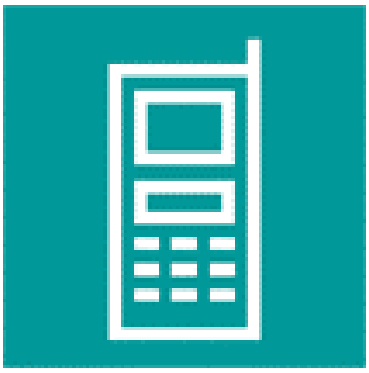

# Outlook of the development of technologies and markets for the European Audio-visual sector up to 2010

June 2002

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By the Commission Of the European Communities
Directorate-General for Education and Culture

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By Andersen

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## *"Outlook of the development of technologies and markets for the European Audio-visual sector up to 2010"*

# Executive Summary

*A. Background and structure of the study*

The development and application of digital technologies, combined with other developments in the broadcasting markets, are changing the landscape of European broadcasting.

Consequently, in order to prepare the statutory report on the implementation of the directive "Television without Frontiers", the Commission has requested three[1] studies that will provide the necessary input. The three studies will also provide material for the Commission's consultations with the sectors' professionals.

The objective of the second study, awarded to Andersen, is to evaluate the prospects for market trends and industry in this context and will, in particular, take account of the new opportunities and consequences for the different operators pictured in the media value-chain.

The purpose of this study is to provide scenarios for the likely development of European audio-visual services up to 2010, the prevailing business models and the associated changes in consumer behaviour.

In order to forecast the future state of the industry, Andersen has worked out possible scenarios that address the following questions:

- How will the economic viability of the sector and its operators evolve in the future?
- How will consumer choice and control evolve in the future?

To answer these questions, Andersen has structured the report as follows:

- *The first part of the study* focuses on developing an assessment of the current audio-visual market (1995-2000) through segmenting the 18 countries that are part of the EU and EEA (see further information in section B below) in comparable audio-visual markets and then to study the interactions among the key media operators in order to understand their current relative market strengths.

[1] The objectives of the first study are to evaluate the impact of measures concerning the promotion of distribution and production of television programmes in the European audio-visual sector at Community and national levels. This study has been awarded to Uyttendaele, Gérard & Doutrelepont. The objectives of the third study are to provide the Commission with a thorough understanding and accurate vision of the state of play and likely further development of new advertising techniques, across the different forms of media, namely television, radio, cinema and Internet. This study has been awarded to Bird & Bird.

- *The second part of the study* focuses on identifying the key technology and economic evolutions that are likely to trigger disruptive changes in the relative market strengths of the different industry operators, in the future up to 2010. These changes as well as the associated changes in revenue streams (advertising, public funding and transactions) have been modelled in order to evaluate the sustainability of their strategic advantage.
- *In the third and final phase of this study* the model was used to develop an understanding of the likely future of the industry (up to 2010). The selected scenarios are extreme and are intended to stimulate the discussion about the likely future structure of the industry. However, in reality consumers will embrace the new services differently. Some will fully embrace the new services and radically change their behaviour; others will have access to new services but only partly make use of them. Finally, a third category of consumers will not subscribe or not have access to these new services.

*B. Methodology of the study*

This report is based on three main sources of information:

- Secondary market research has been conducted in order to develop a set of calibrated data. It is the main source of information and is used to refine the industry analysis and the scenarios;
- In order to deepen its industry analysis, Andersen also carried out a "Delphi study"[2] amongst 49 European audio-visual organisations, which provided direct insight regarding the expectations of representatives of industry stakeholders;
- Finally, Andersen, with the logistic support of the Directorate-General for Education and Culture, has also conducted two workshops with industry expert groups that were particularly useful to gain qualitative insight.

In order to develop a framework of reference for the European audio-visual industry, Andersen used a value chain analysis, which identifies eight different roles. In the current market environment, these eight roles are usually grouped into three broad categories of activities:

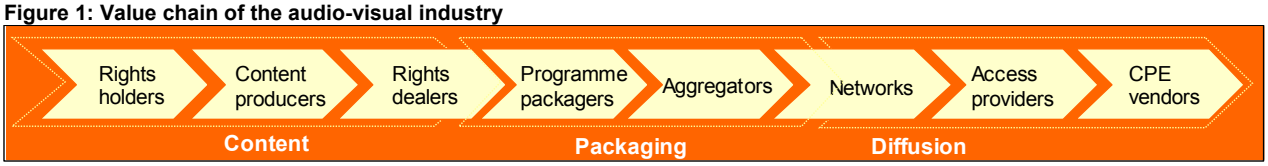
- *Content production*, which includes rights owners, rights dealers and content producers;
- *Packaging*, which includes both programme packagers (programme packagers are responsible for the acquisition and aggregation of content into channels; this activity is only a part of the current activities of broadcasters) and aggregators (aggregators are responsible for the acquisition and aggregation of channels into

[2] A "Delphi" study is a market research technique that consists of interviews performed among industry experts in order to gain qualitative and quantitative insight about a specific matter, the audio-visual industry in this case. The questionnaires and interviews are not designed to gather quantitative information and should therefore not be regarded as primary research. The purpose is to gain a better understanding of the industry trends and to validate some of the key dynamics described in this report.

(digital or pay-TV) bouquets; this activity is currently almost never done as a stand-alone but often associated with the role of access provider);

- *Diffusion*, which includes access providers (also called platform operators or gateways), networks[3] and customer premises equipment (CPE) vendors.

**Figure 1: Value chain of the audio-visual industry**




This report also takes into account the cultural and technological diversity of the countries forming the EU and the EEA. Andersen has therefore approached the industry in defining homogenous characteristics among limited subgroups of countries. The selected key dimensions for segmentation are:

- The size and revenue potential (defined as economic growth and average profitability) of the local media markets;
- The dominant market model in the local media markets (commercial markets, importers, etc.);
- The main distribution and reception mode in the local media markets (e.g. satellite, cable, DTT or others).

[3] Networks are here considered as carriers of data through all forms of distribution technologies (satellite, cable, terrestrial, xDSL, mobile networks, …). Therefore it should not be confused with the US terminology where networks often refer to nation-wide TV-channels.

**Table 1: Combined Segmentation**

| *Dimension* | Large Markets | Commercial Markets | Mixed Model Markets | "Monopolistic" Markets | Importers |
|---|---|---|---|---|---|
| Size | Very large markets (larger than 10 Mio. TVHH) with average per capita income. | Medium to larger markets with below average per capita income. | Small to medium countries with above average per capita income. | Small markets. | Small markets. |
| Model | Mixed, market share divided between commercial and Public Service Broadcasters. | Commercial broadcasters dominate in terms of market share. | Mixed, market share divided between commercial and Public Service Broadcasters. | Public Service Broadcasters dominate the market. | Import content from neighbouring countries (or same cultural region). |
| | Almost equal division of revenues between the 3 revenue sources: public funding, advertising and other revenues. | Highly dependent on advertising, even for the public broadcasters. | Higher than average public funding but well developed advertising markets. | Strong dependence on public funds. | Very small local advertising budgets flow to foreign broadcasters. |
| Distribution | Highly dependent on country. Early move to digital distribution. | Mainly terrestrial, start of digital development to enhance capacity. | Cable or cable/terrestrial combination. | Cable or Satellite. | Cable networks with foreign programming. |
| Countries | UK, France, Germany, Italy, Spain | Portugal, Greece | Belgium, Netherlands, Sweden, Finland, Norway, Iceland and Ireland (after 1998) | Austria, Denmark, Ireland (before 1998) | Luxembourg, Liechtenstein. |

The main characteristics of the subgroups of countries are summarised in the table above. It should be noted that although the five largest countries have been regrouped into one subgroup "large markets", these countries are studied separately.

This approach enabled Andersen to address the following questions for the eighteen countries forming the EU and the EEA:

- How will the economic viability of the sector and its operators evolve in the future?
  - The size and the evolution of the two main revenue sources of the industry: the advertising flows and the subscription and consumer spending flows (Public funding has been considered as a given "exogenous variable")
  - The size and the evolution of the revenue flows of the key industry stakeholders, that have been regrouped in three categories (content producers and rights holders, programme packagers, networks and access providers
- How will consumer choice and control evolve in the future?
  - Consumer choice and control has been retained as a quantitative and identifiable variable in order to estimate the consumers' welfare in terms of audio-visual offering and more generally as an effective dimension to synthesise the achievement of general interest objectives such as cultural diversity and pluralism
  - The main quantitative variable used in this prospective is the number of channels available in each country. Yet the number of channels needs to be supplemented by other qualitative variables, especially in the "personalisation" scenario. In this scenario, the faculty to broadcast, record and release content on demand enables the user to create its own TV channel independently from any specific channel. The notion of number of channels may in this case be considered as a proxy of the total financial resources used by the industry in order to select, aggregate and make content available to viewers, whatever the form it takes (traditional channel or "on-demand"). Therefore, it has been considered as a relevant variable for all scenarios.

