoperability.

LBA also points out the complexity of collective rights management for an independent player, the necessity to deal separately with a great number of them (SACEM, SCAM, SDRM, ADAGP, CESAM) and the level of royalties asked by them, which, LBA claims, is in many cases too high considering their business model and niche-oriented activity.

Case study: all-industry agreement on 'on demand cinema' or 'VOD'

Signed by BLIC (cinema trade body), BLOC (ditto), ALPA (anti-piracy trade body), ARP (association of independent producers), SACD (collecting society of authors), Canal Plus, France Televisions, AFA (ISP trade body), France Telecom, TF1, etc.

For the main part the agreement mirrors existing provisions applying to other forms of exploitation in France:

- Windows: parties agree that no movie exploited in French theatres should be distributed in VOD before 33 weeks. The window can then be closed by rights-holder if at some point it conflicts with broadcast (payTV) windows.
- Subscription VOD offerings should be limited to catalogue films only (released for more than 36 months) and should not exceed 15 new movies per month.
- There must be a revenue sharing in which rights-holding producers should get a minimum of 50 per cent of revenues for new releases, and 30 per cent for catalogue films.
- VOD operators must dedicate to acquiring rights for or coproducing French and European films, for an amount that will be proportionate to their sales/revenues: from 5 per cent (when the revenues are below €3m) to 10 per cent (when revenues are in excess of €5m).

Two French-specific challenges were mentioned by stake-holders.

First because many French film and programme rights are concentrated in a small number of big catalogues (Canal+, TF1, Gaumont) with exclusive new media rights, independent producers and non-broadcast would-be VOD operators (telcos, indies) fear that those could inhibit or pre-empt VOD. The ongoing merger between Canal+ and TPS is adding to their concern. However this concern does not seem to be as accurate as, for instance, in Germany and is not hindering market take-up so far. Non-broadcast VOD operators are able to access a variety of VOD rights for French films and

programmes. Besides the stake-holders in the TPS/Canal+ merger have accepted a long list of obligations, restricting their ability to hold exclusive new media rights.

Second, because of the legacy of French copyright law and the structure of collective management of rights (several specialised collection societies), the clearing of underlying rights for new media exploitation is particularly complex in France, notably for catalogue works and archive material. Big players and institutions like INA manage to overcome this difficulty and struck global deals with collecting societies, but niche independent players report this as one big concern.

Finally, the all-industry agreement on VOD of December 2005 can be considered as a best practice and was mentioned by stake-holders outside France as an interesting precedent.

9. Germany

Broadband content and television

Germany is one of the biggest TV-markets worldwide. It is characterised by a dual system of both public and commercial broadcasting. The public service broadcasters ARD (joint organisation of nine regional broadcasters) and ZDF are financed primarily by licence fees (and to a smaller extent from advertising and sponsoring revenues). Commercial television is dominated by two media groups, ProSiebenSat.1 Media AG and the RTL Group (part of the Bertelsmann AG)

Commercial broadcasting is regulated by the federal states in Germany. The regional regulatory authorities (“Landesmedienanstalten”) are responsible for the allocation of broadcasting licences and the supervision of the regulatory terms.

Generally the interviewed stakeholders think that there is rather too much than too less regulation in the media sector in Germany. Media regulation is considered to be far too complex (especially due to the federal structure) and outdated, meaning that regulation has not kept up with digitisation and convergence.

Programmes of the two biggest commercial TV broadcasting groups reached a combined average audience market share of 47.3 per cent in 2005 compared to 43.8 per cent for the public channels. Besides the two big commercial groups and the public

broadcasters a growing number of niche channels is emerging.

Some commercial broadcasters criticise that public service broadcasters are able to distort the market by buying premium programmes ‘all rights’. They call for a precise delimitation between those areas where public service broadcasters may operate with public funds and those where they have to operate under the same conditions as their private competitors.

German pay TV is dominated by Premiere AG with 3.57m subscribers. Premiere has been the only pay TV company for several years.

Now German cable providers are beginning to persuade a strategy of vertical integration and try to attack the market leader with own pay TV packages. Cable network operator Unity bought the transmission rights for the German soccer league (“Deutsche Bundesliga”) for the seasons 2006/07-2008/09, which were previously held by Premiere AG.

Telecommunications incumbent Deutsche Telekom AG holds the German soccer league IPTV rights from season 2006-2007 on and starts rolling out its IPTV service (combined with VDSL). Other players have just started commercial IPTV roll outs.

Cable network providers profit of the fact that more than half (53 per cent) of the German population receives television via cable. Satellite reception is used by 43

Databox: Germany

2005		Germany	Europe
PC penetration per household	%	73.0	59.9
Internet access per household	%	61.3	46.2
Broadband access per capita	%	12.7	12.6
Digital TV (free and pay)	%	28.9	30.6
Pay TV PVR subscribers	%	na	0.7
Games : online-capable video consoles	%	10.1	18.0
Movies : online revenues	€m	0.9	2.8
Movies: number of downloads/streams	000s	334.6	
Music: a la carte download revenue	€m	29.6	108.9
Music: number of single downloads	000s	21,000	
DAB: number of services	units	90	27.4
DAB: coverage	%	82.0	32.9
Mobile: penetration	%	95.8	97.2
Mobile: 3G penetration	%	na	11.0
Mobile: music revenues	€m	10.5	59.3

Sources : Screen Digest, Goldmedia, EC, ITU, IFPI

per cent and four per cent watch TV over terrestrial antenna. At present the plan of the satellite provider SES Astra and the German commercial television broadcasters to encrypt all programmes (from 2007 on) is highly disputed.

With less than 20 per cent of TV households being digital, Germany lagged behind most other western European countries in 2004. Most parts of the cable net are still not digital and not equipped for interactive services (no feedback channel). As a consequence digital television in Germany is mainly received via satellite and interactive television has not emerged yet.

Because of the huge free TV market with more than 30 channels a (digital) pay TV market could only be established with effort. A higher digitisation rate in other countries is mainly due to a strong development of digital pay TV platforms and a smaller choice of free TV programmes.

Today there are no digital interactive TV services in Germany although the Multimedia Home Platform (MHP) has strongly been supported by the public service providers for a couple of years.

In Germany mobile TV, television on mobile handsets, first started in November 2004 when Vodafone's UMTS-Service "MobileTV" appeared. T-Mobile's UMTS-based TV-service followed in September 2005. The first commercial mobile-broadcasting-project "Mobiles Fernsehen Deutschland" (MFD) was launched by mobile operator Debitel a few days before the football world cup started at the end of May 2006. It is based on the DMB-standard as well as the mi friends-project which started a friendly user trial in Munich in June 2006. The mobile network operators in Germany, T-Mobile, Vodafone, O2 and E-Plus however support the competing DVB-H-standard. Trials have been started during the world cup as well. The commercial DVB-H roll-out will start in 2007.

German production companies mentioned that unbundling of rights would drive innovation at production companies as buy-outs to TV channels are the prevailing form of contracts at the moment. Therefore the incentives for production companies to invest in the innovation of new digital interactive formats are limited as they cannot generate additional revenue.

Broadband-based media

Broadband penetration in Germany remains around the European average. The country lacks cable penetration following the sale of Deutsche Telekom's cable network to private regional cablecos. Large sections of the existing cable infrastructure have yet to be upgraded to support bi-directional services and interaction between cable companies is made difficult by the different categories of operator. The old incumbent network is operated by a mix of larger Level Three and over 4000 smaller Level Four cablecos. Cable internet broadband lines accounted for about 2 per cent of total broadband connections at the end of 2005.

DSL is by far the most dominant broadband technology in Germany. Unbundling of the Local Loop is well advanced, with Arcor as the largest alternative network provider – the company had one million unbundled customers at the end of 2005. Telecom Italia-owned Hansenet, Net Cologne and Versatel are the other principal telcos which unbundle. According to the regulator, there were over 3 million unbundled local loops at the end of 2005. AOL, United Internet and Freenet are three other third party DSL providers which use the incumbent wholesale product.

Incumbent Deutsche Telekom launched its triple play T-Home package in August 2006. In its complete form, the package includes a PVR set-top box with DSL broadband access, VoIP telephony, movie/TV video-on-demand and broadcast/pay TV digital channels, including premier soccer viewing. The incumbent aims to offer the service to residents in over 50 cities by end 2007. Deutsche Telekom launched its T-Online Vision VoD service in 2003 with movies downloadable to both the TV and PC (now HD movies are available to the PC). The second main IPTV service is Alice homeTV operated by Hansenet, which offers digital television and a VoD library, and began in May 2006 in Hamburg and Lubeck. IPTV services have emerged with new upgraded line technologies such as ADSL 2+ and VDSL. Previous to the rise of IPTV in 2006, only cablecos offered triple play including television, phone and broadband, though mostly without next-generation services such as VoD, owing to the lack of upgraded two-way lines.

Digital radio

The German radio sector is dominated by the 59 public ARD-associated radio stations with 56.8 per cent of listener share. The radio market is strongly regional in nature and has a complex ownership structures. Only less than ten radio networks are receivable nationwide. In 2006 about 340 analogue radio stations can be counted.

Despite the strong standing in terms of audience share, the public service radio stations enjoyed less than one third of advertising revenues. Nevertheless the radio stations in Germany have a low financial strength due to the highly fragmented radio market that mainly consists of regional small or medium-sized operators. This prevents them from investing into new digital interactive services.

The dominant transmission technology is FM (over 90 per cent). AM, Satellite or Digital (DAB) are not relevant at present. Indeed about 85% of German households are located within the service area of T-DAB transmitter networks, but the number of sold DAB receiver is well below one million. Because of the high costs for DAB transmitting a part of the DAB spectrum is still remains unused.

Since 2005 radio programs are transmitted over DVB-T in Berlin (6 public, 28 private). All public radios, a dozen private station and also internet only stations are available over the internet. A lot of radio stations offer podcasts (SWR; RTL; rs2). Visual radio on mobile phones which supports interactive services is offered by roundabout 30 German commercial radio stations.

In 2005 the total net incomes of media companies for advertising in Germany constituted €19.7bn. With a share of 53.3 per cent the press is the most important media for advertisement in Germany. It is followed by TV with 19.9 per cent of the total advertising expenditure. The TV advertising market is stagnating since 2002. Radio on the third place has a market share of 3.3 per cent. Figures for online advertising revenues range from one to four per cent of total advertising investments, depending on different definitions which sometimes do not include ads from search engines. So far the share of online advertisement is still low, but nevertheless it is rapidly increasing.

Mobile content

There are four mobile network operators; E-Plus (owned by KPN), O2 (part of Telefonica group), T-Mobile and Vodafone.

Germany has over 30 MVNOs, largely budget operators such as Tele2, easyMobile and debitel. Schwarzfunk is the MVNO of internet social networking portal uboot.

Germany is one of the largest markets for mobile content in Europe. Reportedly (although figures are extremely hard to come by) the market for off-portal content is strongest in Germany. The most popular portals, Jamba and Zed, are owned by US and Spanish companies respectively. Network operator E-Plus offers i-mode phones and content to subscribers.

Germany has been one of the major centres for the trial and development of mobile TV services, in part because of the availability of appropriate spectrum. Start up company MFD has launched a DMB based service in conjunction with MVNO debitel. There has been a major trial of DVB-H technology timed to coincide with the World Cup in 2006. All four network operators have been working together to develop a DVB-H service, still currently in the trial phase, which covered 4 cities and carried 14 TV channels.

Germany is also an important territory for mobile games. Major publisher THQ bases its mobile operations in Germany, and Handy Games is a leading self-publishing developer.

All of the network operators have launched 3G services. Both Vodafone and T-Mobile now offer a commercial HSDPA (3.5G) service in certain cities.

Digital publishing

General

Germany has tended to be slow in terms of broadband take up compared with other major markets in Europe, though DSL connections grew rapidly in the second half of 2005.

According to a survey by the Forschungsgruppe in the first quarter of 2006, which asked users what they used the Internet for, 36% were reading political news. This accords with the high traffic achieved by sites such as Spiegel Online.

A study carried out by Stern during mid-2005 found that 5.7m 14-64 year olds who use the Internet from home are prepared to pay for online content, up from 4.3m in 2003. There seems to be a relationship between

length of experience online, broadband access and willingness to pay : only 21% of all users were willing to pay for content, against 34% of experienced users with a broadband connection at home.

A survey reported in April 2006, commissioned by The Association of German Magazine Publishers (VDZ), found that Internet users rated the websites of newspapers and magazines as of higher quality than those of broadcasters or online portal operators.

Newspapers

In October 2005, the daily business newspaper Handelsblatt launched a wiki on its site, intended to become an online encyclopedia for business terms to which anyone can contribute. Terms appearing in the paper will be linked to the wiki, which might eventually carry advertising.

A number of leading newspaper sites carry blogs by journalists, including Der Tagesspiegel, Süddeutsche Zeitung and Die Zeit.

The local daily newspaper Saarbrücker Zeitung (owned by Holtzbrinck) has developed a portal where readers can send information via SMS, MMS or email as well as via fax or phone, and is encouraging its readers to become so-called *leser-reporters* (reader-reporters) by sending in stories and photos.

Magazines

The Association of German Magazine Publishers (VDZ) has carried out a study into how publishers are seeking new sources of revenue, including books, events, products and services.

