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The Development Of IPTV and VoD In Europe In The Context Of Transition To Digital Television

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THE DEVELOPMENT OF IPTV AND VoD IN EUROPE IN THE CONTEXT OF
TRANSITION TO DIGITAL TELEVISION
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by
Dr. André Lange*

In Europe, the transition to digital television continues to follow different routes from country to country. Depending on the conditions specific to each national market, digital terrestrial television, direct digital satellite broadcasting, the digitization of cable networks and broadcasting over broadband networks in ADSL (Asymmetric Digital Subscriber Line), commonly known as IPTV, all play a greater or smaller role in the transition. By estimates of the European Audiovisual Observatory, 24.4 percent of TV households in the European Union (EU) were equipped to receive digital television by the end of 2005.¹ The percentage for greater Europe was a little below 22 percent.²

I.
THE TRANSITION TO DIGITAL TELEVISION

A. Digital Terrestrial Television

The move from analog terrestrial to digital terrestrial television (or DTT) was driven by the International Telecommunications Union (ITU) and the Conference of European Post and Telecommunications (CEPT). On June 16, 2006, following the Regional Telecommunications Conference held in Geneva in 2006 by the ITU, an agreement with treaty status was signed on digital broadcasting services.³ This agreement states that “the generalization of digital broadcasting in Europe, Africa, the Middle East and the Islamic Republic of Iran by 2015 will be a major advance in the establishment of a more equitable information society with a human dimension.”⁴

This agreement opens the way to the use of all the opportunities offered by the information and communications technologies for achievement of the development objectives recognized at the international level. The year

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¹ EUROPEAN AUDIOVISUAL OBSERVATORY, *Yearbook 2006*, Council of Europe Strasbourg, 2006.

² *Id.*

³ Regional Agreement GE06, June 16, 2006,

<http://www.ucc.co.ug/spectrum/geO6digitalFinalActs.pdf> (last visited Nov. 30, 2007).

⁴ *Id.*

selected as the end of the transition period from analog terrestrial to DTT – 2015 – is precisely the deadline fixed for the implementation of those development objectives.⁵

The Regional Agreement that was concluded on digital services relates to the frequency bands 174 230 MHz and 470 862 MHz. For analog broadcasting, it is the beginning of the end so to speak. The conference participants decided that the transition period from analog to digital television beginning on June 17, 2006 at 0001 hours UTC would end on June 17, 2015, although some countries wished there to be an additional five years for the metric waveband (174 230 MHz).⁶

This transition comes under the responsibility of the Member States; but, where the EU is concerned, it is also anticipated by the European Commission and European Parliament. In September 2003, the Commission published a communication concerning the transition from analog to digital broadcasting (from digital switchover to analog switch-off) setting out the advantages of the move to digital.⁷ It explored various political options and launched the debate on the orientations of EU policy as to the number and future uses of the frequencies potentially released by the switch-off of analog terrestrial television. On May 24, 2005, the Commission published a Communication on accelerating the transition from analog to digital television.⁸ In this document:

[The Commission] expects that by the beginning of 2010 the switchover process should be well advanced in the EU as a whole and proposes that a deadline of the beginning of 2012 be set for completing analog switch-off in all EU Member States. Flexibility is needed to ensure that the spectrum currently used for analog terrestrial

⁵ Press Release, International Telecommunications Union, Digital Broadcasting Set to Transform Communication Landscape by 2015, (June 16, 2006) (on file with the author).

⁶ *Id.* at 24, n. 7 (list of those countries for which the transition period would end on June 17, 2020).

⁷ *Communications From the Commission to the Council, The European Parliament, the European Economic and Social Committee and the Committee of the Regions on the Transition from Analogue to Digital Broadcasting (from Digital 'Switchover' to Analog 'Switch-Off,'* COM (2003) 541 final (Sept. 17, 2003).

⁸ *Communications From the Commission to the Council, The European Parliament, the European Economic and Social Committee and the Committee of the Regions on Accelerating the Transition From Analog to Digital Broadcasting,* at 4, COM (2005) 204 final (May 24, 2005).