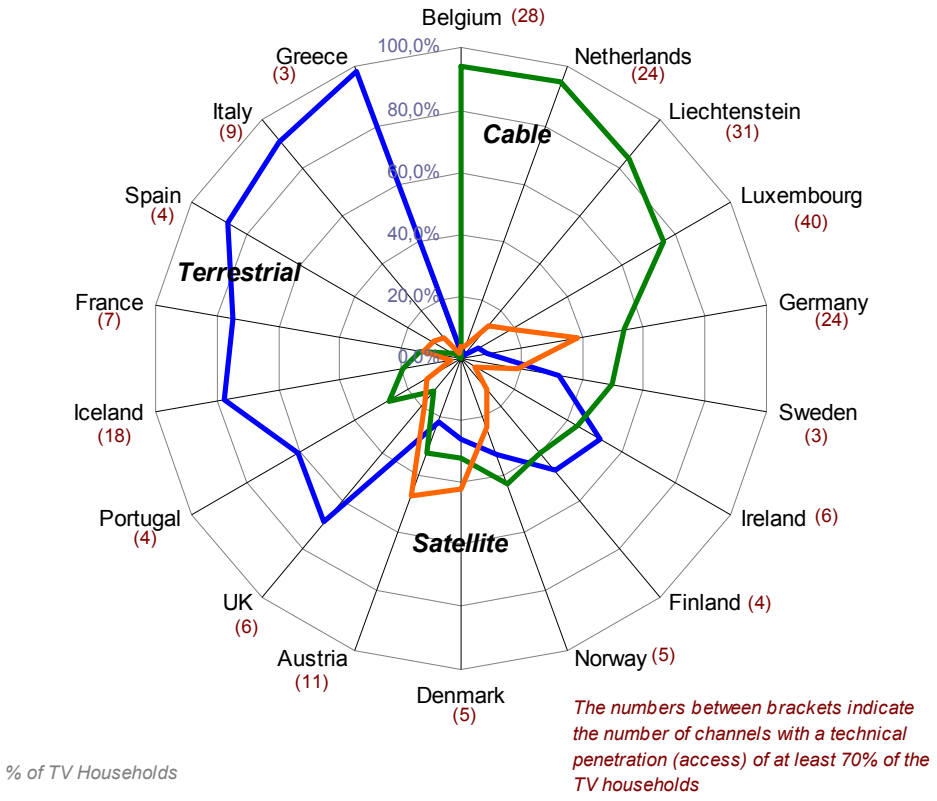
*C. The current European audio-visual market (trends 1995-2000)*

The analysis of the past and current European audio-visual industry and the relative consolidation and/or market strength of each role within the value chain, has highlighted the emergence and/or consolidation of a number of trends:

*Trend 1: Continuing growth of multi-channel and/or digital platforms*

The continuing growth of multi-channel and/or digital platforms provides the consumers with an increasing choice of content. In the wake of the development of these platforms, new generalist and thematic channels were created. Although a large number of households can have access to multi-channel access platforms (such as cable, satellite or digital terrestrial television), some households still have only access to less than 5 channels (the numbers between brackets included in the figure below, indicate the number of channels with a technical penetration (access) of at least 70% of the households).

**Figure 2: Continuing growth of digital platforms lead to a large number of multi channel homes, 2000 figure**[4]




*Trend 2: Public Service and commercial free-to-air stations maintain audience share*

Although new platforms bring an enlarged offer of content, the European consumer has not changed his behaviour yet. The overall viewing time has only marginally increased, and consumers still tend to watch the same channels. The four largest channels in each country (generally Public Service and commercial free-to-air) still capture more than 70% of audiences (this is the case in all countries forming the EU and the EEA except in Austria, Belgium, Germany, Ireland, Italy and The Netherlands). This also means that advertising revenues are still captured by large channels, decreasing the funding available for small channels and indirectly for producers associated to these channels.

*Trend 3: Decreasing financial strength and progressive consolidation of all operators.*

Overall, the average economic conditions of most industry operators (from content producers to network operators) have deteriorated due to different reasons (increasing competition, technology, investments, etc.). As a reaction, the industry has induced a process of horizontal and vertical integration, which is leading to the development of antagonist positions among key industry operators such as vertically integrated groups (e.g.

[4] Compilation by Andersen based on IP, TV 2001

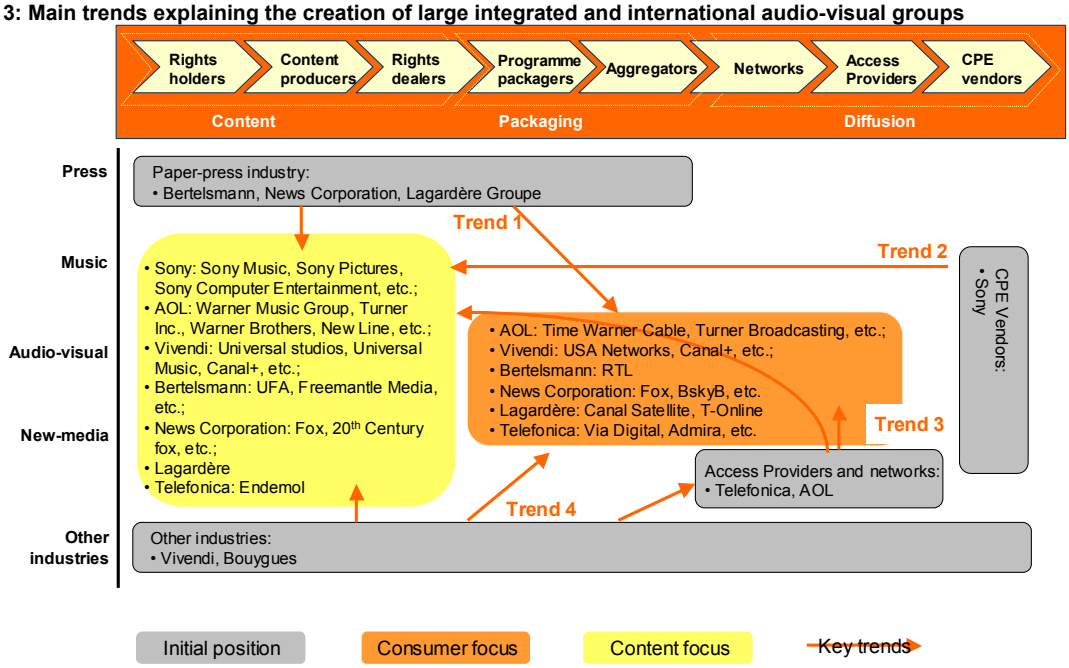
RTL-group, Telefonica, Vivendi Universal, etc.) and operators active in mainly one segment of the value chain or between local and pan-European operators.

*Trend 4: Creation of large integrated and international groups.*

In recent years, very large international audio-visual groups have been created as evidenced in the figure below. Four trends can characterise this industry evolution:

- The first trend relates to the massive investment of paper-press companies into the audio-visual industry. In most cases, this trend has been caused by the understanding that audio-visual operators compete for the same advertising budgets and the same entertainment spending (expressed in terms of consumer revenue spending and time allocation);
- The second trend relates to the diversification of CPE (customer premises equipment) vendors into the content production industry. The main reason for this strategic decision is the fact that new devices need to be supported by new content formats in order to achieve a rapid penetration. Another reason relates to the concern to be able to impose technical standards when launching new products;
- The third trend relates to the diversification of access providers and networks to the content production and packaging industry. The main reason underlying this trend is the fact that these companies want to move up the value chain and capture a larger part of consumer spending;
- The fourth trend relates to the creation of large audio-visual groups by companies that were previously not active in the media industry. The main drivers of this trend are the expectations that the audio-visual industry would generate higher returns than some traditional industries such as the utilities (e.g. Vivendi) or the construction industry (e.g. Bouygues).

**Figure 3: Main trends explaining the creation of large integrated and international audio-visual groups**




*Trend 5: Subscription revenues gain relative weight*

Subscriptions and other income, the second source of revenue after advertising, are gradually gaining in importance. Subscription revenues represented about 30% of the industry revenues in 1999 and grew to approximately 35% in 2000. This growth in importance also implies a shift in the balance of power towards the access providers, who traditionally are the prime beneficiaries of this revenue. Other income include tele-shopping, merchandising and various revenues coming from new multimedia applications such as SMS commissions, etc.

## *D. The future (up to 2010): some technology and economic disruptive factors are challenging the "status quo"*

### 1. Combined technological advances are expected to enable new forms of consumption of broadcast media

Based on a thorough review of the industry and on the "Delphi study" conducted with 49 companies and industry associations, Andersen has identified five technology evolutions that have the potential to modify the relative market strength of audio-visual industry operators. These are:

- The emergence of multiple digital broadband networks in the local loops (xDSL, cable, satellite, etc.);
- The continuous drop in prices of storage and processing capacity;
- The emergence of new content compression formats (MPEG-4);
- The emergence of new content description formats (MPEG-7);

- The emergence of new security and copyright protection technologies.

The “Delphi study” revealed that the digitisation across the different roles identified in the audio-visual value chain occurs at different speeds. Consequently, the full “disruptive” impact resulting from the combined technology development is not likely to be measured before 2005. However, it is expected that the impact of these technologies on the market strength and the "roles" of the operators in the value chain will to be significant.

**2. Emerging business models are likely to redistribute the economic opportunities of the operators**

It is expected that the advent of these technologies will create new economic opportunities for the audio-visual industry:

*Trend 1: Subscriptions and consumer spending are expected to increase in the future:*

Subscriptions, as a source of revenues for the audio-visual industry, are expected to grow from 35% in 2000 to about 55% in 2010. The fact that an increasing number of European consumers will have access to multi-channel access platforms will lead to a shift of the overall media revenues from predominantly public funding and advertising revenues towards subscription revenues. This is caused by the fact that multi-channel access platforms (mainly satellite and cable) often charge subscriptions, even for a package of basic (free-to-air) services. It is expected that aggregators and access providers become the main beneficiaries of this redistribution of roles in the industry.