In November 2005, the VDZ published a survey of managers and editors of online sites of print magazines, which showed that 16 out of 20 had hired additional staff in 2005 and plan continued growth in 2006. None had reduced staff. Small publishers had hired the most employees. The growth in staff is taking place in order to increase breadth and depth of coverage and to establish multimedia services. Almost 85% of those surveyed believe editors will be using more multimedia and interactive content and also that user-generated content is becoming more important.

Books

The German book publishers' association, the Börsenvereins des Deutschen Buchhandels announced in May 2006 that it has commissioned a version of MPS Technologies' BookStore platform, which will be offered to publishers across Germany. The Börsenvereins aims to enable all German publishers to have access to a standard digital content delivery platform, preparing the way for a future in which all content will be available and saleable in electronic form.

Other

Newspaper publisher Holtzbrinck is one of the partners in a project to create a Franco-German search engine, Quaero, along with Siemens, SAP, Thomson Deutschland, Lycos Europa and the software subsidiary of Bertelsmann, Empolis.

10. Greece

Digital radio

There is no proper legal framework in place for radio broadcasting. While only 35 radio stations are licensed, estimates range between 800 and 1,200 local or regional stations all over Greece, as there is no data available.

DAB is not used today though there are plans to eventually use DAB.

Only few stations stream via the Internet.

Mobile content

There are four mobile network operators; Cosmote, Q-Telecom, TIM (Telecom Italia) and Vodafone. No MVNOs have launched in Greece.

Main issues

Broadband access: The sine-qua-non condition to envisage the development of a digital content market in Greece is currently not met, as broadband penetration lies far below the European average: about 1.5 per cent v. 12.6 per cent at end-2005.

Databox: Greece

2005		Greece	Europe
PC penetration per household	%	35.0	59.9
Internet access per household	%	22.7	46.2
Broadband access per capita	%	1.5	12.6
Digital TV (free and pay)	%	10.8	30.6
Pay TV PVR subscribers	%	0	0.7
Games : online-capable video consoles	%	Na	18.0
Movies : online revenues	€m	0.0	2.8
Movies: number of downloads/streams	000s	0.0	
Music: a la carte download revenue	€m	0.2	108.9
Music: number of single downloads	000s	221.0	
DAB: number of services	units	0	27.4
DAB: coverage	%	0.0	32.9
Mobile: penetration	%	90.3	97.2
Mobile: 3G penetration	%	Na	11.0
Mobile: music revenues	€m	Na	59.3

Sources : Screen Digest, Goldmedia, ITU, EC

11. Hungary

Broadband content and television

Stakeholders in the Hungarian TV marketplace include:

- The terrestrial broadcasters Magyar Televízió (MTV), RTL Klub and TV2.
- The cable industry, dominated by the MSOs UPC Hungary, T-Kábel and FiberNet.
- The DTH sector, served by the platforms UPC Direct and DigiTV.
- The national transmission company Antenna Hungária.
- The incumbent telco T-Com.
- The regulatory bodies ORTT (National Radio and Television Commission) (interviewed) and NHH (National Telecommunications Authority).

Hungarian television industry is well developed by regional standards, being served by almost 40 local language TV channels, many of them thematic; large cable and DTH industries; and an embryonic DTT sector.

IPTV services will make their debut in the country in the second half of 2006.

Hungary has been relatively slow to introduce digital cable TV, with the first services being offered by smaller operators rather than the main MSOs. However, T-Kábel launched a product in late 2005 that will eventually include such additional features as VoD. VoIP is meanwhile now offered by

several operators including UPC Hungary, T-Kábel and PR Telecom, with UPC's service being available to over 900,000 homes in Q1 2006.

Digital DTH, on the other hand, is well established in Hungary. UPC Direct, which made its debut at the end of 2000, had almost 180,000 subscribers as of March 31, 2006. DigiTV, a Romanian-backed new entrant to the marketplace, made its debut in Q1 2006 and acquired 30,000 subscribers in only the first three months of operation.

T-Com, the Deutsche Telekom-backed incumbent telco, is trialling an IPTV service in three cities including the capital, Budapest. It plans to launch a commercial platform in September 2006 that will offer 50 TV channels and up to 500 VoD movies. Its subscriber target is 10,000 at the end of 2006 and between 50,000-100,000 a year later. Several alternative telcos are also planning to launch IPTV services in the near future.

The national transmission company Antenna Hungária operates Antenna Digital, an MMDS operation with around 60,000 subscribers in Budapest and environs. It is also overseeing an experimental DTT service launched in late 2004 that covers the capital and Kábel near Lake Balaton. A full DTT commercial operation is unlikely to make its debut before 2007.

Databox: Hungary

2005		Hungary	Europe
PC penetration per household	%	32.4	59.9
Internet access per household	%	27.8	46.2
Broadband access	%	6.1	12.6
Digital TV (free and pay)	%	8.4	30.6
Pay TV PVR subscribers	%	0	0.7
Games : online-capable video consoles	%	Na	18.0
Movies : online revenues	€m	0	2.8
Movies: number of downloads/streams	000s	0	
Music: a la carte download revenue	€m	0	108.9
Music: number of single downloads	000s	0	
DAB: number of services	units	0	27.4
DAB: coverage	%	0	32.9
Mobile: penetration	%	92.3	97.2
Mobile: 3G penetration	%	Na	11.0
Mobile: music revenues	€m	0	59.3

Sources : Screen Digest, Goldmedia, ITU, EC

Digital radio

Commercial radio existed even before the legal opening of the market in 1996, due to a liberal policy already in the late 1980s. International investors have bought the companies behind the two national commercial stations. While the public stations are allowed to send commercials too, private stations are obliged to fulfil certain quotas concerning the programming.

DAB-test transmissions are taking place. Most radio stations stream their programmes via the Internet.

Issues

The main issues in Hungary are :

- The regulatory framework
- The relatively low broadband penetration

Hungary was much slower to enact media legislation than other countries in Central and Eastern Europe. A fierce debate on how a future broadcasting landscape should look took place during the early 1990s, during which time a frequency moratorium prevented the launch of national commercial TV. This state of affairs helped the cable and DTH industries flourish at the time.

The eventual enactment of the **1996 Media Law** paved the way for the creation of the ORTT and launch of the national commercial stations RTL Klub and TV2. However, a decade later the legislation is seen as inadequate, holding back the introduction of digital terrestrial broadcasting and placing severe restrictions on the cable industry.

One stakeholder representing the latter identified a particular problem as being a **limit on the number of households which operators can provide services to**. Although this was raised from a sixth to a third of the total in 2004, it is still regarded as unnecessary and an impediment to consolidation.

Although IPTV is about to be launched in Hungary, it will operate under some level of legal uncertainty. Stakeholders planning to offer services are unsure how this will affect the new sector.

There is a “chicken and egg” situation in which there is insufficient distribution due to lack of proper content and vice versa. Essentially, those operators that have already introduced digital cable TV services have found there is little demand for them due to the already comprehensive nature of EBS packages. Clearly they need to identify “killer applications” for their new digital offerings,

and these may ultimately be such additional services as VoD or even HD providing they are affordable to subscribers.

A similar challenge is likely to face the future IPTV and DTT sectors. However, **T-Com has already stated that it plans to include a VoD package in its soon-to-be-launch IPTV platform**, with the cost of receiving movies comparable to that of DVD rental.

12. Ireland

Broadband content and TV

Main stakeholders in the Irish TV and broadband market include:

- The free-to-air analogue broadcast channels RTE 1, RTE 2, TG 4 and TV 3
- Pay-TV company BSkyB which distributes via DTH and cable
- NTL Ireland and Chorus (both owned by Liberty Global) which provide cable television, broadband and telephony services
- Incumbent telco Eircom
- Alternative telco Smart Telecom which provides broadband and telephony over fibre and its unbundled DSL network
- Alternative telco Magnet Networks which provides IPTV, high-speed internet and telephony services over its fibre and unbundled DSL networks
- Alternative telco BT Ireland which provides internet and telephony services over local loops rented and unbundled from eircom
- Digiweb, an alternative telco which provides broadband internet via DSL, satellite and fixed wireless
- ComReg: the statutory body responsible for the regulation of the electronic communications sector (telecommunications, radiocommunications and broadcasting transmission) and the postal sector.

Broadband penetration remained low in Ireland at the end of 2005. Advanced IP services based on DSL technology such as IPTV are only offered by a small number of operators. Magnet Networks started offering IPTV to Dublin residents as part of its triple play packages in 2005, via both its unbundled ADSL2+ and its FTTH infrastructure. In January 2006, Magnet became the first operator in Ireland to offer VoD as part of the package. The company agreed with national electricity utility ESB to employ its fibre-network to expand coverage to a potential 700,000 homes. Smart Telecom is the only other operator to offer DSL-based IPTV in the country, with its service Smart Vision which it started rolling out in May 2005 over fibre in Dublin. Both companies have agreements with Sky Ireland to provide its premium sports and movie channels and intend to unbundled the incumbent's exchanges to offer services over ADSL 2+.

The slow take off of innovative DSL-based packages, lack of price competition and lagging of broadband speeds in comparison with European counterparts has been due to the difficulties encountered between ComReg, Eircom and other operators to agree on a fair and effective system for unbundling the incumbent's local loops. In April 2006, BT withdrew from talks with the incumbent owing to frustration over the lack of progress regarding LLU. In July 2006 ComReg reported

Databox: Ireland

2005		<i>Ireland</i>	<i>Europe</i>
PC penetration per household	%	54.9	59.9
Internet access per household	%	47.5	46.2
Broadband access per capita	%	6.6	12.6
Digital TV (free and pay)	%	54.8	30.6
Pay TV PVR subscribers	%	Na	0.7
Games : online-capable video consoles	%	47.5	18.0
Movies : online revenues	€m	0.0	2.8
Movies: number of downloads/streams	000s	0.4	
Music: a la carte download revenue	€m	1.0	108.9
Music: number of single downloads	000s	969	
DAB: number of services	units	0	27.4
DAB: coverage	%	0.0	32.9
Mobile: penetration	%	101.5	97.2
Mobile: 3G penetration	%	Na	11.0
Mobile: music revenues	€m	0	59.3

Sources : Screen Digest, Goldmedia, ITU, IFPI

that more recent talks had been more successful, confronting delays in provisioning and compatibility between wholesale products. At year end 2005, there were only around 3,000 unbundled customers.

Cable operators Chorus and NTL Ireland announced in June 2006 that they would begin offering triple play (VoIP, television and broadband over cable) - the first sign of growing competition between cable and DSL technologies in the Irish market. UGC purchased both cablecos in 2004 and May 2005 respectively, and plans to merge both companies under a single brand.

Initially the package will be made available to residents of Adamstown in Lucan, Co Dublin, and then will be rolled-out to Galway and Waterford in the fourth quarter of 2006.

This slow take up of broadband in the country has meant that content download services (such as online music and movies) have also been slow to emerge.

Digital radio

Radio Telefis Eireann, the public service broadcaster, had a monopoly status till 1988. Already in the 1960s, pirate stations sprung up as an alternative to RTE. As they grew larger and larger in number, the government decided to allow competition.

Some of the formerly pirate stations became licensed ones, and some others just continued. Today there are still about 50-60 pirate radios (estimated).

While the policy on DAB is being developed, RTÉ announced plans to apply for a license for transmissions along the east coast. Trial broadcasts in the same region, including Dublin, have been successful. Further plans include a nationwide service.

Mobile content

There are four mobile network operators; 3, Meteor, O2 (part of the Telefonica group) and Vodafone. Meteor was acquired by in 2005 by Eircom from US-based Western Wireless.

Although a number of companies have announced plans to enter the Irish market as MVNOs, as far as Screen Digest is aware there have been no commercial launches.

Of the four mobile network operators, only Meteor has not launched a 3G network.

13. Italy

Broadband content and television

Main stakeholders in the Italian TV and broadband marketplace include:

- Free-to-air terrestrial broadcasters: RAI, Mediaset (channels Canale 5, Italia 1, Rete 4), La7 and MTV Italia
- Pay-TV operator Sky Italia, which provides digital television via DTH
- Incumbent telco Telecom Italia and its ISP Alice
- Largest alternative telco, Fastweb, which provides IPTV, broadband and telephony services over fibre and unbundled xDSL network.
- Alternative telco Tiscali, which provides IPTV and broadband over both the incumbent and its unbundled network
- Alternative telco Wind, which provides broadband, mobile and telephony

Italian IPTV started very early with its provision of triple play services to provide competition against Sky Italia's Pay-TV platform which currently includes 160 channels, PPV and interactive content and enjoys 3.7m customers as of March 2006. Ebiscom-owned Fastweb launched its Fastweb TV triple play service back in August 2003, one of the world's first IPTV services. The package included IPTV (digital streaming and VoD), broadband and voice distributed over Fastweb's fibre and unbundled DSL

network. The alternative telco's network is the second largest in Italy and the company hopes to cover 10m households and 45 per cent of the population by mid-2006. Fastweb TV is Europe's most popular TV service and includes in-built PVR, video communication via the TV set and on-demand access to over 5000 titles in the library, including those from Pay-TV operator Sky Italia. Tiscali began a trial of its IPTV service in March 2006 in Cagliari, after launching its VoIP service in May 2005. Tiscali claims speeds of up to 24Mbps download on its unbundled DSL network, while Fastweb claims 10Mbps symmetric speed on its fibre and 20Mbps download on its DSL networks.

The incumbent Telecom Italia launched its DSL-based on-demand IPTV service Alice Home TV in December 2005 in 4 cities: Rome, Milan, Bologna and Palermo. The incumbent announced its plans to extend the service to a further 17 cities from January 2006, reaching around 8m households by the end of 2006. The service began with a meagre selection of four sports channels, three news channels and the music channel MTV. At launch subscribers could also access about 200 on-demand movies, though the incumbent promised that more television channels would be added from 2006, and that the number of on-demand titles would subsequently increase to 600.