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broadcasting is reused in a way that provides most value to society and to the economy. All potential applications for the use of these frequencies should be considered and any allocation and assignment procedures must ensure fair access for all potential users. The availability of a part of the spectrum dividend at EU level would facilitate the uptake of new pan-European services and applications and the Commission will examine the feasibility of a coordinated approach.⁹

In a “resolution concerning the acceleration of digital switchover in the field of broadcasting”, the European Parliament gave its support to the Commission’s desire to see all EU Member States complete the switchover process by the end of 2012.¹⁰

Table 1 - Target Dates for Analog Broadcasting Switch-off in Europe

Switch-off already completed	Certain regions in Germany (since August 2003), certain regions in Sweden (since 2005), Luxemburg (1.9.2006), Netherlands (11.12.2006), certain regions in Switzerland (Ticino, 24.7.2006, Engadine, 13.11.2006), Finland (1.9.2007)
By end 2010	Austria (2010), Germany (2007), Belgium (Flemish Community, 2010), Denmark (2009) Spain (2008 for Catalonia, 2010 for the rest of Spain), Italy (with a review expected, however, of the initial deadline at end 2006, first regional switch-off in Sardinia scheduled March 2007), Malta, Sweden (2008), Bulgaria (2008), Switzerland (2009), Norway (2009)
Between 2011 and end 2012 at the latest	Estonia (2012), Hungary (2012), France (30.11.2011), Latvia (2011), Portugal (2012), Czech Republic (2012), United Kingdom (gradual switch-off by regions, 2008-2012), Slovenia (2012), Slovakia (2012), French Community of Belgium (2012).
Beyond 2012	Poland, Ireland, Cyprus, Greece (2015), Lithuania (2015), Poland (2014), Russian Federation (target: 2015)

Source: European Audiovisual Observatory from national sources

⁹ *Id.* at 10.

¹⁰ Council Resolution (EC) 431 of 16 Nov. 2006 O.J. (C280E) 115.

In 2006 and 2007, there was a significant increase in the number of households equipped to receive DTT. The estimates included 9 million in the United Kingdom by the end of June 2007,¹¹ seven million in Germany in December 2006,¹² nearly 14 million in France in September 2007,¹³ and four million in Italy by the end of¹⁴ by the end of June 2006.

Following various complaints about public development aid for digital terrestrial television (in Sweden¹⁵, Germany¹⁶ and Italy¹⁷ in particular), the Commission released several decisions spelling out its policy. The Commission did not question the principle of aid allocation aimed at subsidizing the transition between the analog and digital broadcasting systems. However, the Commission made clear that aid must be allocated based on objective criteria and must not distort competition between the various broadcasting systems, particularly between terrestrial, cable and satellite. The Commission acknowledges that the digital switchover may lose momentum if left entirely to competitive interplay. It also recognizes that public intervention may have advantages if it takes the form of regulations, financial support to consumers, information campaigns or subsidies designed

¹¹ Office of Communications, *The Communications Market: Digital Progress Report for Digital TV Q2 2007*, 17 (2006), available at

http://www.ofcom.org.uk/research/tv/reports/dtv/dtv_2007_q2/ (last visited Nov. 30, 2007).

¹² Press Release, DVB-T: DasÜberallFernsehen, Task Force DVB-T Deutschland von ARD und ZDF sehr Zufrieden mit der Entwicklung des Terrestrischen Antennenfernsehens / German Television Broadcasting Corporations Very Content with the Development of Terrestrial Antenna Television (Dec. 20, 2006),

http://www.ueberallfernsehen.de/data/pm_task_force_201206.pdf (last visited Nov. 30, 2007).

¹³ Médiamétrie, Press Release, November 14, 2007,

http://www.mediametrie.fr/resultats.php?resultat_id=473&rubrique=tv (last visited Nov. 30 2007).

¹⁴ GfK-EURISKO, quoted in "DTT: 4 milioni i decoder venduti. Presentato il rapporto GfK Eurisko", key4Biz,

http://www.key4biz.it/News/2006/07/07/TV_digitale/DTT_4_milioni_i_decoder_venduti.htm 1 (last visited Nov. 30 2007).