*Trend 2: New ways of advertising emerge, old ways become defective:*

Total advertising revenues could decrease because ad-skipping techniques (enabled through personal video recorders or video on demand applications) could decrease the attractiveness of traditional television for advertisers and because advertising could become more effective through a better segmentation of targeted audiences. Audience fragmentation could also lead to advertising fragmentation. A better personalisation of adverts through a better segmentation of mass audiences and better audience measurement systems will remove the traditional 3-5% audience threshold for commercial attractiveness of TV channels. The first trend is likely to lead to a decrease in total advertising spending. The second trend could lead to a shift of advertising spending from Public Service Broadcasters and free commercial towards pay TV operators. The second trend is not expected to affect the total advertising market.

*Trend 3: Competition for the consumers’ time increases:*

Television viewing time, hence the television advertising potential, is expected to decrease. It is expected that new services such as broadband Internet, online and mobile gaming, etc. will compete with traditional TV broadcasting to capture a share of

broadly the same entertainment time. Therefore, the relative share of TV advertising is expected to decrease.

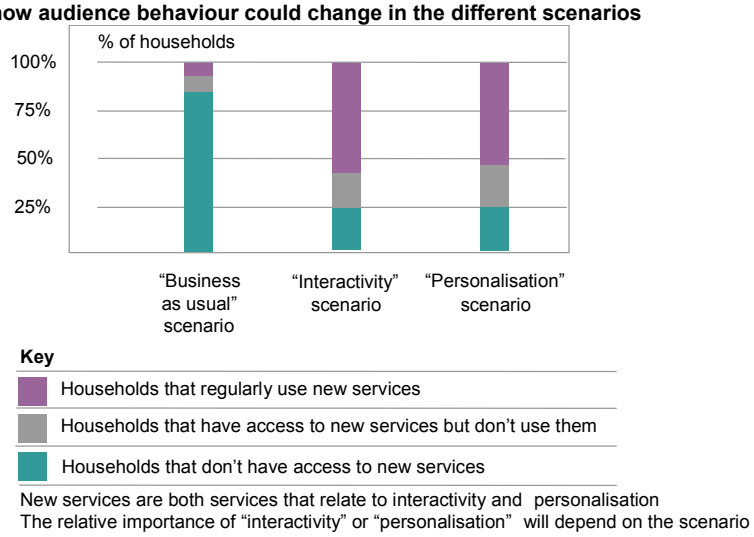
*E. The likely future (up to 2010) balances between interactivity and full personalisation*

In the scenario building process, Andersen has considered three directions the service offering of the audio-visual industry can evolve into.

The "business as usual" scenario, is studied to provide a base case comparison. The results of the two other scenarios will be compared to this base case. It is expected that this scenario is more likely to develop in case of a negative economic environment.

The "interactivity" scenario is articulated on the rapid development of new interactive services. The "personalisation" scenario is based on the development of a personalised offering of existing audio-visual services. These scenarios are expected to develop in a positive economic environment.

**Figure 4: Insight on how audience behaviour could change in the different scenarios**




It is assumed that in all the scenarios the disruptive factors mentioned above will interact with different levels of intensity. It is also assumed that different consumers will embrace the new services differently. Some will fully embrace the new services and radically change their behaviour; others will have access to new services but only partly make use of them. Finally, a third category of consumers will not subscribe or not have access to these new services. The figure above provides an overview of the expected behaviour of consumers in the different scenarios (in a negative economic environment for the "business as usual scenario" and in a positive economic environment for the "interactivity" and "personalisation" scenario).

Although the study analyses the three scenarios under two economic environments (therefore a total of six cases), it is obvious that the "Business as usual" scenario is more

probable in a negative economic environment while the “Interactivity” and “Personalisation” scenario are more likely in a growth environment.

### 1. “Business as usual” is more likely to prevail if the European economy stagnates

The business as usual scenario is an extrapolation in the future of the audio-visual trends observed between 1995 and 2000. The probability that this scenario will fully materialise in the long run is linked to the persistence of a negative economic environment (-1% GDP decrease yearly).

If the European economy does not grow during the next 5 years, it is expected that most industry operators will delay their digitisation investments and that the traditional advertising market will significantly shrink. The important pressure on the financials of all types of programme packagers and the decrease of revenue potential could directly impact the financial viability of a number of free commercial and pay-TV channels. This would lead to an industry consolidation and a decreasing number of pay-TV channels, especially in the large markets.

A negative economic environment will also tend to restrict the willingness of consumers to spend on new digital platforms. Consumers could prefer to remain with their current choices. Therefore satellite is expected to lose market share as it is often combined with pay-TV packages. As a conclusion, one of the key variables studied in this report, “consumer choice and control”, is not expected to increase in the negative economic environment.

Should the European economic environment recover and return to a sustained economic growth for a period longer than 5 years, the industry would be likely to evolve towards either the “interactivity” or the “personalisation” scenarios or a combination of both. In any case, the key trends that have prevailed between 1995 and 2000 are expected to continue:

- Digital platforms will continue to grow, in terms of number of platforms and of revenues;
- The current focus on providing more content to the consumer through the creation of more channels is likely to continue. In case of a positive economic environment, the growth of pay-TV channels should continue steadily, especially in smaller European countries, where their penetration rate was still limited, while a stagnation of the number of free-to-air commercial channels is expected;
- Despite the continuous growth of pay-TVs, public services and commercial free channels are expected to continue to attract mass-audiences;
- The advertising market, after a slow-down in 2001 and 2002, should recover and pursue its growth. Public service and commercial free channels are expected to continue to attract the largest part of the advertising budgets;
- Integration amongst content producers and access providers is expected to continue.

Almost all households will have the opportunity to access platforms providing them with a large number of channels. Terrestrial network operators are expected to lose market share in favour of cable and satellite operators.

The number and remit of Public Service Broadcasters will remain substantially unchanged in both economic environments.

The "business as usual" scenario is not expected to significantly impact the relative market strength of the operators described in the value chain. Overall, they will all benefit from a positive economic environment that will increase their revenue sources (advertising and subscriptions) and will allow them to develop new added-value services. In case of a negative economic environment, access providers are expected to suffer most since they would have to delay technology investments and put their model at risk.

**2. Interactivity can become reality provided that a positive economic climate prevails and that investments in access platforms are sustained**

This scenario focuses on the rapid development of interactivity. By interactivity, Andersen mainly refers to interactivity in the broadcast stream (such as multiple camera angles, betting and voting, etc.) more than internet-access and e-mail. As a key hypothesis, it is assumed that the TV screen and other emerging devices will be used by consumers in a more pro-active way to access new entertainment services. These new uses are expected to fragment the time spent in front of the television set over the different interactive services and the traditional TV viewing. Consequently, TV viewing time is expected to decrease, while the total time spent in front of the television is expected to increase. The attractiveness and new possibilities interactive services introduce, are expected to increase the time consumers spend on these new services.

The launch of interactive services from the television set is enabled through certain technological developments:

- The development of intelligent end-user equipment;
- The digitisation of broadband networks, allowing the transmission of complex, enhanced, content and a return path;
- The development of asset management solutions[5], making content portable to a diversity of platforms;
- The increased storage and processing capacities.

[5] Asset management solutions is the process of digitising, cataloging and enabling the search, retrieval, management, re-purposing, delivery and secure sale of media assets such as audio, video, text and images

Programme packagers are likely to develop and promote interactive services that are included in the broadcast stream while interactive services that are provided outside the broadcast stream will probably be promoted by the access providers.

As a consequence of the numerous new interactive applications available through television, it is foreseen that viewing time will be fragmented over the television's different uses. These changes in consumer behaviour pose a real threat for the programme packagers. As advertising revenues are linked to audience shares, a fragmentation of this audience is expected to put the business model of these industry players under pressure (Andersen's model predicts a decrease of the audience share that can reach up to 20%, resulting in an expected decrease of 16% in advertising revenues in 2010). On the other hand, interactivity opens up new perspectives for advertisers, giving them the opportunity to reach their audience in a new creative way (expected increase of 4% in advertising revenues in 2010, mainly based on a shift from the "below-the-line" advertising budgets and a revenue sharing model between access providers and programme packagers). Both trends result in a compound annual growth rate for television advertising of 0,67% in a positive economic environment and a compound annual growth rate of –3,11% in a negative economic environment.

In a positive economic environment the market penetration of interactive TV services is expected to reach 74% of households in 2010. A first growth wave is expected to occur in 2003-2004 when cable networks throughout Europe will be upgraded. A second wave is expected to occur in 2009-2010 provided new broadband platforms (such as xDSL and hybrid solutions involving DTT or satellite) are massively deployed. A long lasting economic growth environment can stimulate the development of thematic channels as they should be able to access more advertising revenues. Cable will develop to its maximum, given that it is so far the best-suited medium for interactivity (broadcast capacity and return path). Satellite is expected to suffer from the cable growth but is expected to gain market share from the strong reduction of the market share of terrestrial networks.

In a negative environment, the decreasing advertising market is expected to lead to a reduction of the number of commercial free-to-air channels, while the number of pay-TV channels remains almost constant. This is due to a combination of a sharp decrease in some "overdeveloped" countries while the number of pay-TV channels still increase in "developing" markets.

Terrestrial networks are expected to lose market share (in terms of penetration) as they cannot provide the 2-way capabilities and as multiplexing allocates priority to broadcast content. Cable is likely to win market share wherever it is feasible to deploy cable further whilst satellite remains at a status-quo.

Since the "interactivity" scenario will not significantly impact the public funding conditions, the number and remit of public service programme packagers will remain substantially unchanged, since the public funding conditions remained unchanged. Their audience share is also expected to remain globally unchanged.

The “interactivity” scenario is also expected to significantly impact the relative market strength of the operators described in the value chain. Three main consequences are foreseen by Andersen.