In its three-year business plan announcement in April 2005, the incumbent

Databox: Italy

2005		Italy	Europe
PC penetration per household	%	52.8	59.9
Internet access per household	%	39.7	46.2
Broadband access per capita	%	11.8	12.6
Digital TV (free and pay)	%	38.7	30.6
Pay TV PVR subscribers	%	na	0.7
Games : online-capable video consoles	%	13.8	18.0
Movies : online revenues	€m	0.3	2.8
Movies: number of downloads/streams	000s	165.1	
Music: a la carte download revenue	€m	5.2	108.9
Music: number of single downloads	000s	3,251	
DAB: number of services	units	33	27.4
DAB: coverage	%	65.0	32.9
Mobile: penetration	%	124.3	97.2
Mobile: 3G penetration	%	18.5	11.0
Mobile: music revenues	€m	8.6	59.3

Sources : Screen Digest, Goldmedia, ITU, IFPI, EC

reported it would invest €2.1bn on broadband in Italy, including some €350 million for IPTV development. Telecom Italia launched ADSL 2+ access technology in 60 towns in May 2006, with downstream speeds of up to 20 Megabits per second, optimizing TV, voice and broadband speeds. All Alice Home TV customers will gradually be upgraded to the 20 Megabit per second service.

The other main alternative DSL provider in the country is Wind through its ISP Libero, which had about 240,000 unbundled customers on its network at the end 2005. The more advanced and effective unbundling process in Italy in comparison with its European partners has had a catalytic effect on the innovative services, high broadband speeds and competitive consumer prices now available in the country.

Broadband content services

In terms of **online music, music downloaded to the mobile phone** has been the major propulsion of sales in Italy. According to IFPI, 69% of digital music bought in 2005 was delivered to the mobile phone, in comparison to 31% to the PC. The largest player in the digital music space is Apple's iTunes Music Store, followed by the Rosso Alice Music Box store, owned by Telecom Italia. Both online music stores operate on a retail model. Similarly, in the online movie space, the Rosso Alice movie store offers premium and local content for download on a rental model, as well as on a subscription model, overtaking its rival Cinemanow as the principal provider of digital films.

Digital radio

Besides the three stations offered by RAI, the public broadcasting service, many alternatives fight for market share. 14 private national radios and six networks. Popular music dominates the programming, with few talk and news stations. Many local radios serve the community, replacing non-existent newspapers.

DAB-trials by public and commercial broadcasters are taking place all over Italy, but the final frequency planning is still being prepared.

Mobile content

There are four mobile network operators; 3, TIM (Telecom Italia), Vodafone and Wind.

No MVNOs have launched in Italy, and there are no regulatory requirements on network operators to open up networks. However, a number of companies have announced plans to launch MVNOs.

Italy has seen the most activity around broadcast mobile TV services. Both 3 and TIM launched commercial DVB-H services in June 2006. 3 Italia acquired broadcaster Canale 7, giving the network operator both a transmission network and a catalogue of programming. In addition, the offering carried programming from RAI, Mediaset and SKY. TIM has deployed its own DVB-H network and carries programming from Canale 5, Italia Uno, MTV Italia as well as Serie A and Champions League matches.

All of the network operators have launched commercial 3G services. Both TIM and 3 have launched commercial HSDPA (3.5G) services, with Vodafone likely to follow this year following trials. Wind offers i-mode phones and content to consumers.

Specific issues

The main specific difficulties encountered by Italian service providers are:

- Access to content for new media distribution (definition of rights, availability of rights)
- Copy protection provisions (Implementation of DRM - Contradictions between rights-holder demands and national legislation)
- The lack of standards or all-industry agreement on exploitation windows

Would-be VOD operators point out the reluctance of some film rights-holders (studios and national producers alike) to licence their films for VOD digital distribution. Even when they do, it is reported that rights-holders have some demands that distributor find difficult to accommodate: minimum guarantees, DRM, and anti-piracy measures that, distributors say, would simply contradict Italian law. For instance, according to national legislation, network operators are not authorised to control the traffic flows, therefore any request from rights-holder to suspend or interrupt service cannot be met.

For Italian content, even when there is no specific reluctance from rights-holders, VOD operators have to deal with hold-back clauses or exclusive licenses, despite the rights duration limitations imposed on pay TV operator Sky.

Even operators supposedly entitled with 'all-rights' contracts, like RAI, have often to renegotiate past contracts to include new media rights. Broadcasters are now pushing producers to accept techno-neutral contracts, not mentioning any delivery platform.

But despite the reluctance of some rights-holders and other obstacles, players like Fastweb have been able to offer a significant catalogue of film for VOD.

Underlying rights can also cause problem. There was reports of programmes being removed from RAI's IPTV feed because rights-holders refused IP simulcast.

Finally several stake-holders believe the Italian market so far lacks standard practices or all-industry agreements on exploitation windows. For instance mobile operator 'Tre' caused industry turmoil when it planned to offer download from the film 'The Interpreter' before theatrical release. The French VOD industry agreement of December 2005 was mentioned as a possible past practice but there were no such ongoing discussion by June 2006.

14. Latvia

Broadband content and television

Stakeholders in the Latvian digital marketplace include:

- The terrestrial broadcasters LTV, LNT and TV3 Latvia, along with several regional and local stations including TV5 Riga.
- The satellite-delivered channels TV3+ Baltics and First Baltic Channel.
- The cable industry, which is dominated by the MSOs Baltkom and Izzi (formerly known as Telia Multicom).
- Viasat, which is owned by Sweden's Modern Times Group (MTG) and operates a satellite-delivered pay-TV platform.
- The incumbent telco Lattelekom.
- The Latvian Digital Radio and TV Centre (DLRTC).
- The National Broadcasting Council of Latvia (NRTP), which is responsible for overseeing all aspects of the TV industry in the country.

31 per cent of all households have Internet access and 14 per cent a broadband connection. At the same time, 49 per cent of homes received cable TV and 11 per cent DTH services.

Although there are around 30 cable operators in Latvia, two MSOs – Baltkom and Izzi – account for almost 80 per cent

of connections. Both are long-established companies and provide digital TV as part of a triple-play offering.

MTG-owned Viasat meanwhile provides DTH services in Latvia. While the company does not provide subscriber details for individual countries, it says that the total number receiving its premium services in the three Baltic Republics stood at 44,000 at the end of Q1 2006.

The incumbent telco Lattelekom, which is majority (51 per cent) state owned and lists Tilts Communications, a consortium backed by TeliaSonera, as its other shareholder, emerged as an important player in the broadcast industry at the beginning of 2006 when it launched an IPTV platform. A trial service, Lattelekom TV was watched by around 30,000 people in the first three months of operation and is shortly due to be transformed into a fully commercial venture.

The DLRTC was planning to introduce DTT services in Latvia, but there has not been any significant progress on the DTT front in the last three years and it remains to be seen if and when a platform will be launched.

In the absence of a DTT platform and with DTH reception relatively low, the cable industry continues to call most of the shots. Baltkom already had 15,000 digital TV subscribers in Q1 2006 and is believed to be preparing to launch pay-per-view services. Along with Izzi, it will be the frontrunner to also introduce VoD and (eventually) HDTV.

Databox: Latvia

2005		Latvia	Europe
PC penetration per household	%	na	59.9
Internet access per household	%	31.0	46.2
Broadband access per capita	%	5.6	12.6
Digital TV (free and pay)	%	na	30.6
Pay TV PVR subscribers	%	na	0.7
Games : online-capable video consoles	%	na	18.0
Movies : online revenues	€m	0	2.8
Movies: number of downloads/streams	000s	0	
Music: a la carte download revenue	€m	0	108.9
Music: number of single downloads	000s	na	
DAB: number of services	units	0	27.4
DAB: coverage	%	0	32.9
Mobile: penetration	%	81.1	97.2
Mobile: 3G penetration	%	na	11.0
Mobile: music revenues	€m	0	59.3

Sources : Screen Digest, Goldmedia, ITU, EC

Digital radio

The public broadcaster Latvijas Radio still has the largest audience, even with commercial stations being on the market since 1993. Beginning in 1998, two commercial radio stations started to broadcast on national level. Regional stations are focused on the region around Riga, with a large part of the programming consisting of music.

Only plans for DAB have been laid down, but without fixed dates. Most radio stations stream over the Internet

Mobile content

There are three mobile network operators: Bite, LMT, and Tele2. No 3G service has been launched so far.

Specific issues

Latvia began to devise a completely new legislative framework following independence in 1991. In the field of broadcasting, its efforts culminated in the **1995 Law on Radio and Television**. While the legislation is still in place, the country's Saeima (parliament) has been working on a draft law that addresses (amongst others) such issues as new technologies. It has also been working on a draft law on public broadcasting, one of whose elements would result in commercials being withdrawn from the public broadcaster LTV in 2008.

The copyright framework in Latvia was established in 2000 following the enactment of a new law. Under it, the Ministry of Culture is responsible for all aspects of copyright and neighbouring rights including any future legislation in the area and overseeing collecting societies. Latvia also enacted a **new Electronic Communications Law in 2004**.

The regulator NRTP has produced a wide-ranging strategy for the electronic communications sector between 2006-8. Although the country has made significant progress in some areas, others, including the introduction of DTT, effectively remain on hold.

15. Lithuania

Digital media background

Stakeholders in the Lithuanian TV marketplace include:

- The terrestrial broadcasters LRT, LNK and TV3 Lithuania, along with the youth-oriented thematic channel Tango TV.
- The cable industry, which is dominated by a handful of operators including Balticum, Init and Vinita and also includes the MMDS companies Litevita, Mikrovisatos TV, Pajurio Televizija and Viginta.
- Viasat, which is owned by Sweden's Modern Times Group (MTG) and operates a satellite-delivered pay-TV platform.
- The incumbent telco Teo LT and alternative provider UAB Penkiu Kontinentu Komunikacija Centras (PKKC).
- The regulators RTK and RRT, responsible for TV/radio content licensing and the telecom sector respectively.

Although Lithuania's TV industry was at first much slower to develop than Latvia and Estonia, it has seen considerable change since the country acceded to the EU in 2004. In March 2006, for instance, the RTK granted licences for 11 free-to-air (FTA) DTT channels. The companies Batijos TV, Laisvas, Tele-3, TV1 each received two and Spaudos

Televizija one, with two more reserved for the public broadcaster LRT. Re-broadcasting licences were also issued to Mikrovisata (24 channels) and Tele-3 (five channels).

DTT transmissions of 40 channels are likely to get under way in 2006 and five other towns and cities a year later. They will employ MPEG-4 compression, allowing for the eventual introduction of HD and such additional services as VoD.

The RTK has also granted IPTV licences to Teo LT and PKKC. The former is expected to launch a service, initially targeting its 120,000 ADSL subscribers, in September 2006. It will eventually include such features as video telephony, VoD and PVR.

There are at present over 50 cable operators in Lithuania, and cable penetration stands at around 30 per cent. Satellite penetration is a much lower 2.3 per cent, with estimated levels of piracy reaching 50 per cent. Although digital TV is available in Lithuania, such additional services as VoD have yet to be introduced.

Digital radio

On the Lithuanian radio market, concentration is increasing. Four commercial stations are controlled by one owner. Public Radio (LRI) has the biggest market share with about 25 per cent. It is financed by taxes, fees and commercials and offers three stations. Along with the concentration, a diversification of programming goes along. Most notably is

Databox: Lithuania

2005		Lithuania	Europe
PC penetration per household	%	na	59.9
Internet access per household	%	16	46.2
Broadband access per capita	%	6.8	12.6
Digital TV (free and pay)	%	na	30.6
Pay TV PVR subscribers	%	Na	0.7
Games : online-capable video consoles	%	Na	18.0
Movies : online revenues	€m	0	2.8
Movies: number of downloads/streams	000s	0	
Music: a la carte download revenue	€m	0	108.9
Music: number of single downloads	000s	na	
DAB: number of services	units	0	27.4
DAB: coverage	%	0	32.9
Mobile: penetration	%	127.1	97.2
Mobile: 3G penetration	%	Na	11.0
Mobile: music revenues	€m	0	59.3

Sources : Screen Digest, Goldmedia, EC, ITU

Radio Pukas, broadcasting for an audience of 30-49 year olds.

DAB reaches about 20 per cent of the population and is situated in Vilnius. Five channels are broadcasted, two public and three commercial ones.

An additional multiplex is planned. Fifteen radio stations are streaming via the web as well.

Mobile content

There are three mobile network operators; Bite, Omnitel and Tele2.

Specific issues

Lithuania passed a Law on Electronic Communications in the month before EU accession in May 2004, thereby fully liberalising the telecom marketplace. Digital TV services, however, are not addressed by any specific legislation, being instead covered by the existing broadcast law.

The IPTV services due to be launched by Teo LT and PKKC will not be covered by any specific existing law. Moreover, the licences awarded to the two telcos are only for re-broadcasting existing channels and do not address such additional services as VoD and interactive content.

The stakeholder RTK identified economic factors as perhaps the biggest obstacle to the development of digital content in Lithuania. Despite high cable penetration, the price of the services offered is beyond the reach of many inhabitants.