¹⁵ *On July 14, 2004, the European Commission decided to instigate the procedure set out in Article 88(2) of the European Union Treaty against the State of Sweden concerning state aid designed to promote the implementation of digital terrestrial television. However, on December 21, 2006 the Commission announced that it had concluded that Teracom, the Swedish digital terrestrial platform operator, had not benefited from any illegal aid.*

¹⁶ *On November 9, 2005, the Commission declared the subsidies in favour of digital terrestrial television (DVB-T) in the Land of Berlin-Brandenburg to be illegal. The Land regulatory authority, the mabb (Medienanstalt Berlin-Brandenburg), appealed against the decision.*

¹⁷ *On January 24, 2007, the European Commission decided that the subsidies allocated in 2004 and 2005 for the development of digital terrestrial television were incompatible with the rules on state aid, as they were not neutral technologically and distorted competition by excluding satellite television broadcasting. Finally, the Commission decided that the broadcasters that had benefited most from state aid should repay it.*

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to overcome specific market shortcomings or provides for social or regional cohesion. It is for Member States to demonstrate that aid is the most appropriate measure, that it is limited to the minimum required and that it does not unduly distort competition. The Commission will take a particularly favourable view of the following measures:

- Funding the deployment of a transmission network in regions where television coverage would otherwise be inadequate.
- Financial compensation for public service broadcasters for the cost incurred by broadcasting via all transmission platforms so as to reach the total population, to the extent to which this is called for by the public service remit.
- Subsidies to consumers for the purchase of digital set-top boxes, as long as they are technologically neutral, particularly if they encourage the use of open interactivity standards.
- Financial compensation for broadcasters who are obliged to switch off analog transmissions before the expiry of their licenses, provided that such compensation takes into account, the digital transmission capability allocated.

B. Satellite Broadcasting

Digital satellite broadcasting remains the most widespread mode of digital television dissemination in Europe. At the end of 2005, more than 30 million households were equipped for direct reception; more than half the households had digital capability.¹⁸ Satellite platforms had undergone significant concentration in the principal markets (United Kingdom, Germany, Spain and Italy) but, there was only one operational platform. In France, the absorption of Television Par Satellite (TPS) by CanalSatellite was authorized by the Ministry of Economic Affairs on August 30, 2006, subject to fifty-nine commitments by the new single operator. These commitments were aimed particularly at maintaining access for all the players in the market. Competition between platforms is found only in Poland and the Nordic countries, where Viasat and Canal Digital continue to compete for subscribers, and in countries like Albania, Bulgaria and Romania, where several platforms are in contention in an emerging market.

¹⁸ EUROPEAN AUDIOVISUAL OBSERVATORY, *supra* note 1.

A new development may arise in Germany in terms of the role that satellite operators play as distribution platforms. Eutelsat has set up a subsidiary, Eutelsat visAvision that operates the digital platform Kabelkiosk, which, together with the cable operators supplies about thirty television channels. Similarly, in August 2006 SES Astra announced the creation of a subsidiary, Entavio, intended to launch the Entavio platform. For this new satellite digital television facility, consumers would need a set-top box and a smart card. "In this way [Entavio] hope[s] to offer access to all TV households – in town and country – to a complete range of digital offerings at a generally affordable price." With Entavio, viewers will be able to enjoy television in a far more diversified way. Accordingly, the broadcasters will be able to offer a complete digital package, plus additional services with high added value. Interactive television and electronic program guides will play an important part with regards to the combination of free-to-air and subscription television, video on demand (VoD), pay-per-view (PPV) and a personal video recorder (PVR). The service to digital satellite households in Germany comprises about 500 digital TV and radio channels, which continue to be distributed for free, and the technical access to pay-TV for a monthly flat rate of Euro 1.99. The first pay-TV operator to offer its packages via entavio is Premiere.¹⁹

C. Digitization of Cable Networks

The cable networks have continued the digitizing process, which enables them to develop telephony and Internet access alongside the distribution of television services. This digitization process is essential for cable operators that face competition from satellite platforms and more recently, by telecom operators offering "triple play" (fixed-line telephony, Internet access and television services) or even "quadruple play" (additional mobile telephony). According to estimates by Screen Digest, working in conjunction with Cable Europe (formerly the European Cable Communication Association, which represented cable operators throughout Europe), at the end of 2005, there were 64 million subscribers to cable operator TV services, including 7.3 million accessing digital services throughout Europe.