*Trend 1: The content production industry is expected to focus on new interactive formats:*

Audio-visual content producers will start competing against operators from the publishing industry (and notably some well-known brands) and against software engineering companies. It is therefore expected that the audio-visual content producers will need new skills and will need to make significant investments.

*Trend 2: Technological convergence will likely occur between broadcast networks and broadband distribution channels*:

Broadcast networks consist by nature in the multi-directional diffusion of signals and were therefore intended to provide one-way distribution. Telecommunications networks were originally intended for the two-way transmission of data. Both type of networks will now be able to carry a full scale of services (different formats -data, audio, video- and in two directions) and start to compete against each other.

*Trend 3: Aggregation becomes a viable stand-alone position:*

Finally, the market strength of TV portals or aggregators is expected to gradually increase. Subscription, commissions on transactions and an increasing part of advertising revenues will transit through them. Internet portals, popular publishing brands, programme packagers and access providers are expected to transform themselves to aggregators, thereby creating a very competitive space. Aggregators are expected to dominate the customer relation.

**3. Personalisation is likely to pick up if technology becomes more user-friendly and initial consumer interest is confirmed**

In this scenario, as a key hypothesis, it is assumed that there will be a shift by consumers from channel-based viewing to programme-based viewing.

The paradigm shift from channel-based viewing to programme-based viewing implies that consumers can access content on-demand, effectively creating their own channel, using a combination of technologies (personal video recorders, near video-on-demand, video-on-demand, Internet streaming, etc.). This will therefore reduce the viewing time of simultaneous TV[6].

[6] Simultaneous TV can be defined as watching the TV at the time the programme is broadcast

This could pose a fundamental threat to the key areas underpinning the current broadcasting business model. Both the notion of a channel and the notion of prime time might become less significant, directly threatening the advertising model on which a large part of the broadcasting industry is built. Advertising revenues for programme packagers are expected to decrease by 10% in 2010, due to ad-skipping techniques. This calculation takes into account the penetration of personalised services, the estimated usage and the percentage of live programming. At the same time personalisation will also allow programme packagers to attract new advertising revenues in view of a better targeting of key audiences. This will result in an increase of television advertising due to the shift of some magazine advertising budgets towards television. It is estimated that electronic programme guides could benefit from 7,5% of the total TV advertising revenues in 2010. These trends result in no growth for television advertising in a positive economic environment and a compound annual growth rate of –3,8% in a negative economic environment. These figures don't take into account that some programme packagers will develop electronic programme guides and benefit from specific advertising revenues.

It is however expected that television viewing time will largely remain the same. The viewers will be more active in selecting content from specialised and thematic content libraries.

The personalisation of television can be achieved under two different technical ways.

- On one hand the video on demand services (VoD) involve a massive central video server, remote from the user, that streams movies and other content over a unique link to the home. The development of such services has been enabled by the concurrent development of technologies such as increased digital broadband capacities and security and copyright protections.

- On the other hand, the "local" video on demand services involve the storage, intelligence and filtering to be decentralised in each home, in "personal video recorders". These services are to be enabled by the concurrent development of technologies such as better storage capacity, processing capacity and content compression (MPEG4) and description techniques (MPEG7).
  The hard disk in PVRs will allow the user to intelligently search online for content, store large amounts of information, access any information in a fraction of a second (enabled by metadata technology), record and access material at the same time and record multiple streams at the same time.

Since most of the technologies are available today and that the network providers have already significantly upgraded the access networks, it is expected that after a slow start, the penetration of personalised services (enabled by personal video recorders, near video on demand, video on demand and streaming internet services) could reach up to 75% of households in 2010, provided the economic growth is sustained for more than 5 years.

The differences between PVR and classical VoD are mainly technical (local or central storage). In terms of functionalities offered to the users, both services will enable the consumer to search, select and pull the content he wants to watch, when he wants to watch it. It is expected that the choice between PVR-enabling technologies and VOD-enabling technologies will be done by network operators based on their ability to optimise their networks.

A positive economic climate will create the conditions for a significant increase in the number of pay-TV channels, while the number of free commercial programme packagers is expected to decrease as a consequence of the development of new advertising techniques enabling a distribution of advertising revenues towards targeted rather than mass audience media. Consumer choice and control will increase as most households will have a potential access to at least two digital distribution mechanisms that can carry a large number of channels.

If this scenario materialises despite a negative environment, free commercial and 'generalist' channels could be threatened. It is expected that consumers would shift their viewing time from free commercial broadcasters to "personalised" channels. This would have particularly negative consequences for free commercial channels, and overall the number of channels is expected to decrease, especially in the large markets as these are currently best developed. Moreover, if global economic conditions remain unpredictable for a long period of time, it is expected that satellite operators are likely to be the only ones to offer personalisation based services since alternative providers (cable and DTT) will not take the risk or will not be able to invest in the required platforms.

The presence of public service channels is expected to remain substantially unchanged in both economic environments, since the public funding conditions are unchanged. However, the mission of public service programme packagers may be questioned in a "personalisation" scenario.

The "personalisation" scenario will also significantly impact the way the roles interact and the relative market strength of the operators described in the value chain. Andersen foresees two main consequences.

*Trend 1: EPG's are likely to become the main competitive space:*

Electronic Programme Guides are sophisticated interface programmes (electronic directories) that will enable users to search and select programmes interactively. With the possibility offered to viewers to select their own programmes, EPG's are likely to become the only mass-audience points and traditional programme packagers should rethink their current model. Generalist channels with strong brands and niche channels could see their role evolve towards the role of EPG. EPG's are likely to become a highly competitive space as access providers, (internet) portals and even content producers will position themselves in this role.

*Trend 2: Specialised content providers and channels could become specialised brands and could evolve towards niche channels*.

This means that content producers could develop a direct contact with audiences. This would further increase the consumer level of choice and control with a new range of intermediaries.

*F. How will the European audio-visual industry evolve?*

Scenarios highlight extremes in the possible evolution of the future and do not predict the exact future. At the moment, it is unclear in which direction the European audio-visual market will evolve.

In the economic theory, an industry is expected to evolve naturally towards a situation that maximises the satisfaction of the operators. In this case, and from a pure economic point of view, one would expect the European audio-visual industry to evolve naturally towards the scenario that maximises the financial revenues of the global audio-visual industry. This scenario could be called a "best-case" scenario for the whole audio-visual industry.

The table below summarises for each scenario the forecast of the revenues of each category of operators as well as for the industry as a whole. Andersen's market forecasts[7] identify the "interactivity" scenario as the scenario that promotes best the economic interests of the industry as a whole (expressed in terms of total revenues), and as the one that could be the "best-case" referred to above. The main conclusion of this table relates to the fact that none of the scenarios is a best case for both the individual operators and the industry as a whole. In this situation, it remains uncertain if the market as a whole will evolve naturally according to the economic theory towards the global industry optimum. The reader should be careful in interpreting the figures included in the table below. They cannot be used for any other conclusion.

Another element of the table below is that it also demonstrates that, although the economic environment impacts the total revenue volumes, it does not influence the best-case scenario ranking. The "interactivity" scenario can be considered as a "best-case" for the whole audio-visual industry in both positive and negative economic environments.

[7] Market forecasts are based on the identified revenue flows and changes to these revenue flows in each scenario.

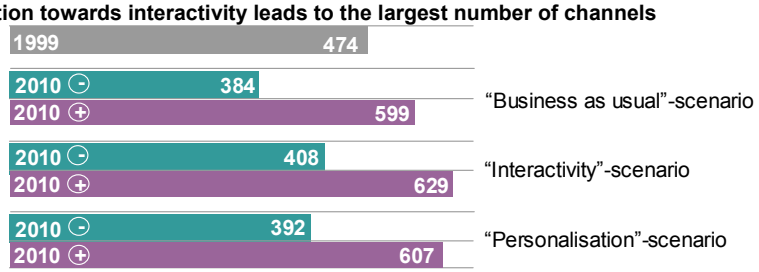
**Table 2: Overview of the industry revenues in the different scenarios**

| | | Content | | Packaging | | Diffusion | | Overall Industry Revenues[8] | |
|---|---|---|---|---|---|---|---|---|---|
| | | Bio Euro | Ranking | Bio Euro | Ranking | Bio Euro | Ranking | Bio Euro | Ranking |
| 1999 | | 14,5 | - | 37,9 | - | 14,5 | - | 52,5 | - |
| Positive Economic Environment | Business as usual Scenario | 21,8 | 1 | 52,8 | 1 | 28,4 | 3 | 81,3 | 2 |
| | "personalisation" Scenario | 20,4 | 3 | 49,4 | 3 | 36,2 | 2 | 81,2 | 3 |
| | Interactivity Scenario | 20,8 | 2 | 50,3 | 2 | 39,1 | 1 | 89,4 | 1 |
| Negative Economic Environment | Business as usual Scenario | 16,3 | 1 | 40,6 | 1 | 20,1 | 3 | 60,7 | 2 |
| | "personalisation" Scenario | 15,3 | 3 | 38,1 | 3 | 25,4 | 2 | 60,7 | 2 |
| | "interactivity" Scenario | 15,6 | 2 | 38,9 | 2 | 27,4 | 1 | 66,3 | 1 |

However, this analysis demonstrates that different industry operators have different economic interests. The content and packaging operators are likely to benefit most from a "business as usual" scenario while diffusion operators would benefit most from interactivity.