The IPTV service due to be launched by Teo LT will cost subscribers €5.50 a month to receive. This is considered to be slightly above the average amount charged by cable operators and it remains to be seen how many subscribers the telco secures. Aside from 120,000 already paying for DSL Internet access, it currently has 600,000 fixed line customers.

16. Luxembourg

Mobile content

There are three mobile network operators; P&T, Tango and Vox Mobile. Transatel is the only MVNO in Luxembourg.

All of the operators have launched 3G networks. A fourth 3G licence was awarded to LuX Communications, although the network has not yet launched.

Digital radio

RTL had a de facto monopoly in Luxembourg till 1991, when the market was liberalised.

Only since 1993 there is a public service station, RSC, but with a market share of only about one per cent. Still, RTL provides public-service like broadcasting with two national frequencies. None of the radio stations make profit.

Luxembourg currently has no interest in implementing DAB. About nine stations are streaming over the Internet.

Databox: Luxembourg

2005		Luxembourg	Europe
PC penetration per household	%	na	59.9
Internet access per household	%	65	46.2
Broadband access per capita	%	15.5	12.6
Digital TV (free and pay)	%	6.7	30.6
Pay TV PVR subscribers	%	na	0.7
Games : online-capable video consoles	%	13.8	18.0
Movies : online revenues	€m	na	2.8
Movies: number of downloads/streams	000s	na	
Music: a la carte download revenue	€m	na	108.9
Music: number of single downloads	000s	na	
DAB: number of services	units	0	27.4
DAB: coverage	%	0.0	32.9
Mobile: penetration	%	154.8	97.2
Mobile: 3G penetration	%	Na	11.0
Mobile: music revenues	€m	na	59.3

Sources : Screen Digest, Goldmedia, EC, ITU

17. Malta

Broadband content and TV

Stakeholders in the Maltese TV marketplace include:

- The terrestrial public broadcaster TVM and national commercial stations Channel 24, Info Channel, Movie Channel, Net TV, Smash TV, Sports Channel and Super One, all of which are distributed by cable.
- The cable industry, which is served by the MSO Melita Cable Television.
- The incumbent telco Maltacom.
- The Malta Broadcasting Authority (MBA), responsible for supervising all aspects of broadcasting in the country, Malta Communications Authority (MCA), which is responsible for regulating telecom services.
- There are two mobile network operators; Go Mobile and Vodafone.

Digital TV is growing in popularity in Malta, with 27,480 homes receiving services as of May 2006. The number of cable subscriptions meanwhile stood at 108,819, and 42,808 households had broadband Internet access.

A four-package DTT service was introduced in Malta in July 2005 by Multiplus, a locally owned electronic communications company. However, the incumbent, soon-to-be-privatised telco Maltacom also has a digital terrestrial licence and is expected to

launch a platform shortly. Furthermore, it is understood to be undertaking IPTV trials.

Both Multiplus and Maltacom face competition from Melita Cable, an MSO jointly owned by Melita Cable Holdings and UGC Europe. Melita Cable launched a digital TV service (Melita Digital) targeting its (approximately) 100,000 subscribers in Q1 2005 and has since also set up Hello, a VoIP service offering cut-price local and international telephone calls.

DTH reception is discouraged in Malta, with it being illegal to view channels not aimed at the local market. However, there are around 30,000 installed dishes and piracy is common.

Digital radio

Commercial stations are allowed since 1991. In addition to 12 national stations, 21 so called community radios exist. Overall, the number of radio stations per person is very high. A license with four DAB frequencies has been issued recently. It is planned to build an infrastructure to cover 95 per cent of the population.

Specific issues

Malta has several pieces of legislation either directly or indirectly addressing its TV industry. The Broadcasting Act, passed in 1991, has already been amended on five occasions and is reinforced by ancillary legislation related to advertising and copyright.

Databox: Malta

2005		Malta	Europe
PC penetration per household	%	na	59.9
Internet access per household	%	na	46.2
Broadband access per capita	%	12.8	12.6
Digital TV (free and pay)	%	Na	30.6
Pay TV PVR subscribers	%	0	0.7
Games : online-capable video consoles	%	Na	18.0
Movies : online revenues	€m	0	2.8
Movies: number of downloads/streams	000s	0	
Music: a la carte download revenue	€m	0	108.9
Music: number of single downloads	000s	0	
DAB: number of services	units	0	27.4
DAB: coverage	%	0	32.9
Mobile: penetration	%	80.8	97.2
Mobile: 3G penetration	%	na	11.0
Mobile: music revenues	€m	0	59.3

Sources : Screen Digest, Goldmedia, EC, ITU

An Electronic Communications Act passed in 2004 was amended the following year.

The country's broadcast industry has gone through rapid change since 2005, with DTT now a reality and IPTV soon likely to follow. With competition between Maltacom, Melita Cable and Multiplus set to intensify, the latter has signalled its intention to introduce more channels and a range of interactive services. The provision of sports content, and in particular football, is seen as an important to the success of digital services.

18. The Netherlands

Broadband content and television

Main stakeholders in the Dutch marketplace include:

- Free-to-air/free-to-view analogue and digital channels: Nederland 1, Nederland 2, Nederland 3 (publicly owned); RTL 4, RTL 5, RTL 7 (owned by RTL Group); SBS 6, Net 5, Veronica (owned by SBS Broadcasting); Talpa; The Music Factory (owned by MTV Networks)
- Free-to-view digital terrestrial television (DTT) platform Digitenne
- Liberty Global Europe which owns cable television channels Film1 and Sport 1 (rebranded from Canal Plus) and cable platform UPC Nederland. UPC Nederland provides pay TV services (including pay-per-view), mobile and landline telephony, in addition to broadband cable internet.
- Main cable operators Essent Kabelcom, Casema and Multikabel which distribute pay television, telephony and broadband internet over cable. Multikabel also provides mobile telephony services.
- Mediakabel, which owns pay TV platform Film Time, offering pay-per-view content, distributed via cable.
- DTH television platform Canal Digitaal
- Incumbent telco KPN which supplies DSL broadband internet access via its residential ISPs Planet Internet, XS4ALL,

Hetnet and Direct ADSL. The incumbent provides digital television through its IPTV platform, Mine TV and also provisions landline and mobile telephony services

- Alternative telco Tele2 which provides DSL broadband internet via its own unbundled and the incumbent's network, in addition to landline and mobile telephony. Tele 2 also offers an IPTV service.
- Third party telco France Telecom which provides cable broadband and DSL broadband over the incumbent and its own unbundled network under the Orange brand. France Telecom also offers mobile and fixed line telephony under the same brand
- Alternative telco Tiscali which provides ADSL broadband via its unbundled network.
- BBNed, which offers wholesale DSL access to its unbundled network
- OPTA, which supervises compliance with legislation and regulations in the areas of post and electronic communications

The Netherlands is a fiercely competitive pay TV and broadband internet market. The four main cable operators, UPC, Essent Kabelcom, Casema and Multikabel all offer digital cable television, cable broadband and landline telephony. UPC and Multikabel also provide mobile telephony. Multikabel is the only cable

Databox: The Netherlands

2005		Netherlands	Europe
PC penetration per household	%	83.0	59.9
Internet access per household	%	79.5	46.2
Broadband access per capita	%	25.7	12.6
Digital TV (free and pay)	%	11.4	30.6
Pay TV PVR subscribers	%	na	0.7
Games : online-capable video consoles	%	13.8	18.0
Movies : online revenues	€m	0.1	2.8
Movies: number of downloads/streams	000s	42.0	
Music: a la carte download revenue	€m	4.9	108.9
Music: number of single downloads	000s	4,369	
DAB: number of services	units	12	27.4
DAB: coverage	%	70.0	32.9
Mobile: penetration	%	97.1	97.2
Mobile: 3G penetration	%		11.0
Mobile: music revenues	€m	0.69	59.3

Sources : Screen Digest, Goldmedia, ITU, IFPI, EC

operator to offer a triple and quad play bundle, providing a discount to triple play customers who also choose to subscribe to its mobile services. Both UPC and Casema only bundle broadband and fixed telephone, while Essent Kabelcom offers no consumer multi-play. No set-top box VoD services have appeared from cable operators; pay-per-view services to the TV have been available since 2000 from UPC ('Arrivo' service) and Mediakabel ('Film Time' service).

The Dutch market had just over 900,000 customers receiving unbundled services at the end of June 2006. The regulator OPTA has encouraged progress in unbundling by maintaining low prices for third-party providers looking to install their equipment in KPN phone exchanges. The high number of unbundled lines has encouraged next-generation multi-play services over DSL to emerge to compete with cable operators' services. Tele2 launched the first commercial IPTV service in April 2005, offering live broadcast television - with exclusive Eredivisie first division soccer rights - in addition to VoD. The TV service offers 10-day catch-up viewing from the three national publicly owned TV stations and is marketed as a value add-on to 20Mbps ADSL 2+ broadband and fixed telephony. Tele2's service had 84,600 ADSL 2+ triple play customers as of June 2006, suggesting a successful opening period. In May 2006, the incumbent KPN responded by offering its Mine TV IPTV service which offers the same capacity for catch-up viewing, live broadcast channels, the 'Film Direct' VoD service with a 300-strong catalogue, and the 160GB PVR set-top box costing €150. The incumbent has not yet packaged the IPTV as a bundle to add onto its high-speed internet or telephony services. France Telecom is expected to launch a similar IPTV service next year. Given both Orange's and Tele2's mobile operations in the country, it is likely that both companies will also supply quad-play packages to consumers. Orange is expected to launch such a service in 2007. Tiscali, the other main DSL provider with its own unbundled network, offers both ADSL and voice-over-IP services.

KPN strengthened its position in the Dutch market by acquiring ISP Demon in June 2006 and independent network service provider Speedling in May 2006. These two deals followed the incumbent's purchase of ISPs Cistron, Freeler and a portion of Tiscali's subscriber base in 2005.

Netherlands will become the first country in Europe to switch of analogue terrestrial television when transmissions of public television cease on 29 October 2006. The three public TV channels are the only ones broadcast on analogue frequencies in the Netherlands. Private TV channels are distributed on cable. According to Nozema Services, the national transmission company, 92 per cent of households are cabled, with 220,000 households receiving analogue TV over the air. Nozema says 74,000 households receive only analogue terrestrial TV. Public TV frequencies will be used for digital TV transmissions.

Mobile content

There are five mobile network operators; KPN, Orange, T-Mobile, Telfort (actually owned by KPN) and Vodafone. The Netherlands is a vibrant MVNO market, with over 20 MVNOs launched. As is often the case, most are focussed on competing on price rather than content.

Only KPN, T-Mobile and Vodafone have launched 3G networks. In addition, T-Mobile launched an HSDPA (3.5G) network in Q2 2006. Regarding broadcast mobile TV, KPN has trialled a DVB-H service. In addition, both KPN and Vodafone offer mobile TV delivered via the 3G network. KPN offers i-mode phones and content to consumers, and the KPN group is based in the Netherlands.

There are a number of mobile content companies based in the Netherlands, including mobile content service provider Mowave, aggregator Tutch and games developer/publisher Overloaded.

Digital radio

Commercials have been allowed since 1967, commercial radio since 1992, with the listening share of public radio dropping to about 50 per cent. With the reallocation of the frequencies, more regulations for stations have been set up: Five of the frequencies are for fixed formats such as Dutch music.

Dutch public radio regularly transmitted nine public channels since 2004, with a coverage of 70 per cent of the population. While it was intended to hand out licenses to commercial broadcasters after the RCC 06, further DAB rollout was postponed in March 2005 after criticism from all political parties.

Digital publishing

Newspapers

De Telegraaf announced in February 2006 that it was partnering with KPN to launch an IPTV news service.

De Telegraaf has also launched its own independent mobile content platform in collaboration with other companies. Recently the company has acquired a number of Internet operations including 70% of two dating sites, Relatieplanet and Iwannadate. It has also acquired a youth site called Without Style, with a reach of 1.2m. Its internet advertising revenues have risen by 50% in the last year.

In February 2006, Wegener acquired 49% of online search and directory site, ilocal. It also runs classified portals, JobTrack.nl, AutoTrack.nl and Funda.nl. AutoTrack.nl has the leading position in the market. It is piloting a local community portal with user-generated content called Dorpspleinen.nl.

Magazines

Sanoma owns some of the most popular sites in the Netherlands, notably the news portal Nu.nl and the search engine, Ilse. Ilse Media is also moving very much towards user-generated content. Sanoma's women's portal Vrouwonline has had a very good response to inviting readers to contribute blogs. One of Sanoma's titles has launched a podcast, and the company also has web radio and one of its men's titles has a web TV service built around motoring. More are planned.

Sanoma estimates that its core print businesses will grow by only 2-3% in future, while revenues from online, mobile and other brand extensions, including e-commerce, will grow by up to 50% per annum.

Country-specific issues

Newspapers would like to co-operate with local television stations to develop local television programming supported by advertising. However, the local TV stations are subsidised and cannot co-operate on commercial models. They can do a lot creatively, but cannot work with commercial companies.

Though not specific to the Netherlands, some skill shortages were reported e.g. in digital publishing.

19. Poland

Broadband content and television

Stakeholders in the Polish TV marketplace include:

- The terrestrial broadcasters TVP, Polsat and TVN.
- The cable industry, which is dominated by the MSOs UPC, Vectra, Multimedia Polska and the Aster Group
- The DTH platforms Cyfra Plus and Cyfrowy Polsat
- The incumbent telco TPSA and its principal competitor Telefonía Dialog.
- The regulators KRRiT and UKE.