¹⁹ SES ASTRA, "*SES ASTRA launches digital platform entavio in Germany*", Press Release, October 23, 2007, <http://www.ses-astra.com/business/uk/news-events/news-latest/index.php?pressRelease=/pressReleases/pressReleaseList/07-08-29/index.php> (last visited Nov. 30, 2007); *see also* http://www.spacemart.com/reports/SES_ASTRA_Dubs_New_Digital_Satellite_Infrastructure_Entavio_999.html (last visited Nov. 30, 2007).

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In addition, the European cable industry generated revenues of €17.2 billion in 2005, an increase of €1.2 billion from 2004 (+7.5 percent).²⁰

It is estimated that revenues from services other than television (e.g. telephony and Internet access) account for about 33.33 percent of the total revenues of European cable operators and about 35 percent of Western European cable operators.²¹ The Average Revenue Per User (ARPU) is estimated at €24.80 in Western Europe, and €11.16 in Central Europe.²²

For several years, as a result of competition, concentration has been a process characteristic of the European cable industry. Concentration intensified during 2005 and 2006. Observations have revealed that a single dominant operator tends to become established in each national market. For example:

- In Germany, Unity Media, the parent company for “level 3” operators Iesy (Hesse) and Ish (Rhineland-North Westfalia), in 2005 acquired the principal level four operator, Tele Columbus.²³
- In Belgium, on November 20, 2006, Telenet signed a non-binding Memorandum of Understanding with Liberty Global aimed at acquiring 100 percent of the stock of UPC Belgium, which has around 125,000 cable television subscribers in Brussels and Louvain. This agreement was confirmed on January 2, 2007²⁴. Early June 2007, Telenet had 300,000 subscribers to its digital services.²⁵
- In Spain, the ONO Group bought Retecal, a company active in Castilia-Leon, and then in November 2005 it bought Auna, the second largest Spanish operator. ONO’s purchase of Auna gave it control of
- 90 percent of Spanish cable households and enabled it to compete with telecom operators providing triple play or quadruple play services

²⁰ Screen Digest data quoted by the European Audiovisual Observatory, *Yearbook 2006*; see also SCREEN DIGEST, *European Broadband Cable 2007*, Screen Digest, London, 2007.

²¹ *Id.*

²² *Id.*

²³ Press Release, ‘Unity Media und Tele Columbus schließen sich zusammen’, http://www.unitymedia.de/Download/09.12.2005_-_UM_Closing_Tele_Columbus.pdf (last visited Nov. 30, 2007).

²⁴ Pelenet, Press Release (Jan. 2, 2007), <http://telenet.be/548/8453/1/en/about-telenet/press/press-bulletins/articles.html> (last visited Nov.30 2007).

²⁵ Telenet, Press Release (June 5, 2007), <http://telenet.be/548/9119/1/en/about-telenet/press/press-bulletins/articles.html> (last visited Nov. 30 2007).

(e.g., Telefonica and Jazztel) and with Digital +, the dominant digital satellite broadcaster.²⁶

- In France, UPC France (which was part of the American group Liberty Global) became the major cable operator in 2004 by acquiring the Noos network for €615 million. The same year, the capital investment group Cinven, in conjunction with the Luxemburg investor Altice, already operating cable networks in Alsace, acquired for €528 million the network of France Telecom Cable (held by France Telecom) and NC Numéricâble (held by Vivendi Universal). In February 2006, Altice and Cinven strengthened their position with the acquisition of Ypso, an operator that was controlled both by France Telecom and Vivendi Universal.
- In Ireland, in 2005, the cable networks of National Communications Limited (NTL), the country's principal operator, were taken over by Liberty Global, already the owner of Chorus, the country's second largest network, and also the operator of the MMDS networks.²⁷
- In the Netherlands, in September 2006, Cinven, took over Casema and Multikabel, the country's third and fourth largest cable operators respectively, for a total cost of €2.85 billion. Furthermore, Cinven concluded an agreement to acquire a third cable operator, Essent Kabelcom, for €2.6 billion.. The future strategy of these three companies together will be to pursue increased turnover by offering additional 'triple play' services.²⁸
- In the UK, the merger between the two cable groups, NTL and Telewest, announced in October 2005, became effective in 2006 under the name NTL Incorporated (NTL). The group serves 12 million British households, more than 50 percent of the television receiving households in the country. In 2006, NTL also took over Virgin Mobile Media, the mobile telephone leader. The whole operation was rebranded Virgin Media²⁹

²⁶ ONO, 2005 ANNUAL REPORT (2005).