The analysis mentioned above only takes into account the economical point of view of the industry (expressed in terms of total revenues). However, it is also essential to look at the industry from a general interest point of view (the consumer choice and control dimension has been retained as a quantitative and identifiable variable in order to estimate consumers' welfare in terms of audio-visual offering and more generally as an effective dimension to synthesise the achievement of general interest objectives such as cultural diversity and pluralism. Other qualitative measures, such as the amount and the diversity of content, could also be taken into account).

**Figure 5: An evolution towards interactivity leads to the largest number of channels**




[8] Overall industry revenues include public funding, television advertising and subscriptions. In the case of the "personalisation scenario", programme packagers and access providers also benefit from other advertising revenues, generated from the (current) publishing industry (estimated at 4,3 Billion Euro in the positive economic environment and 2,9 Billion Euro in the negative economic environment). In reality, these advertising revenues will benefit new aggregation companies, not part of the traditional audio-visual industry.

In general, a negative economic environment could lead to a decrease in the number of television channels. This will therefore lead to a reduced consumer choice. The impact is most visible on the pay-TV operators and in large countries. This is mainly due to the fact that the profitability of these channels is already low.

The different scenarios indicate minor differences in the number of channels (a range of 30 channels on a 10 year period of time), yet they bring additional features to the way users watch television today: interactivity or personalisation. It is therefore not possible to conclude on the scenario that promotes best consumer choice and control on this quantitative measure only. Other, qualitative measures, such as the amount and the diversity of content could also be taken into account to better understand the evolution in consumer choice and control.

- The “business as usual” scenario will only have a minor impact on the way people watch television. The current TV channels features will remain prevalent: a passive way of watching programmes pushed by broadcasters, being public service broadcasters, free commercial broadcasters or pay-TV

- The “interactivity” scenario is the one that sees the highest increase in the number of channels, in both economic environments (compared to a business as usual situation). Beside the enlarged offer of channels, viewers will also benefit from new services allowing them to search for additional information and interact within or outside the broadcast stream

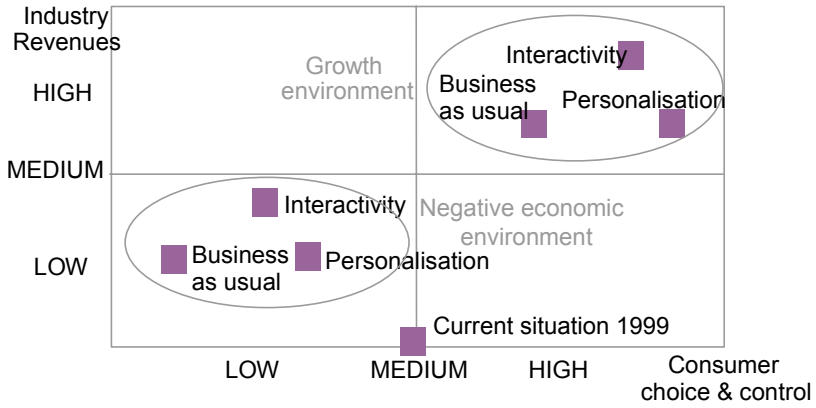
- The “personalisation” scenario has a strong impact on generalist channels as this scenario clearly promotes specialised and thematic channels. Generalist channels will be mostly under pressure by personal video recorders, near video on demand and video on demand services. Beside the relative minor increase in number of channels in this scenario, the additional services offered to viewers through the use of PVR or VOD are important: intelligent search and selection of programme, independence from schedule, etc. All these new services strongly increase consumer choice and control in terms of TV viewing.

As a conclusion, despite the pure quantitative variable number of channels – which shows minor differences between scenarios, Andersen expects the “personalisation” scenario to be the one that best improves consumer choice and control

The following figure pictures both dimensions of the analysis:

- The vertical axis represents industry revenues to be expected in each scenario and economic environment (cfr. revenues mentioned in table 2);
- The horizontal axis represents the level of consumer choice and control to be expected for each scenario. For the purpose of this analysis, consumer choice and control is an aggregate of the number of programme packagers and the number of access providers.

**Figure 6: Can some scenarios balance consumer choice and control with total industry revenues?**




Andersen's analysis suggests that the external economic environment has more impact on both variables (i.e. economic revenues of the audio-visual industry and consumer choice and control) than the scenario the industry has evolved to. In a negative economic environment, whatever the scenario, the expected levels of industry revenues are much lower than in a positive economic environment. Our analysis also indicates that, both from an economic industry perspective and from a consumer benefit perspective, the "business as usual" scenario is not optimal.

As a conclusion, in view of the different mix of economic and general interests of the main industry stakeholders (industry operators and consumers), it is unlikely that the free interaction of the market mechanism will enable the European audio-visual industry to evolve naturally towards models entailing both improved consumer choice and control and increasing industry revenues.

## *G. Conclusions and recommendations*

The following conclusions and recommendations will highlight the different opportunities and risks that are associated with the different scenarios.

### Opportunities and risks in case of a business as usual scenario

Overall, the key trends that have prevailed between 1995 and 2000 are expected to continue in the business as usual scenario. The "business as usual" scenario could be a major threat for the access providers and networks as well. In this scenario, Andersen does not expect they will be able to generate the revenues that are necessary to sustain and develop their infrastructure. In the end, this will also lead to decreased consumer choice and control as the number of access providers could decrease. If this scenario materialises, it would be necessary to support the industry mainly through measures that encourage the development of different access mechanisms.

**Opportunities and risks in case of an extreme "interactivity" scenario**

The interactive scenario provides significant opportunities for industry operators. Access providers could play an increasingly important role as the gateway between content and audiences and aggregators as they can benefit from the development of new interactive applications. The content producers should see new opportunities to exploit in terms of new types of programmes. However, some new players in the audio-visual industry, such as software engineering companies, will also be able to leverage their technical advance in content production and games and may take a substantial part of the market share, leading potentially to a threat for the "traditional" audio-visual content producers. Since attractive content and services are key for the development of new interactive markets, it is necessary to alleviate these threats in view of strengthening the audio-visual market economics:

- Interactive consumers could de-intermediate the audio-visual industry by picking content out of digital libraries. This trend seriously challenges the role of rights managers;
- Content producers need to be better armed to face the competition with new media companies, software engineering companies and games producers. The opportunity to reform the current training budgets that are supported by the European Media Plus programme could be considered in order to help the audio-visual content producers to reconvert;
- Access providers, as the main beneficiaries of the "interactive" scenario, will need to find innovative revenue sharing mechanisms to attract content producers onto the new interactive platforms.

**Opportunities and risks in case of an extreme "personalisation" scenario**

The "personalisation" scenario brings interesting opportunities for industry operators, and notably the rights holders as they will be able to develop new ways of exploiting their rights, and to reach the audience directly. Aggregators are expected to benefit from the development of EPGs, since these are likely to become the only mass-audience contact points. Access providers could position themselves as main gateway between content and audiences, and could also penetrate the EPG market.

On the other hand, programme packagers are most threatened by the "personalisation" scenario because this scenario challenges their role as aggregator of content in a programme schedule. Historically, programme packagers were the main intermediaries between content providers and audiences. This largely explains why programme packagers, also referred to as broadcasters, are the key focus point of the current directive "Television without Frontiers". In view of the possible decrease of the market

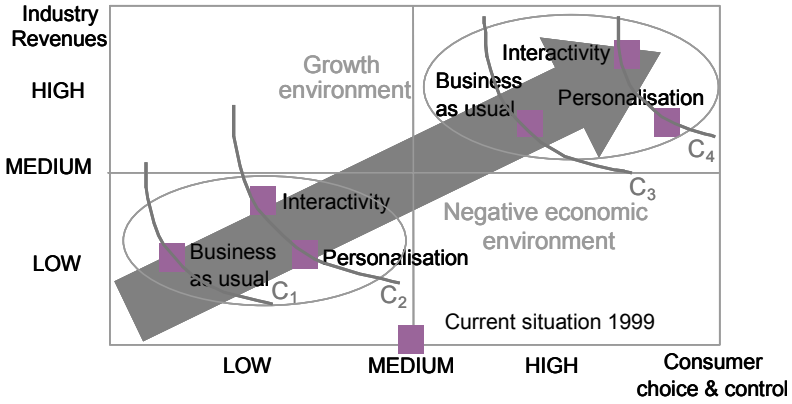
strength of programme packagers, it is likely that regulation will become less effective and programme packagers could encounter financial difficulties.

If the “personalisation” scenario materialises, it could be necessary to review the current regulation. There are here three possible options. In the first option, the current prescriptions should not only be applicable to the traditional programme packagers but also on the new intermediaries or the key operators through which most revenue flows transit. In a second option, all content quota regulation towards programme packagers and/or other intermediaries could be withdrawn and consumer choice and control could be ensured through a strict complaint management. In a third option, minimum regulation could be applicable to channels in exchange for the use of scarce resources (e.g. bandwidth).

**Some opportunities are associated with these risks**

As mentioned above, a trend towards interactivity and /or personalisation is expected to lead to higher industry revenues and /or higher consumer choice and control. Obviously, each of the different scenarios is associated with risks, but they are also associated with some opportunities to create new services and generate new revenues. The “interactivity” and “personalisation” scenarios are expected to benefit more to consumer choice and control and to the industry as a whole than the business as usual scenario.

**Figure 7: The positioning of scenarios on the short and long-term**




In general, higher industry revenues and good growth expectations lead to technology innovations, the deployment of new infrastructures and the development of new services. The deployment of new infrastructures and the roll out of access channels will lead to an increasing part of the European households having access to multi-channel access platforms. Consumers will be able to access more entertainment services due to the launch of new services, such as the launch of new channels, the creation of innovative services, etc.