Poland's television industry is one of the most developed in Central and Eastern Europe, being served by one public and two private national broadcasters, several regional stations, numerous thematic channels, cable and DTH markets with 4.5m and 1.5m subscribers respectively and a new IPTV sector.

Although all four leading MSOs are triple-play operators, only one to date (the Aster Group) has introduced digital TV services. However, Multimedia Polska became the first electronic communications company in Poland to offer IPTV when it launched a 48-channel service in four southern cities in June 2006.

Also in the same month, TPSA launched its long-awaited IPTV platform videostrada. The first in Central and Eastern Europe to

employ MPEG-4 compression, its offer, which is available in Warsaw and environs, includes a special DSL package provided by Cyfra Plus. A third IPTV platform, operated by Tele Video Media (a joint venture between the alternative telco Telefonía Dialog and Poland's leading independent production company ATM Grupa), is due to launch in the second half of 2006. Its offer will include around 60 TV channels and both PPV and VoD.

Despite there being limited DTT services operated by TVP in the south of the country, a full platform is unlikely to appear before 2007 at the earliest. TVN, which is part of a consortium hoping to offer commercial DTT services, has in the meantime announced plans to launch a new generation digital platform distributing content via DTH and over the Internet. TVP, which like its commercial rivals also has a growing portfolio of thematic channels, is also expected to launch its own DTH platform shortly.

Digital radio

Licenses for commercial stations have been issued after 1989.

Investments from foreign countries also started, while the National Council for Radio and Television was established. Since 2001, licenses are reissued along with new standards for programming and quotas such as for spoken word content. Besides the public broadcaster Polskie Radio S.A. there are three other national commercial stations.

Databox: Poland

2005		Poland	Europe
PC penetration per household	%	43.6	59.9
Internet access per household	%	31.4	46.2
Broadband access per capita	%	2.7	12.6
Digital TV (free and pay)	%	19.2	30.6
Pay TV PVR subscribers	%	Na	0.7
Games : online-capable video consoles	%	Na	18.0
Movies : online revenues	€m	Na	2.8
Movies: number of downloads/streams	000s	Na	
Music: a la carte download revenue	€m	Na	108.9
Music: number of single downloads	000s	Na	
DAB: number of services	units	0	27.4
DAB: coverage	%	0	32.9
Mobile: penetration	%	75.7	97.2
Mobile: 3G penetration	%	Na	11.0
Mobile: music revenues	€m	0	59.3

Sources : Screen Digest, Goldmedia, ITU, EC

The market for local radio is more or less split between independent stations and those belonging to networks or groups such as Agora S.A. and ZPR S.A.

DAB has a coverage of eight per cent around the capital of Warsaw. One transmitter broadcasts five programmes from Polskie Radio permanently. Most stations offer streaming over the Internet.

Mobile content

There are three mobile network operators; Era, Orange and Plus.

Specific issues

Legal/regulatory issues

There was general agreement among interviewees that the greatest problems faced in Poland are of a legislative/regulatory nature. Having acceded to the EU in May 2004, the country has yet to enact necessary legislation in a number of sectors including copyright. Without doing so, it cannot move ahead in the transition from analogue to digital broadcasting and risks introducing such services as IPTV and mobile TV in a legal vacuum.

The situation has been exacerbated by developments on the political front, with a new government that came to power in late 2005 having made changes to the structure of the National Broadcasting Council (KRRiT) and replaced the Office for Telecommunications and Post Regulation (URTiP) with a new body named the Office of Electronic Communications (UKE). Both the KRRiT and UKE were without a president for several months, leading to a feeling of paralysis within the industry as a whole.

With neither body fully functioning, a strategy for the transition from analogue to digital broadcasting approved in May 2005 has been to all intents and purposes suspended.

Poland's broadcast law was passed in 1992 and has since been amended on several occasions, most recently at the end of 2005. However, it has not been modernised and does not address such issues as digital broadcasting, according to several stakeholders. This creates problems for DTT, for instance, which has effectively been put on hold. The incumbent telco TPSA and MSO Multimedia Polska both launched IPTV services in June 2006. As things stand, these are largely unregulated.

This problem also extends to the mobile sector. Once mobile TV services are

introduced – at present broadcasters only provide operators with news clips – these, too, will be unregulated.

Copyright

The copyright situation in Poland is problematic, as several interviewees pointed out. At present, collecting societies are pressing for a fee of around €1.30 for every subscriber that accesses streamed content from the Internet, though the proposal is being vigorously opposed by the telecom operators.

Cinematography Law

A recently enacted Cinematography Law has proved highly controversial for effectively handing film-financing decisions to a new body named the Polish Institute of Film Arts (PISF). While cable operators are entirely opposed to the idea of paying 1.5 per cent of their revenues to the PISF as they see their businesses as being unrelated to the film industry, Canal Plus Cyfrowy has adopted a different approach. Already the leading investor in the Polish film industry, it would like to make its own decisions on new productions rather than pass them to the hands of another party.

Under the terms of the Cinematography Law, telecom operators are also required to contribute 1.5 per cent of their total revenues to the PISF. However, this is deemed to be contrary to EU regulations according to the cable industry and may ultimately lead to a change in the legislation.

Archive content

The public broadcaster TVP operates without a clear and precise definition of its mission and is subject to much greater political pressures than its commercial counterparts. It is hoped by the industry that legislation specifically addressing TVP's remit will soon be passed.

One stakeholder identified a specific problem related to archives, with all films, documentaries and other content produced in Poland before 1990 being currently archived by TVP. To access it, commercial broadcasters are required to pay fees that they estimate disproportionate, and as content moves into new distribution areas such as the Internet and DTT, and TVP launches more thematic channels, the problem is likely to worsen. TVP regards its thematic channels as pay rather than basic services and may become more

protective of archive content, perhaps even unwilling to access it to third parties.

Must-carry

Poland's two DTH platforms, as one stakeholder pointed out, have since their launch found themselves operating in what amounts to a legal vacuum. This has led to conflicts and misunderstandings, the most recent of which is with TVP, which is demanding carriage fees for its channels, regarded until now as must-carry services.

A similar demand made to the cable industry was dropped following strong protests. At this stage it seems highly likely that the public broadcaster will also demand carriage fees from the telcos TPSA and Telefonía Dialog once they launch IPTV services. It may also ask for payment for distribution of its channels on Multimedia Polska's IPTV service, launched in June 2006.

Rights issues

One stakeholder referred to the confusion that exists amongst rights owners about new technologies, and in particular the difference between IPTV and TV via ADSL.

Demands by right holders that TV via ADSL (IPTV) should employ content protection simply because it is a digital method of distribution were regarded as unwarranted by this stakeholder. He pointed out that they have often already been granted for non-encrypted distribution over analogue and digital terrestrial, cable and satellite platforms.

This raises two fundamental questions that should be asked in Poland ahead of the launch of IPTV services. Firstly, should rights already granted to broadcasters also apply for IPTV distribution, and secondly, should IPTV transmissions be encrypted?

Another stakeholder meanwhile spoke of the lack of a DRM (Digital Rights Management) system in Poland. This makes it difficult for companies offering content via TV, mobile and the Internet to monetise their services. Put simply, independent producers can be treated as though they have no rights to the content that they deliver to other parties for distribution.

Interactive TV

Standards was identified as a problem by TVN, which besides operating a national commercial station has a portfolio of thematic channels and is part of the Polski Operator Telewizyjny (POT) consortium planning to launch a DTT platform. The stakeholder was critical of the fact that the EC has recommended such standards as MHP without having first negotiated prices with their (invariably US, as opposed to European) owners or secured guarantees that they would remain free. TVN also pointed out that there are currently no commonly accepted standards for IPTV and TV via ADSL services.

Economic issues

The relatively high cost of the technology associated with digital DTH services was identified as one of the factors holding back development of the sector. However, the two DTH platforms currently serving Poland still have a combined total of around 1.5 million subscribers, or around double all the other DTH platforms in Central and Eastern Europe put together.

It was also felt that low GDP and the still relatively high cost of Internet access were factors holding back growth in the TV market, and in particular the take-up of new services. Even so, technologies such as PVR, HDTV and VoD are soon likely to become established in Poland.

20. Portugal

TV and Broadband-based media

Main stakeholders in the Portuguese TV and Broadband marketplace include:

- Incumbent telco Portugal Telecom
- Free-to-air terrestrial broadcasters: RTP (channels RTP 1, RTP 2), SIC, TVI
- TV Cabo, a subsidiary of Portugal Telecom, which provides Pay TV services via DTH and cable. TV Cabo also operates a movie VoD service, Video On Demand over cable, in addition to providing broadband internet access.
- Cable operators Cabovisao, Bragatel and Pluricanal, the largest of which is Cabovisao, which all offer television, broadband cable internet and landline telephony
- Alternative telco Oni Telecom which provides ADSL consumer internet services and owns a fibre network
- Alternative telco Sonaecom, owner of ISP Clix, which offers telephony and broadband via its unbundled network and owns a fibre network in Lisbon and Porto
- Alternative telco AR Telecom (previously branded Jazztel until September 2005) which provides triple-play service of voice, television and broadband services via its own 28GHz fixed wireless infrastructure (LMDS spectrum)

- Telecommunications regulatory body: Autoridade Nacional de Comunicações (ANACOM).

The incumbent, Portugal Telecom, still dominates in the provision of broadband internet access, via DSL through ISP Sapo, and via cable (Netcabo) through its subsidiary TV Cabo. Portugal Telecom's share of the broadband market is gradually waning, falling to 73.5 per cent in 1Q 2006 from 81.6 a year before as alternative cable providers offer increasing competitive triple play packages and DSL providers.

Broadband ADSL is more popular in Portugal than cable broadband, with DSL holding 58.6 per cent of broadband access market at end 1Q 2006. The three main alternative cable operators have offered some resistance to the incumbent's cableco TV Cabo offering triple play consumer packages. Alternative telco Sonaecom offers dual play telephony and broadband internet up to 20Mbps (since July 2006) over its unbundled ADSL2+ network. Oni Telecom currently offers residents speeds of up to 5Mbps also using ADSL2+ technology. AR Telecom is the only alternative operator to offer triple play other than the cable operators, providing digital television, telephony and broadband internet over its own 28GHz fixed wireless network.

The DSL market is currently increasingly competitive, with a rapid increase in the

Databox: Portugal

2005		Portugal	Europe
PC penetration per household	%	49.0	59.9
Internet access per household	%	34.1	46.2
Broadband access per capita	%	11.5	12.6
Digital TV (free and pay)	%	20.2	30.6
Pay TV PVR subscribers	%	Na	0.7
Games : online-capable video consoles	%	24.5	18.0
Movies : online revenues	€m	0.0	2.8
Movies: number of downloads/streams	000s	0.1	
Music: a la carte download revenue	€m	0.9	108.9
Music: number of single downloads	000s	733	
DAB: number of services	units	3	27.4
DAB: coverage	%	75.0	32.9
Mobile: penetration	%	109.0	97.2
Mobile: 3G penetration	%	na	11.0
Mobile: music revenues	€m	Na	59.3

Sources : Screen Digest, Goldmedia, ITU, EC

number of unbundled loops – the number of unbundled loops tripled in the period 1Q 2005 – 1Q 2006 from around 16,000 to 109,000. The previous slow progress had been due to delays by the regulator Anacom to force the incumbent to lower its price for unbundling, imposing the first decrease in April 2005. In April 2006, the regulator enforced a ceiling on the price of LLU which had come into effect on 1st January 2006.

As a result, the broadband market can expect to see continued rise of unbundled loops, and a subsequent increase in broadband speeds and fiercer competition with regards multi play packages.

Mobile content

There are three mobile network operators; Optimus, TMN and Vodafone. Talk Talk is the only independent MVNO.

All of the operators have launched 3G networks. Both Vodafone and Optimus launched HSDPA (3.5G) networks in 2006. Fixed-line operator SGC Telecom has been involved in a broadcast mobile TV trial, testing the DVB-H technology. All three mobile network operators offer mobile TV services delivered over the 3G network.

Digital radio

Rádiodifusao Portuguesa, the public broadcaster, is financed with fees and commercials. RDP has a huge deficit and only ten per cent market share with its five stations. The national commercial broadcasters are dominating, with Rádio Renascença leading. Owned by the catholic church, it has about 42 per cent market share with three stations. By the end of the 1980s, hundreds of small private stations sprung up, forcing the government to relocate the frequencies, giving out licenses to local stations. Another national license was issued to Radio Commercial in 1993, which by now has 12 per cent market share with two stations.

DAB trials began in 1998. By now, coverage is 75 per cent with one national multiplex operated by RDP, offering three channels. Two channels will be given to commercial services. The big networks offer streaming over the Internet as well.

21. Slovakia

Broadband content and television

Stakeholders in the Slovak TV marketplace include:

- The terrestrial broadcasters STV, TV Markiza, Joj TV and cable and satellite-delivered news channel TA3.
- The cable industry, in which UPC is by far the largest player.
- The DTH sector, served by the platform UPC Direct.
- The incumbent telco T-Com, formerly known as Slovak Telecom.
- The Council for Broadcasting and Retransmission, a regulatory body that is responsible for overseeing all aspects of broadcasting in the country, along with the Slovak Telecom Office (TOSR).

The incumbent telco T-Com, which is backed by Deutsche Telekom, is rapidly emerging as a key player in the country's TV industry. Its subsidiary Rádiokomunikácie, which is currently on the market, has been undertaking DTT trials in the capital, Bratislava, and Banská Bystrica-Zvolen and may be ready to launch a full service in the second half of 2006. The company Telecom Corp. has meanwhile been undertaking trials in Kosice-Presov and is also expected to launch a full DTT operation in due course.