²⁷ Submission to Department of Communications, Marine and Natural Resources at Invitation of Minister on a European Commission Proposal for the Revision of 89/552/EC, at 1, COM (2006).

²⁸ Update, Cinven, Triple Play for Cinven in Dutch Cable Market (October 2006), <http://www.cinven.fr>.

²⁹ See, e.g., <http://investors.virginmedia.com>.

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Apart from the concentration process, cable operators face competition from satellite platforms and IPTV distribution platform operators that also deliver themed channels, PPV and VoD. In Germany, the Unity Media Group made an intelligent decision when it purchased Bundesliga TV rights, enabling it to set up the Arena channel and other ancillary sports services. In the United Kingdom, NTL controls Flextech, the entity responsible for delivering themed channels. Working through its Zone subsidiaries, the UPC group puts out an array of themed channels aimed mainly at targeting Central and Eastern Europe. In Portugal, TV Cabo has launched several themed channels including some which are PPV.

D. The Development of Television Distribution Over ADSL Networks (IPTV)

Since 2002, a growing number of European telecom operators, either established or newcomers, are offering “triple play” services enabling the user to subscribe simultaneously to fixed-line telephony, Internet access and the distribution of television services. The TV signal is delivered via a dedicated set-top box or a multifunction ADSL modem feed. The video flow follows the IP protocol, hence the titles IPTV in the English-speaking world, and “TV by ADSL” in France. Although IPTV is a convenient expression, it creates confusion because, unlike the Internet, the consumer receives a signal via the television set rather than the computer. Some operators are nonetheless proposing multi-platform set-top boxes enabling the signal to be fed to the television or computer.

More than sixty IPTV services were operating in Europe by the end of 2006. In addition to distributing television services, most IPTV services also offered VoD. For instance, in Belgium, even Belgacom has begun delivering television services; in buying the football championship television rights, the historic Belgian telecom operator has been able to launch several exclusive channels devoted solely to football.

The services offered by IPTV operators are a direct challenge to satellite platforms and cable operators. In practice, they offer the same channels as other platforms (national channels, major themed channels, international channels, local channels, etc.). Some operators like the Iliad Group’s subsidiary, Free, an IPTV leader in France, are exploring the possibility of niche markets (Indian or Chinese channel packages, different regional versions of France 3, a large-scale offering of local channels throughout the country, etc.).

The emergence of “triple play” services poses fresh problems as far as the transparency and analysis of audiovisual markets is concerned. As is often the case with new services, the operators are reluctant to communicate details of their performance (number of subscribers, turnover, etc.). In the case of “triple play” services where, by definition, the subscriber accesses three separate services, it becomes even more difficult to determine the turnover for audiovisual delivery. It may well be the case that “triple play” subscribers are not primarily interested in television access and would not actually take up this possibility if it were not bundled with telephony and internet access.

Furthermore, IPTV cannot be a universal solution because not all parts of the country are accessible not all parts of a country are accessible and the telephone network may face limits of capacity, particularly with the arrival of HDTV.³⁰

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In May 2007 the European Audiovisual Observatory and the French Direction du développement des médias published a report on the development of VoD in Europe.³¹ The scope of the report is limited to services providing content chosen by the providers of services and excludes services providing User Generated Content.³² At the end of 2006, 142 pay services (excluding services devoted exclusively to music and those comprised solely with programs for adults) were operational in the twenty-four countries studied.³³ If one adds to this the number of free access services,

³⁰ It is interesting to note that the Iliad Group, operator of Free, announced in September 2006 its project to build a fiber-to-the-home network in Paris, which will be open to all operators subject to leasing agreements with Free. Press Release, « Free donne le coup d'envoi du déploiement de la fibre jusqu'à l'abonné (FTTH) » (Sept. 11, 2006), *available at* http://www.iliad.fr/presse/2006/CP_11092006_cp1.pdf (last visited Nov. 30, 2007).