As discussed above, both trends will lead to more consumer choice and control. Therefore, although they are not directly linked, high industry revenues tend to lead to

high consumer choice and control. This is indicated by the long-term trend pictured in the figure above.

However, given a certain economic and market context, consumer choice and control and general industry revenues can become opposites. Choices need to be made along the curves (e.g. $C_1$ to $C_4$). From a theoretical standpoint, the move of the industry towards the "interactivity" scenario or the "personalisation" scenario or any combination along the curves mentioned above, is therefore indifferent (indifferent for an observer of the European audio-visual market without any preference between the two criteria of consumer choice and control and industry revenues).

Starting from the situation in 1999, any scenario in a positive economic environment should lead to improved consumer choice and control and to higher industry revenues. When looking at the figure mentioned above, public authorities have two possible roles to play. A first role is to stimulate the audio-visual industry by developing specific industrial policy measures in order to increase the global level of satisfaction.

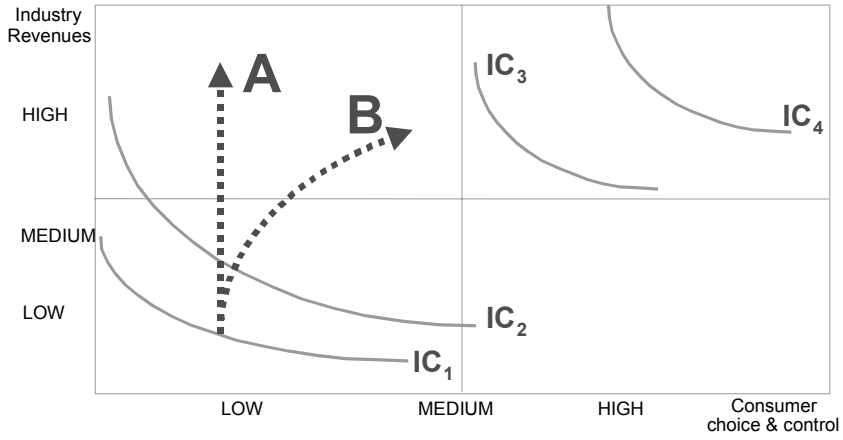
Possible levers in this area could be:

- Regulatory packages in favour of the further development of electronic communications infrastructure and associated services such as equal access to networks and services providers can support market entry by limiting obstacles to market access;
- European support mechanisms such as the Media Plus programme that focuses on training and development within the audio-visual industry as well as the distribution industry could be re-oriented towards the stimulation of skills development in areas such as production of interactive content;
- Other mechanisms such as the "i2i-audio-visual" programme that stimulate the creation of content producers focusing on new formats;
- Tax incentives like tax credits for content production companies earned on labour expenditure or number of personnel members or like favourable tax treatment mechanisms for investments in European content production, etc. This would strengthen the European content production industry and better prepare it for the increased competitiveness;
- Establishment of a one-stop shopping procedure to facilitate the conclusion of IPRs licenses in multiple Member States[9].

The immediate impact of these levers would be to increase industry revenues (see arrow A in the figure below). The longer-term impact would be to increase both overall industry revenues and consumer choice and control (see arrow B in the figure below). This long-term impact is due to the fact that the operators depicted in the audio-visual value chain will share part of these extra revenues with their consumers and will partly invest these extra revenues in network deployment, new (digital) platforms and the development of new content and new services.

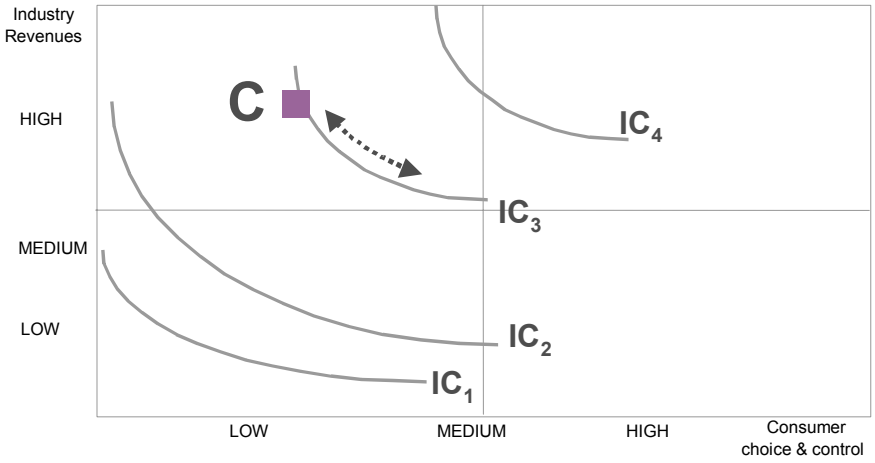
[9] This issue will be dealt with by the review of the "cable and satellite" Directive.

**Figure 8: Illustration of the public authorities' role**




A second regulatory role is to balance individual and general interests. If the European audio-visual industry would find itself in position C (see figure below), regulators could intervene to increase consumer choice and control. In a given economic context and on the short-term, this is often associated with increased pressures on industry revenues. Ideally, both regulatory roles should be combined.

**Figure 9: Illustration of a regulatory role**




Possible regulatory levers are:

- Must carry rules whereby owners or operators of a distribution infrastructure would have to provide a minimum of selected European broadcast channels over their network / platform to their customers. Overall this would benefit consumers as it appears that in most European countries local content is best valued by consumers;
- The "major events" regulation (article 3a of the directive "Television without Frontiers") that recognises certain events that have a national importance and should therefore be made available under certain conditions. The selected major

events should be enforced in order to ensure mass access to a set of top events;

- “Quota” regulation (article 4 and 5 of the directive “Television without Frontiers”), that imposes to programme packagers to broadcast European works and works from independent producers;
- Regulation relating to television advertising, sponsorship and teleshopping (included in the directive “Television without Frontiers”) that lays down a series of rules in order to ensure that the interests of consumers as television viewers are fully and properly protected.

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# 1 Objectives and scope of this study

The "Television without Frontiers" directive (89/552/EEC), adopted on 3 October 1989 by the Council and amended on 30 June 1997 by the European Parliament and the Council Directive 97/36/EC, establishes the legal frame of reference for the free movement of television broadcasting services in the Union in order to promote the development of a European market in broadcasting and related activities, such as television advertising and the production of audio-visual programmes.

The free movement of television broadcasting services in the Union can be considered as the primary objective of the “Television without Frontiers” directive. However, other explicit and implicit objectives, such as the objective of pluralism, the objective of promoting production, independent production and distribution and the objective of promoting markets of sufficient size for television productions in the member states to recover necessary investments, have been attributed to the directive too.

The development and application of digital technologies, combined with other developments in the broadcasting markets, are changing the landscape of European broadcasting. Consequently, in order to prepare the statutory report on the implementation of the directive “Television without Frontiers”, the Commission has requested three[10] studies that will provide the necessary input. The three studies will also provide material for the Commission’s consultations with the sectors’ professionals.

The objectives of the second study, awarded to Andersen, are summarised below[11]:

- Analyse the principal technological and economic factors (market, structure of the offer, intra-sector practices) that have influenced the development of the audio-visual sector since 1995 and identify any cause and effect relationships;
- Identify the principal technological and economic factors that could influence the development of the audio-visual sector up to 2010;
- Study the development of regulation and commercial practices in the audio-visual industry over the past five years and the foreseeable development up to 2010, especially regarding:
    - The various channels for the distribution of audio-visual content including the chronology of windows: theatrical releases, video on demand, television (generalist or thematic, free to air, pay-per-channel or pay-per-view), and other means of electronic communication like the Internet, DVD and other off-line media;
    - The financing and pre-financing of audio-visual content productions by distributors/broadcasters;

[10] The objectives of the first study are to evaluate the impact of measures concerning the promotion of distribution and production of television programmes in the European audio-visual sector at Community and national levels. This study has been awarded to Uyttendaele, Gérard & Doutrelepont. The objectives of the third study are to provide the Commission with a thorough understanding and accurate vision of the state of play and likely further development of new advertising techniques, across the different forms of media, namely television, radio, cinema and Internet. This study has been awarded to Bird & Bird.

[11] Source: Specifications annexed to the invitation to tender, Public service contract n° DG EAC/17/00

- Outline audio–visual content ownership rights at every stage of content utilisation.
- Develop possible technological and economic scenarios (market and structure of the offers, including the intra-sector practices) up to 2010 given the current legal context. The scenarios will take into account the effects of linguistic and cultural diversity, political pluralism, as well as the protection of the public interest with regard to the role of television as a vehicle for the dissemination of information, education, and culture;
- Construct hypotheses for regulatory modifications, in particular the provisions of the Directive, with a view towards improving the competitiveness of the European Audio-visual industry (creation and distribution of content), and an evaluation of their effects on the outlined scenarios.