T-Com has in addition announced plans to launch what will be Slovakia's first IPTV

service. Due to make its debut in Q3 2006, it will employ Microsoft TV IPTV Edition technology and offer such additional features as VoD.

Although the DTH platform UPC Direct has been present in Slovakia since Q4 2000, its subscriber total – an estimated 19-20,000 as of mid-2006 – remains disappointing compared to those in other UPC DTH markets such as Hungary and the Czech Republic.

The country's cable industry has meanwhile been slow to introduce digital TV services. However, the leading MSO is expected to finally become a triple-play company in late 2006 when it starts to offer its subscribers VoIP.

Digital radio

93.5 per cent of the Slovak population listen to the radio. Rádio Slovensko, a news channel, is the leading public station, head on with Rádio Expres. Out of the top five stations in Slovakia, two are private. The public stations are set up to serve different interests. Recently, attempts have been made to create networks by some smaller private stations as they were facing economic problems starting in 2002, but authorities did not support this move.

With the legal framework for T-DAB being in place since 2002, it is planned to start regular transmission of DAB in western Slovakia in 2006. When the implementation of DVB-T in the eastern part of the Slovak Republic has cleared up some space, regular

Databox: Slovakia

2005		Slovakia	Europe
PC penetration per household	%	63.4	59.9
Internet access per household	%	25.8	46.2
Broadband access per capita	%	2.4	12.6
Digital TV (free and pay)	%	12.7	30.6
Pay TV PVR subscribers	%	0	0.7
Games : online-capable video consoles	%	Na	18.0
Movies : online revenues	€m	0	2.8
Movies: number of downloads/streams	000s	0	
Music: a la carte download revenue	€m	0	108.9
Music: number of single downloads	000s	na	
DAB: number of services	units	0	27.4
DAB: coverage	%	0	32.9
Mobile: penetration	%	84.0	97.2
Mobile: 3G penetration	%	na	11.0
Mobile: music revenues	€m	0	59.3

Sources : Screen Digest, Goldmedia, EC, ITU

T-DAB transmissions are expected to start there as well.

Almost all of the Slovak radio stations are streaming their programmes over the Internet too, some offer podcasts as well (Rádio FM for example).

Specific issues

The Government is currently preparing amendments to the 2000 Act on Broadcasting and Retransmission. These are likely to include references to digital broadcasting.

Stakeholders considered that broadcasting is not high on the list of priorities set by the new Government that took office after the General Election held in June 2006. Therefore changes on the legislative front are not foreseen to take place until at least 2007.

Copyright

Slovakia passed a new Copyright Act in 2003 incorporating almost all EU directives. However, there are a growing number of collection societies in the country, making copyright an increasingly contentious issue in the eyes of some stakeholders, especially in the cable sector.

The SAKT (Slovak Association for Cable Telecommunications), which represents the country's smaller operators, until recently had to deal with mostly the Slovak Performing and Mechanical Rights Society (SOZA). Established in 1960 but tracing its roots back to 1919, the latter is now no longer the sole collection society, vying for fees with – amongst others – LITA, OZIS and Slovgram.

Content

Although Slovakia has experienced problems in securing localised programming on the grounds that it is often uneconomic for programmers to produce, one stakeholder felt that there was already a sufficient number of Slovak language channels available to viewers. Their assessment may change once digital cable TV, IPTV and DTT services become available.

Technical issues

While UPC has upgraded around 50 per cent of its homes passed to two-way interactivity and is expected to introduce VoIP in the second half of 2006, only a few other operators – including some 3-4 belonging to the SAKT – are capable of offering digital TV services and cable telephony. This state

of affairs contrasts sharply with that found in most other new EU member states in Central and Eastern Europe.

22. Slovenia

Television and broadband content

Stakeholders in the Slovenian digital market place include:

- The terrestrial broadcasters RTV Slo, Pop TV and Kanal A
- The cable industry, in which UPC Telemach and the Telius group are the leading players.
- The incumbent telco Telekom Slovenije (interviewed) and its competitor T-2, both of which offer IPTV services.

Although Slovenia is one of the smallest of the new EU members, its cable industry is long established and reaches between 60-70 per cent of TV households, while **IPTV services provided by Telekom Slovenije (SioL TV) and T-2 target the remaining 30-40 per cent.**

Slovenia does not at present have its own DTH platform. However, it is expected to be eventually be served by one operated by UPC targeting the countries that once made up the Yugoslav Federation.

While there is no official start-up date for the launch of DTT services, the public broadcaster RTV Slo has been allocated one national multiplex and is likely to start simulcasting its four channels at the end of 2006. The national commercial stations Pop TV and Kanal A, both of which are owned by the US investment company CME, will

probably be allocated a second national multiplex.

Both UPC Telemach and the Telius group are expected to become triple-play operations in the second half of 2006 or in 2007 by launching VoIP. Telius launched a digital TV service in 2003 that is currently received by around 4,000 of its own and third party customers. It is also planning to introduce HD in 2007. No cable operators in Slovenia currently offer VoD.

Slovenia's cable industry is one of the oldest in Central and Eastern Europe, with the first networks having been built in the town of Maribor in the 1980s. Historically much less open to foreign investment than those in other new EU member states, the only significant outside involvement is in the market leader UPC Telemach, owned by Liberty Global.

Consolidation has yet to be achieved on any meaningful level as the cable industry is defined as a free market activity and there is no legal basis for licensing procedures. Most Slovenian operators are now economically unviable, with financial difficulties preventing them from interconnecting their networks.

Despite liberalisation, Telekom Slovenije still calls most of the shots in the electronic communications marketplace. Besides claiming nearly 100 per cent of the broadband ADSL and national voice markets, it accounts for 70 per cent of the 2G and all the 3G mobile sectors. **Its IPTV service SioL TV was one of the first in Europe** and though not a

Databox: Slovenia

2005		Slovenia	Europe
PC penetration per household	%	60.6	59.9
Internet access per household	%	49.1	46.2
Broadband access per capita	%	9.8	12.6
Digital TV (free and pay)	%	6.9	30.6
Pay TV PVR subscribers	%	Na	0.7
Games : online-capable video consoles	%	Na	18.0
Movies : online revenues	€m	0	2.8
Movies: number of downloads/streams	000s	0	
Music: a la carte download revenue	€m	0	108.9
Music: number of single downloads	000s	0	
DAB: number of services	units	0	27.4
DAB: coverage	%	0	32.9
Mobile: penetration	%	89.4	97.2
Mobile: 3G penetration	%	na	11.0
Mobile: music revenues	€m	0	59.3

Sources : Screen Digest, Goldmedia, EC, ITU

runaway success is seeing its subscriber total rising steadily. It stood at around 3,000 in mid-2006 and is eventually expected to reach between 20,000-25,000.

To date, only the alternative telco T-2 has been provided access to Telekom Slovenije's infrastructure. IPTV services are available in around 70 per cent of Slovenia, and the two companies between them are securing around 500 new subscribers a week.

Specific issues

Providers of digital TV services in Slovenia are handicapped by international channel operators preferring to offer their channels for carriage in only basic analogue tiers rather than also digital ones or on an a la carte basis. This approach, which results in many highly rated foreign channels being found in analogue packages, is regarded as hindering competition as it defines the conditions of sale.

Stakeholders such as cable operators believe the only way they can interconnect, and thereby become economically viable, is by securing access to Telekom Slovenije's ducts under cost-based and non-discriminatory terms. They are concerned with regards to the practices of the state owned incumbent, and are expecting the EC to follow closely the process of liberalisation in Slovenia.

23. Spain

Television

Spain is a dynamic digital TV market which has seen the emergence of numerous new means of digital distribution in recent years.

Initially the digital and multichannel TV market was led by two competing satellite TV platforms, Via Digital (launched 1998), backed by the incumbent telco Telefonica; and Canal Satelite (launched in digital in 1997), backed by Spanish content group Sogecable. These services have now merged to form a single satellite pay TV operator, Digital Plus. **Sogecable** remains the largest shareholder and managing company, but Telefonica has retained an interest through a stake in Sogecable.

Spain was a late-starter with cable TV. The first companies began to build out networks in the late 1990s. After a period of consolidation a single cable company, **Ono**, now controls 70 per cent of the market. Three smaller operators control the remainder of the market. Ono has been relatively active in exploiting new media opportunities, rolling out a VOD service late last year (2005) and making use of unbundled DSL networks to expand its reach in areas where it does not own infrastructure.

Spain also has an active IPTV market, led by Telefonica and its Imagenio service. Growth of IPTV has been relatively strong and a number of other new entrants, including

several ISPs, are now set to enter the IPTV space. There has also been a recent push behind Digital Terrestrial Television (DTT) after a period of hibernation following the collapse of a short-lived pay DTT service in the early part of this decade.

Spain also took the relatively unusual step of licensing two new national analogue TV channels last year, despite having an ambitious analogue-switch off date of 2010. The first was launched after Sogecable asked to switch the analogue terrestrial pay TV license it held for Canal Plus to a free-to-air model. The result was new channel Cuatro. Later in the year, Globo Media was allowed to launch another new analogue service, La Sexta, a channel with near-national reach. The other channels in the national free-to-air market are state-backed RTVE services La Primera and La 2, and wholly commercial operations Antena 3 and TeleCinco.

Broadband content

Broadband lines in Spain fell just shy of five million at the end of 2005. The country had 678,000 shared or fully unbundled lines at the end of H1 2006. Incumbent telco Telefonica had 3.22m DSL customers at the end of June 2006. The principal alternative telcos who unbundle incumbent Telefonica's lines include Jazztel (with estimated 190,000 at end March 2006), Wanadoo (France Telecom) and Ya.com (Deutsche Telekom). All three alternative

Databox: Spain

2005		Spain	Europe
PC penetration per household	%	51.0	59.9
Internet access per household	%	37.0	46.2
Broadband access per capita	%	11.5	12.6
Digital TV (free and pay)	%	27.8	30.6
Pay TV PVR subscribers	%	Na	0.7
Games : online-capable video consoles	%	24.5	18.0
Movies : online revenues	€m	0.0	2.8
Movies: number of downloads/streams	000s	0.3	
Music: a la carte download revenue	€m	3.4	108.9
Music: number of single downloads	000s	3,044	
DAB: number of services	units	18	27.4
DAB: coverage	%	52.0	32.9
Mobile: penetration	%	96.8	97.2
Mobile: 3G penetration	%	6.6	11.0
Mobile: music revenues	€m	2.5	59.3

Sources : Screen Digest, Goldmedia, EC, ITU, IFPI

providers have launched ADSL 2+ broadband products.

Jazztel offers a dual package of telephony and DSL broadband; the company launched its IPTV service Jazztelia (with VoD and digital TV) in January 2006, initially in Zaragoza and now available to all customers with an ADSL 2+ connection above 6Mbps. Wanadoo offers a similar dual play package and launched its IPTV service Wanadoo in May 2006 (with VoD and digital TV) as part of a triple play offering. Ya.com offers the dual package but is yet to launch a television service over IP.

Other IPTV services in the country include incumbent Telefonica's Imagenio service which is available nationwide and includes premium digital content and on-demand titles. The service can be taken alone or in conjunction with other services. Imagenio registered 250,000 subscribers at end of March 2006, and by far the most popular IPTV service. Alternative network operator Grupalia has also run a service dubbed Superbanda through its ISP, as part of a triple play package, but the television service lacks on-demand and premium television channels.

The largest cableco in the country is Ono which can provide services to over 5.8m homes and boasts around 1m cable internet customers as of end June 2006. The company and a consortium of private equity partners agreed to pay €2.5bn for the Auna group, completed in November 2005. The merger reduced the number of cable companies in Spain to just four, leaving only Northern operators R in Galicia, Euskaltel in the Basque region and Telecable in Asturias outside the Ono family. The integration made Ono the second-largest dedicated fixed-line and broadband services company in Spain after Telefónica. Ono offers triple play packages of digital television, broadband and telephony over cable.

Digital radio

The public radio network Radio Nacional de España (RNE) runs about 459 radio stations. The important private networks are SER, Onda Cero Radio and COPE. SER is almost always the leading network in audience shares and broadcasts in AM and FM. Apart from these national networks coverage, there are some private regional networks on FM. There are some private stations on AM and FM with local coverage that are not syndicated to networks. So called Radios

generalistas or Cadena generalistas are very successful programmes and reach the highest listener share with a focus on spoken word programming (call-in shows, talk shows, news). Notably, AM is also a dominant transmission technology along with FM in Spain in contrast to other European countries.

In 1998 DAB started with pilot stations. The coverage is to rise to 80 per cent by 2006. DAB encompasses a mix of public and commercial broadcasting (total 27 stations in 2006). Most are analogue stations. Exclusive stations for DAB are all run by commercial operators (El Mundo, ABC and Recoletos, all are owned by newspaper groups). Other digital-only stations are Cope Digital, Ser Digital and Quiero Radio.

The four public networks and a lot of private stations stream their programmes. The networks SER and Onda Cero also offer podcasts.

According to Visualradio.com the radio station "Los 40 Principales" (highest listener share, three million listeners daily and more than 80 radio stations) offers visual radio. "Los 40 Principales" also offers call-in shows.

Mobile content

There are three mobile network operators; Amena, Telefonica and Vodafone. Screen Digest's research shows there are no MVNOs in Spain. However, following pressure from the regulator, the mobile network operators have agreed to open up the networks and a number of MVNO launches have been announced.