³¹ *Video on Demand in Europe*. A report by NPA Conseil for the European Audiovisual Observatory and the Direction du développement des médias (France), European Audiovisual Observatory, Strasbourg, 2007.

³² The concept of “User Generated Content” would warrant further discussion. On the one hand, it seems absurd to exclude such services from the commercial sphere only because users provide the content. One may consider that operators of these services are exactly in the same market as publishers of other media financed by advertising: their real product is audience, a product that they can sell to advertisers or marketers. The originality of user generated content lies in the (low) costs for generating audience: the costs are mainly covered by the users and not by the service providers. But, on the other hand, as the case brought by Viacom against YouTube has indicated, the concept of user generated content may also be misleading because in a large number of cases, users just publish material of which they are neither the authors nor the copyright owners.

³³ *Video on Demand in Europe*, *supra* note 31, at 1.

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those that were set up at the beginning of 2007, and those that exist in countries not covered by the study, the number of VoD services currently operational in Europe may reach more than 150.

France, the Netherlands and the United Kingdom stand out as leaders in terms of the number of services offered. Most of the services in Europe can be accessed via the Internet and can therefore be viewed on a computer screen. Transmission using the broadband network, usually as part of an offer for the distribution of television channels in IPTV mode, constitutes the second most frequently used mode of distribution. In this case the programs can be viewed on a television screen. As digital broadcasting by satellite and by terrestrial networks does not permit a return path, offers of VoD are only possible by storing the programs on the user's PVR. Although services of this nature are limited in Europe, two of the main digital television content aggregators, namely BSkyB's Sky Anytime³⁴ (a service in the United Kingdom and Ireland) and Premiere's Direkt Premiere +³⁵ (a service in Germany and Austria) operate in this capacity.

³⁴ Sky Anytime, <http://anytime.sky.com> (last visited Nov. 30, 2007).

³⁵ Premiere Internet TV, <http://vod.premiere.de/oxid/> (last visited Nov. 30, 2007).

Table 2: Number of services per country and breakdown by broadcasting networks (end of 2006)³⁶

		Total # of services ³⁷	Internet	IPTV	Cable	Satellite	Digital Terrestrial Television
>10 services	France	20	15	8			
	Netherlands	19	17	2			
	U.K.	13	6	3	3	1	1
	Germany	12	9	3		2	
5-10 services	Belgium	10	3	5	5		
	Sweden	8	6	5			
	Italy	8	5	3			
	Norway	7	6	2			
	Spain	6	2	3	1		
	Ireland	5	5			1	
	Denmark	7	4	2	1		
	Austria	5	3	1		1	
1-4 services	Finland	4	6	1			
	Switzerland	3	2	1			
	Poland	3	1	1		1	
	Hungary	4	2	2			
	Portugal	2		1	1		
	Estonia	2	1	1			
	Cyprus	2		2			
	Slovakia	1	1				
	Iceland	1	0	1			
No service	Turkey	0					
	Slovenia	0					
	G.D. Luxembourg	0					
Total ³⁸		142	94	47	11	6	1

Source: NPA / European Audiovisual Observatory

³⁶ *Video on demand in Europe*, supra note 31, at 1. (Chart does not include free services, video clip services or services for adults).

³⁷ While a service may be available on a number of different networks, it is only counted once in the total.

³⁸ Services that are available in multiple countries are counted once for each country where they are available. Even if several networks in a country offer the same service it is only counted once. NPA Conseil / European Audiovisual Observatory.

A. The Respective Advantages and Disadvantages of the
Platforms

Each of the different platforms has advantages and disadvantages for the launching of VoD services. Delivery through Internet has the clear advantage of allowing B to C models. This means that small players are able to offer their programs, at a minor cost, to the general public while avoiding any dependence on distributors. Internet also allows the service provider to enrich the VoD service with editorial complements and the possibilities of customized marketing following the model of the websites of retailers of cultural products (such as the classical “if you like this film, you will also like . . .”). If the provider holds international rights, distribution over the Internet also makes it possible to offer worldwide services or, at least, services accessible in various countries.