In order to develop a vision on the possible developments of the European audio-visual industry up to 2010, Andersen has analysed the industry along two key dimensions:

- The consumer choice and control dimension, in order to estimate consumers' welfare in terms of audio-visual offering and as an effective dimension to synthesise the achievement of general interest objectives, such as cultural diversity and pluralism. Other qualitative measures, such as the amount and diversity of content, could also be taken into account. This dimension is measured through :
    - The number of programme packagers;
    - The number of access mechanisms (cable, satellite, terrestrial, etc.) deployed; and
    - The penetration of these access mechanisms.
- The strength of the European audio-visual industry, measured through :
    - The size and the evolution of the two main revenue sources of the industry: the advertising flows and the subscription and consumer spending flows[12] (Public funding has been considered as a given "exogenous variable");
    - The size and the evolution of the revenue flows of the key industry stakeholders, that have been regrouped in three categories (content producers and rights holders, programme packagers, networks and access providers);

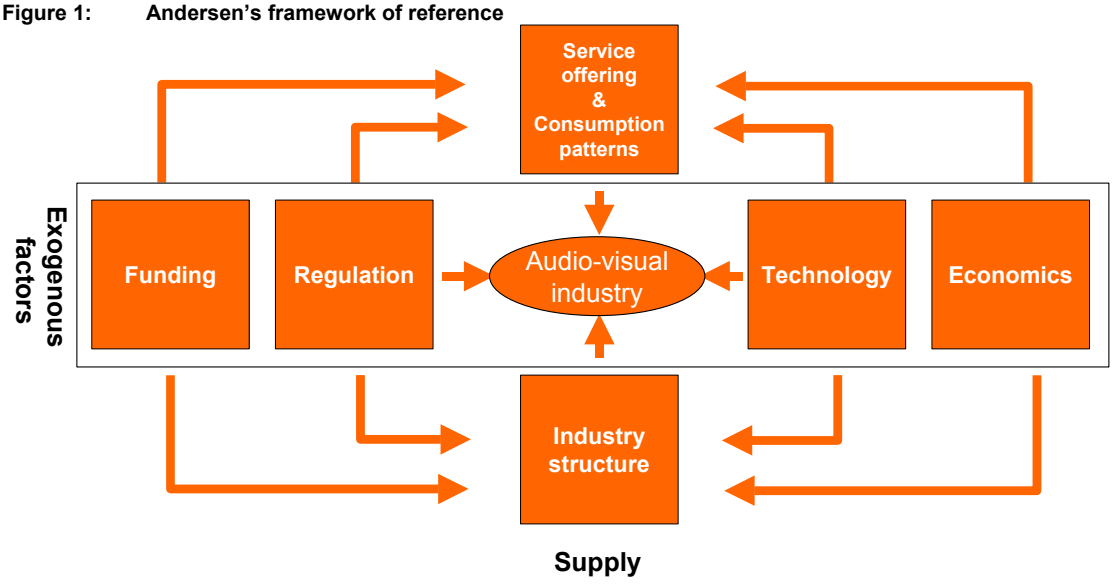
[12] State aid has been considered as a given exogenous variable.

# 2 Framework of analysis

## 2.1 General Framework of analysis

Understanding the dynamics of the audio-visual industry is a complex exercise. There are many factors that have an impact on the industry. To deal with this complexity, a systemic approach was used to capture all the factors affecting the industry's dynamics. This approach is formalised in the "Framework of Reference", which is a methodology tool that maps the major cause and effect relationships within the industry.

**Figure 1: Andersen's framework of reference**




This document is structured around this framework of reference.

Chapter 3 addresses the current industry structure with a specific focus on the role and segmentation, the business models and the likely trends of each industry role. Attachment I provides a country specific profile.

Chapter 4 and 5 discusses the disruptive factors, both economic and technological, that could change the fundamentals of the industry. These chapters will also address the changing viewing habits as one of the potential main drivers for changing business models.

In order to address the economic and technological uncertainties, scenarios have been created. In total three scenarios under two economic environments (this means a total of 6 possible business cases) will be discussed. Chapter 6 will address the scenario

building process while chapters 7,8 and 9 will discuss each of the three scenarios. The purpose of the scenarios is to stimulate thinking about the future rather than to predict the future.

In chapter 10, the impact of the scenarios on the current regulation will be studied and hypotheses for regulatory recommendations will be created.

## 2.2 Market background

The European Union is a very fragmented market, both in terms of economics and demographics. As can be seen from the table below, the countries of the European Union and the EEA[13] can be divided into three categories:

- Large countries: Germany, UK, France, Italy and Spain;
- Small countries with a high per capita income: The Netherlands, Belgium, Luxembourg, Ireland, Norway, Sweden, Finland, Denmark, Iceland, Austria and Liechtenstein;
- Countries with a low per capita income (below the average of the EU): Portugal and Greece.

**Table 1: Some demographics across Europe[14]**

| *Country* | *GDP (in Mio Euro) 2000 figure* | *Population (in 000) 2000 figure* | *Households (in 000) 2000 figure* | *TV HH (% HH) 2000 figure* | *2 or more TV sets (% TV HH) 2000 figure* | *VCR (% TVHH) 2000 figure* | *DVD (% HH) 2001 figure* |
|---|---|---|---|---|---|---|---|
| Austria | 205.824 | 8.075 | 3.250 | 98,0% | 52,5% | 73,7% | NA |
| Belgium | 247.690 | 10.239 | 4.747 | 95,0% | 25,0% | 70,0% | 7%* |
| Denmark | 176.140 | 5.314 | 2.444 | 96,5% | 45,4% | 80,1% | 8%** |
| Finland | 131.122 | 5.181 | 2.365 | 95,5% | 46,8% | 74,0% | 8%** |
| France | 1.394.886 | 60.628 | 24.400 | 93,6% | 40,4% | 80,3% | 29% |
| Germany | 2.048.402 | 82.143 | 38.123 | 98,7% | 30,3% | 72,4% | 22% |
| Greece | 119.912 | 10.554 | 3.780 | 99,1% | 56,3% | 48,6% | NA |
| Iceland | 9.030 | 281 | 101 | 98,0% | 48,0% | 84,0% | NA |
| Ireland | 101.611 | 3.790 | 1.287 | 96,0% | 48,0% | 76,0% | NA |
| Italy | 1.159.335 | 57.612 | 21.220 | 97,5% | 52,0% | 64,0% | 7% |
| Liechtenstein | 813 | 32 | 10 | 98,0% | N/A | N/A | NA |
| Luxembourg | 19.893 | 441 | 180 | 99,0% | 50,0% | N/A | 7% |
| Netherlands | 395.724 | 15.923 | 6.828 | 98,4% | 41,7% | 76,7% | 7% |
| Norway | 150.422 | 4.478 | 2.049 | 96,0% | 50,6% | 70,8% | 8%** |
| Portugal | 112.946 | 9.998 | 3.020 | 99,4% | 70,9% | 62,4% | NA |
| Spain | 601.768 | 40.559 | 12.217 | 99,7% | 61,1% | 70,3% | 4% |
| Sweden | 246.636 | 8.883 | 4.168 | 98,0% | 43,0% | 79,0% | 8%** |
| UK | 1.537.092 | 59.501 | 25.105 | 97,0% | 61,0% | 85,0% | 23% |

[13] European Economic Area, including the EU 15 member states, Norway, Iceland and Liechtenstein. The EEA States are also subject to the provision of the Directive by way of the EEA Agreement.

[14] Compilation by Andersen based on IP, Television 2001 (including GDP figures for Luxembourg, Iceland and Liechtenstein), ZenithMedia (GDP figures for all other countries), EAO, Statistical Yearbook 2001, p.48 (DVD penetration), * is the total for Benelux, ** is the total for the Nordic group.

The European audio-visual market is very fragmented in relation to access providers and programme packagers, both private and public (see table below).

**Table 2: Penetration rate of audio-visual distribution channels across Europe**[15]

| Country | # national channels with terrestrial license<br>end 2000 figure | # national channels with no analogue terrestrial transmission<br>end 2000 figure | # channels supplied by cable networks<br>end 2000 figure | Movie theatres<br>(000 inhab./ movie screen)<br>2000 figure | Number of movie screens<br>1999 figure | Cable TV Subscribers<br>(% TV HH)<br>2000 figure | Satellite TV Subscribers**<br>(% TV HH)<br>2000 figure | Mobile phone penetration<br>(% Pop.)<br>2000 figure | Internet penetration<br>(% Pop.)<br>2000 figure |
|---|---|---|---|---|---|---|---|---|---|
| Austria | 2 | 3 | 35 | 15,4 | 524 | 31,9% | 46,7% | 63,0% | 40,0% |
| Belgium | 8 | 10 | 21-41 | 20,8 | 492 | 94,0% | 4,0% | 66,0% | 26,5% |
| Denmark | 2 | 7 | 8-42 | 15,4 | 345 | 31,8% | 42,2% | 72,0% | 53,7% |
| Finland | 4 | 3 | - | 14,3 | 362 | 39,6% | 13,3% | 82,9%* | 56,0% |
| France | 7 | 90 | 40 | 12,2 | 4971 | 13,2% | 12,1% | 50%* | 19,0% |
| Germany | 10 | 74 | 42 | 17,7 | 4651 | 53,3% | 38,2% | 59,0% | 32,0% |
| Greece | 11 | 14 | - | 27,8 | 380 | 0,1% | 1,4% | 60,0% | 8,5% |
| Iceland | 4 | 0 | 22 | 6,1 | 46 | 19,5% | 3,3% | 67,8% | 74,0% |
| Ireland | 4 | 2 | 11-15 | 12,7 | 299 | 43,0% | 5,0% | 64,0% | 28,0% |
| Italy | 10 | 86 | 17 | 13,7 | 4200 | 0,2% | 8,8% | 66,5% | 21,7% |
| Liechtenstein | 1 | 1 | 35 | 17,0 | | 84,1% | 14,0% | 60,0% | 35,0% |
| Luxembourg | 1 | 0 | 30-43 | 21,0 | 21 | 75,0% | 19,0% | 59%* | 36,0% |
| Netherlands | 3 | 30 | 30 | 34,5 | 461 | 94,2% | 3,8% | 66,0% | 52,0% |
| Norway | 3 | 4 | 10-40 | 11,3 | 398 | 43,0% | 24,0% | 71,4% | 59,0% |
| Portugal | 4 | 13 | 35 | 17,1 | 584 | 27,0% | 12,5% | 54,7% | 20,3% |
| Spain | 5 | 96 | 38 | 12,1 | 3340 | 2,8% | 10,5% | 62,5% | 18,0% |
| Sweden | 5 | 24 | 6-35 | 7,8 | 1132 | 49,0% | 19,0% | 80,0% | 59,2% |
| UK | 6 | 132 | 18-25 | 21,6 | 2758 | 13,6% | 17,8% | 57,0% | 35,0% |

Although the above table includes the penetration rates of Internet and mobile networks, these networks are not currently considered to be media distribution platforms. They are included because it is commonly anticipated that the advent of broadband on mobile (with UMTS) and Internet (with xDSL and cable) networks could have an impact on the way audio-visual content is distributed.