All of the operators have launched 3G networks. A fourth 3G licence was awarded to Xfera, although no network has launched. Xfera is now majority owned by TeliaSonera, and the company announced plans to begin deployment of a network to launch at the end of 2006. Vodafone has announced plans to launch an HSDPA (3.5G) network in 2006. All three network operators have conducted separate trials of the mobile TV broadcast technology, DVB-H. All three also offer mobile TV services delivered over the 3G network.

The HQ of operator group Telefonica is in Spain. Major mobile content aggregator and portal company, LaNetro Zed, was to list on the Spanish stock market in 2006 but withdrew its offering.

Digital publishing

A multi-national study carried out by market researchers Vanson Bourne for Motorola which was published in June 2006, found that Spanish internet users were most interested in using their broadband connections to download movies and music, and were the most prepared to pay extra for broadband services which included access to TV, music and movies. An earlier study in 2005 by Parks Associates showed that 80% of Spanish people were interested in advanced TV services allowing personalisation and interactivity. As publishers are increasingly moving into provision of IPTV services, this shows that Spain is likely to be fertile territory.

Newspapers and magazines

At a meeting of the Asociación de la Prensa de Madrid, in May 2006, the heads of Spain's top four papers discussed threats from free papers and the Internet. Some points raised were that:

- only large quality newspapers with strong brand names will survive, however with very different business and labor models
- relationships with producers of video and new forms of distribution will emerge
- in a world where most people only see images, the written press is becoming devalued

One editor believed that the Internet is beneficial for newspapers because it allows them to publish things that don't fit in the paper.

Two of the leading Spanish media companies that include newspapers in their media assets, Prisa and Vocento, are pursuing very active digital strategies.

Prisa, which owns El País and Cinco Días (and 18% of Le Monde), as well as radio, TV and educational publishing, has centralised all the group's mobile and online activities within Prisacom, which is responsible for adapting all content produced for different media platforms. Though digital revenues amounted to 5% of the total in the nine months to September 2005, they rose by 22.5% compared with an overall rise in turnover of 9.7%. In the mobile area, the company is developing WAP sites for its content, and is also present on major operators' portals.

In terms of business models, El País online has experimented with wholly free, wholly paid-for and now a mixture of free and paid-for content. Subscribers to El País

can also get access to the premium content on *lemonde.fr*. Since opening up part of the site to free access again, online advertising revenues have risen. At the moment, they see this dual revenue stream as the most effective model. This year it has launched a constantly updated Internet supplement, called 24 Horas, that can be downloaded in PDF format and printed by the reader.

In June 2006 it launched an edition of El País for Sony's Playstation Portable. The PSP version will add to PDA and cellular phone editions and is part of the paper's attempts to attract younger readers.

Vocento, which owns 12 regional newspapers as well as ABC, has organised its regional newspapers to serve as a nexus and brand for regional multimedia offerings comprising TV, radio, newspaper, Internet portal and free newspaper. All advertising sales are channelled through one regional company. As well as the regional internet portals, there is a national portal, Ozu, in which the company holds a majority stake. Alongside this are vertical channels, including film, auto, personal finance, weather, women's interests, football, cycling etc, and business to business services, including content syndication. La Trastienda Digital is an e-commerce initiative, which has become mainly B2B. Local advertising online rose by 32% in 2005.

The Spanish daily El Correo has opened up its pages to readers through its *EnlaCe* initiative. It solicits contributions, from riddles to photos, and uses the best in a two-page section in between the national and international sections of the paper's print edition. Readers can submit via post, email, telephone, SMS or through the paper's website.

El Mundo has added Google Maps to its site, while allowing Google to integrate reviews of restaurants and other material from its databases.

Specific issues

The issues raised by Spanish stake holders reflected those that emerged in a number of other major European markets where new media platforms has altered the status quo.

Issues regarding access to content were raised, as was the widely held belief that **rights agreements based on technical platform were now redundant.**

Some specific competition issues emerge between 'old-world' distribution platforms like cable and satellite and new

world IPTV operators, particularly with regard to regulation and the impact of certain rules on each platform's relationship with channel operators. Beside it was felt that interactive television services are being held back by the fact that all gambling (key to any viable iTV offering) is state-controlled.

Operators in both the traditional cable and IPTV space are concerned about **must-carry regulations applicable to IPTV** and the status of new digital channels operated by national broadcasters. The general consensus among infrastructure owners is that national channels subject to must-carry status should also make their new digital services available to platforms for free, otherwise the competing DTT platform would be provided an unfair advantage (in having all the free digital services for free). Not surprisingly, the channels point of view differ, in that they feel they should be compensated for investment in new programming and feel it is unreasonable that they do not receive carriage fees for DTT.

The channels themselves have problems with **access to new media rights**. In particular for US films and series broadband and mobile rights is noted as very difficult to get hold of. By contrast, contracts for content commissioned from independent producers include rights to new media distribution as standard. However, **the problems with getting rights to acquired international content is preventing channels from simulcasting on broadband or developing services for mobile**.

In addition low broadband penetration in Spain is so far holding back developments with broadband TV and investment by major broadcasters in broadband TV services. Some stake-holders suggest that some sort of state subsidy or incentive plan may be required to encourage the broadband market in Spain.

24. Sweden

TV and Broadband content

Main stakeholders in the Swedish TV and Broadband marketplace include:

- Main free-to-air/free-to-view analogue and digital channels: SVT1, SVT2, SVT 24 (publicly owned); TV3, TV4, TV8, ZTV, Kanal 5 (privately owned)
- Pay TV services: Canal Digital (DTH, cable), Viasat (DTH, cable), Canal Plus Premium (DTH, cable), Com Hem (cable), Tele2 (cable), UPC, Sweden Online (cable), Seth's Kabel TV (cable)
- IPTV services: Viasat (FTTH, DSL), Canal Digital (FTTH), Sollentuna (FTTH), FastTVnet (FTTH), Telia Digital TV (FTTH, DSL), Varberg Digital TV (FTTH)
- DTT pay TV platform: Boxer TV
- Incumbent telco TeliaSonera which provides DSL broadband, mobile and fixed telephony in addition to its IPTV service
- Cable network operators Com Hem and UPC which provide broadband internet access and fixed telephony in addition to their cable television services
- Alternative network operator Bredbandsbolaget (B2) - owned by Norwegian incumbent Telenor - which provides broadband over DSL and fibre, VoIP telephony and digital television over IP

- Alternative telco Tele2, which offers broadband over cable and DSL, mobile and fixed telephony in addition to its cable television service
- Third party ISP which offers DSL broadband access, Glocalnet, in which Telenor owns a 96 per cent share
- Post-och telestyrelsen, PTS, the Swedish National Post and Telecom Agency, is the governmental authority that monitors the electronic communications and postal sectors.

The Swedish Government was the first in Europe to develop a broadband policy. In 1999 recommended that a fibre network be constructed, collecting SEKr 5.8billion for this purpose, resulting in 200 metro networks across 100 towns. The country has one of the highest broadband penetrations in Europe, with just under 1.9m broadband connections at the end of 2005. Sweden also boasts an extensive broadband wireless network.

Three main forms of broadband technology compete in Sweden: fibre, DSL and cable, with DSL being the most widespread form of access. Fibre is typically employed through a 100Mbps link to a building which is shared via an Ethernet LAN to offer speeds of 10Mbps in both directions. These speeds are not as fast as those offered by ADSL2+ and VDSL providers, but it is likely that as fibre to the premise links are rolled out, offering 100Mbps, the technology

Databox: Sweden

2005		Sweden	Europe
PC penetration per household	%	82.0	59.9
Internet access per household	%	75.7	46.2
Broadband access per capita	%	21.1	12.6
Digital TV (free and pay)	%	44.3	30.6
Pay TV PVR subscribers	%	Na	0.7
Games : online-capable video consoles	%	15.9	18.0
Movies : online revenues	€m	0.5	2.8
Movies: number of downloads/streams	000s	216.1	
Music: a la carte download revenue	€m	4.2	108.9
Music: number of single downloads	000s	4016.0	
Number of DAB services	units	7	27.4
DAB coverage	%	37.0	32.9
Mobile: penetration	%	93.3	97.2
Mobile: 3G penetration	%	Na	11.0
Mobile: music revenues	€m	1.2	59.3

Sources : Screen Digest, Goldmedia, ITU, IFPI, EC

will increase its market share in relation to DSL.

There are six IPTV services in the country, the most popular of which is Telia Digital TV operated by incumbent telco TeliaSonera. The first IPTV service, Sollentuna, launched in August 2002. All offer VoD (except Varberg Digital TV which will introduce it) and use fibre to transmit data (except TeliaSonera's operation which runs over DSL). Local Loop Unbundling has also seen impressive growth in the country, which has one of the highest LLU shares of the DSL market in Europe: there were around 370,000 unbundled lines at the end of 2005. B2 Bredband and TDC Song as the main providers offering DSL access via the process. The main cable television operators are Com Hem, Tele2 and UPC. In June 2006, Liberty Global completed the sale of UPC Sweden to Carlyle Group and Providence Equity Partners, the same investment companies which agreed to acquire the other main cableco, Com Hem, in December 2005. Both Com Hem and UPC provision telephony, broadband and digital television. Tele2 and Bredbandsbolaget provide VoIP in addition to broadband access and television. Tele2 also provides mobile telephony, making it capable of selling quad play services to citizens.

The high level of broadband penetration in the country has meant that broadband content services, such as SF Anytime and Film2Home for movies, have experienced stronger growth than other European countries.

Mobile content

There are four nationwide mobile network operators; 3, Tele2, Telenor and Telia (part of the TeliaSonera group of operators). Vodafone sold its Swedish operations to Telenor in 2006.

Screen Digest's research shows that there are no independent MVNOs in Sweden. MTV had previously operated an MVNO in Sweden, Hello MTV, but pulled out of the market in 2005.

All of the nationwide mobile operators have launched 3G networks, and 3 has announced plans to deploy an HSDPA network this year. In addition to the nationwide operators, Spring Mobil provides a 'local' GSM service, deployed on demand and designed for use by companies as an alternative internal phone system. Content is not distributed through this system.

Two mobile TV trials using the DVB-H standard are planned for 2006. Operator Telia is involved in one, and the other involves Telenor in conjunction with the Swedish Broadcasting Corporation.

Sweden has a very large number of mobile companies. Mobile technology giant Ericsson is based in Sweden, and the pan-European network operator groups Tele2 and TeliaSonera both have their headquarters here. Mobile content distributor Aspiro is listed on the Stockholm stock exchange, and Terraplay is regarded as one of the world leaders in multiplayer mobile gaming. There are also numerous smaller mobile content companies.

25. United Kingdom

Broadband and television

The main players in the digital marketplace include:

- The free-to-air terrestrial broadcasters BBC, ITV, Channel 4 and Five
- Free-to-view digital terrestrial television (DTT) platform Freeview (jointly owned by BBC, ITV, Channel 4, BSkyB and National Grid Wireless)
- NTL Telewest, a digital cable operator that provides TV and internet services, fixed and mobile telephony – via Virgin Mobile, its mobile virtual network operator (MVNO).
- BSkyB, a digital satellite television provider that also produces television content, owns television channels and, from July 2006, provides broadband internet services
- Homechoice, which provides broadband internet, digital television and video-on-demand via a set-top box connected to a British Telecom fixed telephone line. Homechoice also offers landline telephony services
- The incumbent telco British Telecom, and principal third party residential DSL internet service providers (ISPs) AOL UK (owned by AOL Time Warner), Orange (owned by France Telecom), Tiscali UK, Pipex and Carphone Warehouse.
- Non-incumbent telco, Bulldog, which provides wholesale internet services
- Ofcom, the independent regulator and competition authority for the UK communications industries, with responsibilities across television, radio, telecommunications and wireless communications services.
- OTA, Office of the Telecommunications Adjudicator, responsible for encouraging competition between telcos and overseeing the unbundling process of the incumbent's local loops.
- There are five mobile network operators; 3, O2, Orange, T-Mobile and Vodafone.
- In addition, there are around a dozen MVNOs (mobile virtual network operators), the most successful being Virgin Mobile (reportedly 3m subscribers) and Tesco Mobile (reportedly 1m subscribers).

The UK broadband access market is fiercely competitive at present, dominated by DSL which penetrated about 73% of broadband connections at the end of 2005, at which time there were 9.8m broadband connections. Alternative DSL ISPs are rapidly unbundling incumbent BT's exchanges and offering more and more valuable services and data transmission speeds for consumers. As of end June 2006, 580,000 lines had been unbundled by third party DSL competitors, up from approximately 200,000 at the beginning of

Databox: UK

2005		UK	Europe
PC penetration per household	%	67.8	59.9
Internet access per household	%	57.0	46.2
Broadband access per capita	%	16.3	12.6
Digital TV (free and pay)	%	68.7	30.6
Pay TV PVR subscribers	%	4.8	0.7
Games : online-capable video consoles	%	38.8	18.0
Movies : online revenues	€m	0.0	2.8
Movies: number of downloads/streams	000s	8.5	
Music: a la carte download revenue	€m	37.1	108.9
Music: number of single downloads	000s	23,760	
DAB: number of services	units	400	27.4
DAB: coverage	%	85.0	32.9
Mobile: penetration	%	102.1	97.2
Mobile: 3G penetration	%	8.7	11.0
Mobile: music revenues	€m	20.7	59.3

Sources: Screen Digest, Goldmedia, EC, ITU, IFPI

the year. OTA expects this number to rise to 1m by year end 2006. This rapid process of unbundling has been aided by Ofcom's rulings in its Strategic Review of Telecommunications in September 2005. These measures have allowed all communications providers to gain real equality of access to critical BT infrastructure on fair and equal terms by lowering BT's price for unbundling its exchanges; they have led to investment in alternative infrastructure, enabling innovations in multiple services (such as triple play TV-voice-internet) and have created more competitive prices for consumers and businesses; lastly they have also ensured the UK's position as a competitor in a wider European context.