The great weakness of VoD through Internet, however, remains the fact that it is still more convenient and user friendly to watch films or audiovisual programs on a television set than on a personal computer screen. Of course, small sections of the public (young people in particular) are already familiar with using the personal computer as a television screen. They might even be able to transfer the moving picture from the personal computer to the television set, but the majority of the public will continue to favor the television screen for a long time. Delivery through IPTV, cable, satellite and DTT has a clear advantage in this regard. However, satellite and DTT do not allow the provision of large catalogs because the absence of a return path makes it necessary to store the programs on the PVR.

Therefore, IPTV and cable appear to be the best service for implementing VoD. However, IPTV and cable are not without problems of capacity; IPTV risks saturation of the network capacity and cable networks possess relatively high costs of digitization. Both IPTV and cable VoD services provide an advantage to important distributors and packages of thematic channels, while working to the detriment of providers of smaller catalogs.

Table 3: Overview of Advantages and Disadvantages

	PROS	CONS
Internet	<ul style="list-style-type: none"> • B to C model Editorial possibilities, search functions • Customized marketing • Allows niche strategies • Allows international strategies • Allows larger catalogs 	<ul style="list-style-type: none"> • Viewing on PC screen - Breaks in the quality of service - Slow to download • Risks of piracy • Services not accessible on MAC
IPTV	<ul style="list-style-type: none"> • Viewing on TV set • Existing basis of subscribers (differs according to country) 	<ul style="list-style-type: none"> • Capacity limits of telephone networks (leading to the long-term necessity of building fiber-to-the-home networks (FTTH)) • EPG rather slow and not user friendly • Access more difficult for independent producers and with regard to niche programs • Smaller catalogs than for Internet based services
Cable	<ul style="list-style-type: none"> • Viewing on TV set • Existing base of subscribers (differs according to country) 	<ul style="list-style-type: none"> • Cost of digitization of networks • Access more difficult for independent producers and with regard to niche programs - Reduced catalogs
Satellite and DTT	<ul style="list-style-type: none"> • Viewing on TV set • Existing base of subscribers (different according to countries) 	<ul style="list-style-type: none"> • No return path • Needs storage on PVR • Access more difficult for independent producers and with regard to niche programs • Reduced catalogs

B. The Players

Three types of players are particularly active in the VoD market:

- *Editors of television channels* generally supply catch-up television services, which make it possible to watch a program after it has been broadcast. However, many broadcasters take advantage of their position in the rights market and also offer films as part of their services.
- *Content aggregators* are companies that have the ability to constitute catalogs of rights for works likely to be distributed via VoD. This category may also include video editors, societies for the collective management of copyright (such as the SGAE and the EGEDA in Spain), bodies or companies that manage archives (the Institute

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national de l'audiovisuel in France, the Norwegian Film Institute, British Pathe) and commercial retail companies (chains such as FNAC and Virgin, companies specializing in DVD rental such as Lovefilm, Glowria, etc). Some companies have been set up specifically with the aim of becoming content aggregators. In the Netherlands, no fewer than nine services are organized on the basis of the catalog put together by the aggregator ODMedia.

- *Telecom operators* (incumbent operators, Internet access providers, cable operators) are newcomers to the market for the distribution of content. They are the most active of the players, and are innovative in terms of diversity of offer (particularly by using cross-media partnerships).

Less importantly, a number of production companies or associations of producers also edit services. The main cinematographic groups in Europe have not yet announced their own services. This is in direct contrast to the situation in the United States where the Hollywood majors are at the origin of the Movielink service. One should nevertheless note the involvement of the Svensk Filmindustri group in the SF-Anytime service, which can be accessed in the various Scandinavian countries. In Europe, the American majors are collaborating with the main national VoD services, mainly on the basis of non-exclusive agreements, although Warner has joined forces with Arveto (Bertelsmann group) to launch the Film2Home service in Sweden, Norway and Finland.³⁹

³⁹ Film2Home, <http://www.film2home.com/> (last visited Nov. 30, 2007).

Table 4: Comparison of the Advantages and Disadvantages of the Various Market Positions

	PROS	CONSMINUS
Telcos, ISPs, Cable	<ul style="list-style-type: none"> • Financial capacities • Technological expertise • “Triple play” offers • Management of subscriptions and tracking of demand 	<ul style="list-style-type: none"> • No great experience in the field of rights • Necessity of accessing leading catalogs • Necessity of working with aggregators
Broadcasters	<ul style="list-style-type: none"> • Financial capacities • Good position on the rights market • Experience in audience measurement, pay-TV, DVD market • Brand • Catch-up formulas, archives 	<ul style="list-style-type: none"> • Lesser financial capacities than telcos • Dependent on distributors (delivery) • Negotiations with producers • Competition rules
Retailers	<ul style="list-style-type: none"> • Knowledge of consumers’ practices • Brand 	<ul style="list-style-type: none"> • Lesser financial capacities than telcos - Difficult access to IPTV delivery • Competition with their own “brick and mortar” services⁴⁰
Aggregators	<ul style="list-style-type: none"> • Experience in rights management • Possible pan-European strategies • Niche catalogs 	<ul style="list-style-type: none"> • Lesser financial capacities than telcos • Difficult access to IPTV delivery

C. Three Types of Economic Models Emerge

1. Rental

There are several arrangements for rental:

- Payment for each individual program is separate (a rental charge is paid at prices that generally range from €1.50 to €6 for each item). The program rented can usually be viewed for a limited period of time ranging between twenty-four and forty-eight hours.
- Payment for a pack of programs (i.e. various episodes of one or many television programs).

⁴⁰ A “brick and mortar” service is a traditional “street-side” business that deals with its customers face-to-face in an office or store that the business owns or rents. Web-based businesses usually have lower costs and greater flexibility than “brick and mortar operations.” See <http://www.investopedia.com/terms/b/brickandmortar.asp> (last visited Nov. 30, 2007).

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- Payment of a pass which allows an unlimited number of program viewings included in the offer (a formula adapted in particular for children's programs).

The subscription formula allows the user to view a certain number of programs during the specific subscription period (often called Subscription VoD or SVoD). In this case, the payment is valid for a set of programs available for unlimited viewing during a given period of time.

2. Purchase

Under this economic model, payment is made for each item separately. Generally, a price is fixed somewhere between €5 and €15 per item. The program can be viewed and stored on a personal computer but typically cannot be transferred to a DVD player connected to a television set due to encryption techniques. On the contrary, a "purchase-to-burn" option may also be available. This option allows the downloaded program to be burned onto a DVD (sometimes in a limited number of copies) with prices ranging between €15 and €20.

3. Free on Demand

VoD free of charge is also known as FoD or "free on demand." FoD is most frequently used for viewing audiovisual programs as a means of "catching-up" on already broadcast television. Typically, programs offered by VoD services remain available for a limited amount of time after broadcasting by the television channel. Traditionally, there are two types of FoD: One, programs free of charge that are financed by advertising (mostly television series and fiction), and two, programs shared for free. The latter type is used either for promotional purposes, or for testing the potential of a free model in order to have a better basis for subsequent negotiations with advertisers.

Although, historically, separate payment for each individual item has been the main method for making content available on demand, there are now several marketing schemes available in order to keep up with current developments. For instance, on demand services include but are not limited to, the constitution of packs, subscription offers ("Subscription VoD" or SVoD), passes giving entitlement to unlimited viewing of all or part of an available catalog, and third-party financing (whether cross-subsidies between different products offered by one operator or contributions from advertising).

D. Conclusion

The growing complexity of the European television markets make it more difficult to obtain the basic figures allowing a correct understanding of what is happening. There is a clear need for greater transparency on the part of operators. In a context of investment and serious competition, they are relatively unwilling to release figures that would demonstrate the development of the market and the success of the work proposed in their catalogs. Greater transparency should be a positive factor, creating confidence on the part of both consumers and rights-holders in respect to this new method of distribution.