In April 2006, Carphone Warehouse, traditionally a fixed telephone line provider, launched DSL broadband up to 8Mbps as a value added service to its Talk Talk landline phone customers. The company is rapidly unbundling BT's exchanges as it hopes to connect the customers (340,000 in the first eight weeks) who signed up to the deal which started in April 2006. On 1 June 2006, Orange began bundling DSL broadband and VoIP, along with a wireless router, as a free value add-on for mobile customers who pay a premium monthly tariff. The following month, in July 2006, BSkyB, the owner of business ISP Easynet since October 2005, also started supplying up to 2Mbps broadband and a wireless router to its Pay TV subscribers for no extra cost. Carphone Warehouse, Orange and Pipex are at present rapidly migrating retail DSL customers onto their unbundled lines. Telefonica-owned mobile telco O2, after acquiring ISP Be in June 2006, will begin moving customers over to Be's unbundled ADSL 2+ network.

The UK market is thus experiencing an explosion of packages which bundle so-called 'free' DSL broadband onto fixed line, mobile or pay-TV subscriptions: a tactic not seen to the same scale in other European countries. This explosion follows non-traditional fixed phone (Carphone Warehouse) and pay-TV (BSkyB) communications companies recently competing to acquire unbundled DSL networks capable of converging high-speed internet with multiple play packages. The triple play strategy began with the UK's only cableco, NTL Telewest, which markets a traditional triple play bundle of digital TV, landline phone and cable broadband over coaxial. Originally two cablecos, NTL and

Telewest merged in March 2006, and then acquired Virgin Mobile in the following month to create the country's first quad play company. In July 2006, NTL Telewest announced their plans to market a quad play product, as well as a free digital TV service with VoD capability from 1 September, aimed at stemming the growth of Freeview. The quad play product will carry the Virgin brand. Homechoice was the first company to offer IPTV, landline phone and DSL broadband internet as a package, though its geographical scale is restricted to the London area. On 1 June, Orange announced its intention to follow suit and add IPTV services (digitally streamed TV and VoD) over its unbundled network, in addition to its three-arm VoIP, DSL broadband and mobile deal - a quad play product already successfully employed in France.

Incumbent telco BT has also announced the launch date of its DSL platform IPTV set-top box BT Vision for autumn 2006. The service will offer VoD, a PVR and access to Freeview's 30 digital channels. The incumbent will not however be able to package the TV service with fixed line phone service for regulatory reasons. The other unbundling third party telcos are expected to follow the IPTV path in due course, adding video services over their networks to complement their broadband data, fixed or mobile phone services. BT and others' IPTV services will nevertheless face stiff competition for premium sport and movie content from BSkyB and from cable firm NTL Telewest. BT has already secured one content sharing deal with BSkyB for the rights to live FA football matches, worth £84.3m. All platforms, DTH, IPTV and cable also face opposition from a growing UK base of Freeview platforms and digital-ready TVs, which have both seen recent increased sales - 1.2m combined sales in first quarter 2006. This increase has most likely caused the diminishing subscriber net additions in the first quarter 2006 for Sky Digital, its lowest quarterly additions since 1999. Free-to-air digital reception continued to grow strongly against pay TV in the first quarter 2006: there were 683,000 net free-to-air digital additions compared to just 105,000 net digital pay TV additions. Forty-two per cent of digital homes are now free-to-air, compared to 40 per cent at end 2005. BSkyB's new Sky HD television service via its HD set-top box, which began in May 2006, and its recent tactic of bundling broadband for its Pay-TV customers, may

well revive subscriber additions. In response to the multichannel options available with Freeview, all UK terrestrial channels have now launched their own digital channels. In June 2006 Channel Five became the last terrestrial channel to launch two new channels for digital transmission.

In the UK, Pay-TV operator BSkyB and linear broadcasters Channel 4 and BBC have started making their TV content available on the open internet for consumption. Subscribers to Sky Digital packages can watch premium movie and sports content via the www.skybybroadband.com portal, free of charge. Content is offered for a rental period up to 30 days, within the Pay-TV window but without the right to burn or transfer to other devices. Channel 4, after negotiating a rights deal with Buena Vista International Television, has started offering episodes of TV shows such as *Lost* for 99p an episode for unlimited viewing in a 24-hr rental period, on a digital rental basis. Channel 4 follows in the footsteps of Apple, which led the way in the online TV digital rental space in the US, via its iTunes store, followed later by Google Video. Both these companies are expected to employ a similar “a la carte” model for TV and, eventually, movies, in the UK. As far as online movies, Lovefilm offers films on either a digital rental (content from Warner Bros and independents) and, from April 2006, on a digital retail basis (content from Universal Studios). Customers buying a film on a retail basis will receive three copies: one to the PC or laptop, one for a compatible portable device, and one physical copy through the mail, without extras. Cinemanow, another online movie service, offers low-budget digital rental content for a period of 24-48hrs as well as supplying on a digital retail basis. Currently online TV and movie subscription models have yet to arrive in the country, though are expected soon from the likes of Apple and rightsholders such as BSkyB.

Online music

Online music in the UK began with the launch of iTunes Music Store in June 2004, which sells tracks and albums on a digital retail basis. The service continues to demand around an 80% market share. However, the UK has produced a surprisingly dynamic indie sector, from the likes of O2 Loudeye, 7Digital and Tunetribes through their retail stores. Stiff competition in the UK sector has increasingly forced these companies to seek opportunities

overseas and turn to other forms of content (such as Wippit's July 2006 digital retail movie deal with Universal Pictures) to increase profit margins.

Digital radio

15 groups control the UK's commercial radio market. Out of these, the largest eight dominate. The BBC has about 50 per cent market share with five national and 40 local stations as well as regional programmes for Scotland, Wales and Northern Ireland. An average listener can choose between about 15 stations. But with the market being almost entirely devoted to music, pirate stations exist in urban areas to offer more diversity.

2.7m DAB receivers were sold. About 90 per cent of the population can receive DAB from two national multiplexes. One is maintained by the BBC, offering its five stations plus five digital-only ones. Another multiplex, operated by Digital One, also simulcasts eight audio stations plus five digital only. Altogether, 422 services are offered on DAB of which 171 are digital only.

Some programmes are transmitted via DTT, satellite and cable, and most stations stream over the Internet as well. The BBC for instance, also offers podcasts from several shows.

Mobile content

The UK is one of the largest markets for mobile content in Europe. All five of the network operators have deployed 3G networks. All have trialled 3.5G (HSDPA) networks, and O2 has launched a commercial 3.5G service, although only in a very limited geographical area (the Isle of Man). Network operator O2 offers i-mode mobile phones to users. Content for Vodafone owned operators around the world is sourced in the UK.

The UK occupies a key role in the mobile gaming sector. Many publishers and developers are based in the UK:

- Publishers Glu, I-Play, Eidos, Superscape, Finesse Mobile, Player One and Player X are all based in the UK.
- Electronic Arts, the Western market leader for mobile games, runs its European operations from the UK, as does Infospace.
- There are dozens of mobile games developers, including some of the most highly regarded in the Western world. These include Distinctive Developments, Morpheme, Ideaworks 3D and

Rockpool Games, all of whom have won internationally recognised awards for their product.

All of the network operators except T-Mobile are already involved in mobile TV. Vodafone (in conjunction with broadcaster BSkyB), O2, Orange and 3 are using the 3G network to deliver mobile TV services. O2 has also been involved in trials of DVB-H services, but frequency for such a service will not be available before 2008 at the earliest (frequency appropriate for DVB-H will be made available after the analogue TV switch off, which will happen in a phased fashion between 2008 and 2012). MVNO Virgin Mobile and fixed-line incumbent BT have trialled a DAB-IP mobile service delivered over the existing DAB transmitter network. Virgin Mobile expects to offer the service commercially in the second half of 2006.

3 UK has won plaudits throughout the industry for its innovative user generated video service, called See Me TV. Users submit video clips for others to download, and receive money off their phone bill for each download. The service is generating over 1m downloads per month (Q1 2006 figure) from a total subscriber base of 3.5m.

Digital publishing

General

A survey of UK publishers, carried out by Deloitte for the Association of Online Publishers (AOP) and launched in July 2006, found that digital revenue is on average 17% of overall revenues, and that the growth of online advertising is the main factor. Online revenue is not cannibalising existing print revenues, the survey found. 70% of publishers do not feel threatened by blogs or other user-generated content and many are looking for ways to integrate it into their consumer sites. Newspaper and consumer magazine publishers' main strategy is to build audiences to drive online advertising revenue, with only a few trying to charge consumers for content, in contrast with business publishers. Most publishers are trying to create coherence by having a single team per brand or title, with responsibility for all content whether for print, online or mobile. The focus is on the brand rather than the specific medium.

Social networking

Social networking sites such as Bebo and MySpace, used primarily by teenagers, are particularly important in the UK, as are sites allowing users to trace their family histories, with 1.5m users doing so. One such site is Genes Reunited, an offshoot of networking site Friends Reunited, which was acquired by commercial broadcaster ITV in 2005.

Newspapers

Most newspapers are engaged in continuous additions to their online sites, such as blogs and podcasts (e.g. The Telegraph, The Guardian), and some have launched music download services (e.g. This is London, the site of the Evening Standard). The Scotsman has recently (February 2006) introduced the first video podcast. The Guardian has a particularly wide range of digital initiatives, see Case Study. The Times has introduced a 'Smart Search' service with search engine Blinkx, which updates topic folders customised by the user, and provides a contextual news service related to content being browsed by a user. The Times has also introduced a feature allowing users to 'turn the pages' of the digital version of its magazine supplement.

A wide range of newspapers provide content for mobile phones, including a package for the O2 service from the FT, The Economist, The Independent, The Times, the Daily Telegraph and some regional papers.

Another feature of recent years has been the acquisition by newspapers of various classified advertising sites, for example the purchase in December 2005 by DMGT, publisher of the Daily Mail, of Fastcrop, owner of property website primelocation.com.

In terms of production, Johnston Press, the second largest regional press group, recently announced (June 2006) that it is creating 70 multimedia newsrooms with reporters filing both written and video stories.

Magazines

A survey by Abacus e-media for the AOP of 40 magazine publishers found that of their 451 titles, 72% had a web presence, but only 25% had all editorial online. 49% had changed their business model as a result of increased Internet usage, and 91% expected online revenue to increase in the next two years, but only 17% had a system in place to automatically repurpose content from print to online. The AOP Census 2006 showed that

for the first time in four years, the percentage of publishers charging for content online has dropped from 63% in 2005 to 37% in 2006. Turnover has risen by 53% on the year, driven by the big increase in online advertising.

In June 2006, the National Magazine Company (publisher of *Cosmopolitan*, *Good Housekeeping* and other titles) announced that it is opening a web division that will allow it to create new websites not necessarily derived from existing titles, and revamp existing sites based on the titles but including original content. The aim is to build online communities. It will also operate the company's pure-play consumer health site *NetDoctor.co.uk* and any future pure-play acquisitions.

In August 2005, *Hello* magazine launched a new WAP portal which delivers celebrity news and photos to mobile phones; headlines are free but full stories require a €4.35 monthly subscription.

Books

Some of the most interesting digital innovations have come from travel guide publishers. For example, *Rough Guides* now offers:

- Podcasts – free downloadable files with city information, updatable on a monthly basis with a subscription
- Podscrolls – content on ten major cities, with pictures, downloadable for colour-screen iPods.
- Phrasebooks available as downloadable audio files
- All the *Directions* series of guidebooks are available in e-book format
- Interactive digital maps for PDA or Smartphone.

Downloadable audio book sales have also taken off, with audiobook wholesaler for the Apple's iTunes store, *Audible.co.uk*, reporting in July 2006 that it has sold 300,000 downloads over the past year, with unabridged readings and comedy among the most popular genres. Peter Bowron, group managing director at *Random House*, believes there will come a point when books are commissioned on the basis of their audio rather than bookstand potential.

Country-specific issues

The role of the BBC in the online market generally and also in the online educational publishing area is seen as a disincentive by some of the commercial providers investing.

Government policy in relation to the educational ICT curriculum is seen as too narrowly focused on providing hardware and doesn't place the proper priority on embedding ICT into all aspects of the curriculum.

As already noted, most publishers mentioned market-facing issues e.g. business models and consumer acceptance, and internal challenges e.g. repurposing print content, as being the most important roadblocks. However, a few themes emerged in relation to actions that could potentially be taken by regulatory authorities to remove the obstacles they face in relation to deploying content on new platforms.

- Overall regulatory regime: publishers wish to avoid as far as possible moving away from self-regulation of either content or advertising, and specifically many would not wish to see regulation designed for audiovisual media extended non-linear services or for their own activities to be classified as linear
- No further extension of copyright exemptions or exceptions
- VAT: many publishers would like to see their electronic services and hybrid print/online services benefit from the same discretionary VAT concessions that apply to print in several Member States