## 2.3 Segmentation of the media markets

Since the geographic coverage of this study includes 18 EU and EEA member states, a segmentation of these markets along some key dimensions is necessary in order to structure the study and to draw clear conclusions from the scenarios that are developed in chapter 6.

The selected key dimensions for segmentation are :

- The size and revenue potential (defined as economic growth and average profitability) of the local media markets
- The dominant market model in the local media markets

[15] Compilation by Andersen based on IP, TV 2001 and EAO, Statistical Yearbook 2001

- The main distribution and reception mode in the local media markets

### 2.3.1 The size and revenue potential of the local media markets

Size and revenue potential refer to the scale of the media industry in terms of reachable audience and the revenue potential of the market, defined by the economic growth and the average profitability of the industry.

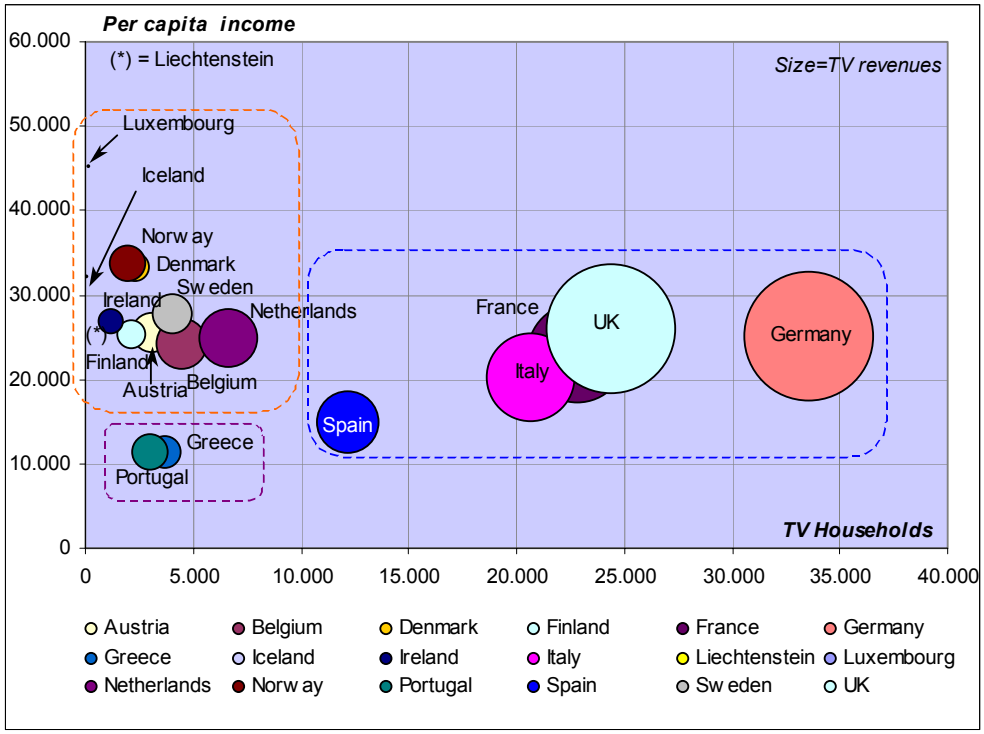
To segment the markets by their relative size, following metrics have been used:

- Television Households (TV HH): the number of households that have access to a TV set. This metric provides also a good estimation of the number of radio households since the penetration of radio does not differ significantly from that of television sets;
- Per Capita Income
- Total revenues of broadcasters, from public funding, advertising, subscriptions and other types of revenue.

The figure below shows the position of the different markets using the above metrics. Clearly, there are three main market categories:

- Large markets: France, UK, Germany, Italy and Spain where TV households exceed 10 million but each country has its own characteristics;
- Small and relatively rich markets: The Netherlands, Belgium, Luxembourg, Norway, Sweden, Finland, Denmark, Iceland, Liechtenstein, Ireland and Austria where the per capita income is above average but the market size remains small due to the limited number of TV Households;
- Small and relatively poor markets: Portugal and Greece where both the market size is relatively small and the per capita income is below average.

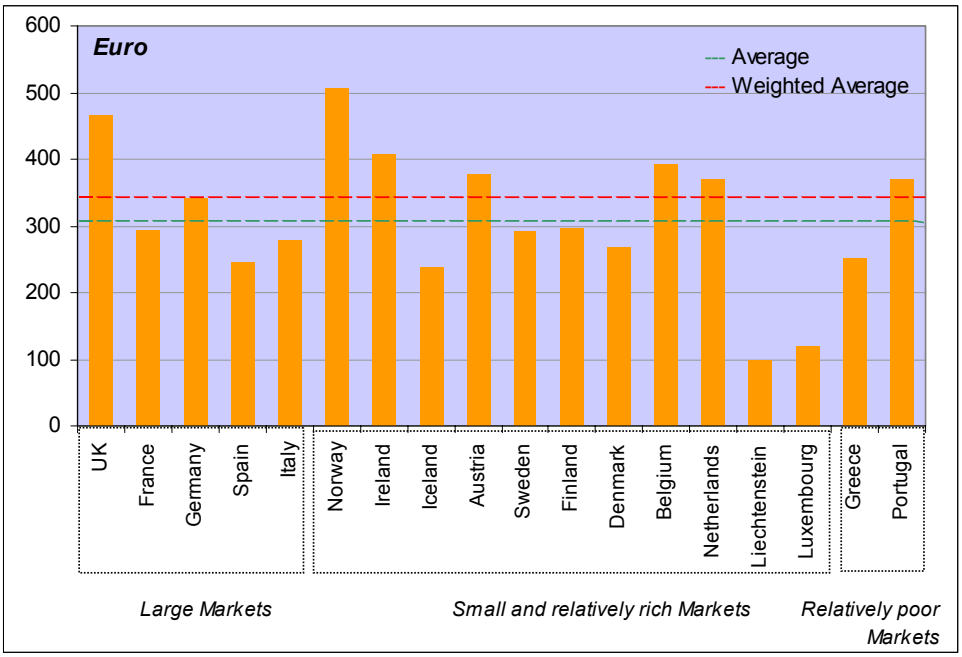
**Figure 2: Segmentation based on size of the market (2000 data)**[16]




The figure below shows the annual television revenues[17] per TV household. It indicates that the average revenue per household in the small and relatively rich markets lies above the European average (339 Euro per annum[18]) for Norway, Ireland, Austria, Belgium and the Netherlands. Luxembourg and Liechtenstein's annual TV revenues lie below the European average as these countries have a very limited domestic TV offering. Greece, a smaller and relatively poor market, has annual television revenues that lie below the European average.

[16] Compilation by Andersen based on IP, TV 2001, Zenith Media; Andersen analysis
[17] The TV revenues per household in this analysis consist of subscription, advertising and public funding.
[18] The weighted average (weighed on the basis of the TV households) of the annual TV revenues for the EEA amounts to 339 Euro, while the average amounts to 311 Euro

**Figure 3: Annual television revenues per TV household (1999 data)**[19]




### 2.3.2 The dominant market model in the local media market

Another way of segmenting the 18 media markets that are considered in this study is to look at the types of broadcasters[20], the audience share they claim in their local market and the financing model they use to sustain their position.

For this analysis, the broadcast sector is segmented in terms of public service broadcasters, free commercial broadcasters and pay TV operators. Public service broadcasters are mainly in existence prior to the early 1980's. Free commercial broadcasters refer to the national broadcasters that entered the market during the general liberalisation in the 1980's (and 1970's for Italy) with a general output. Pay TV operators are categorised as the more targeted or thematic channels, typically cable and satellite channels that emerged mainly in the late 1980's and the 1990's. The taxonomy of each type of broadcaster is shown in table 3.

[19] Compilation by Andersen based on IP, Television 2001; EAO, Statistical Yearbook and Zenith Media
[20] See chapter 3, section 3.1 for a definition of the roles of the actors in the value chain

**Table 3: Characterisation of the different generations of broadcasters**

| | Public Service Broadcaster | Free Commercial Broadcaster | Pay TV Operator |
|---|---|---|---|
| Service | Public Broadcaster | Commercial Broadcaster | Targeted Broadcaster |
| Programming genre | Generalist<br><br>High level of own production and commissioned content | General with focus on entertainment<br><br>Locally commissioned content in peak-time; Acquired content from larger markets or international for off-peak time | Generalist or Thematic<br><br>Mainly acquired content from larger markets or international |
| Business model | "Free-to-air"[21] | "Free-to-air" | Subscription |
| Revenue sources | Public or Mixed | Advertising<br>(Access) Subscription | Subscription<br>Advertising |

Public Service Broadcasters and free commercial broadcasters feature general programming, although, given the source of funding, free commercial broadcasters are expected to broadcast relatively more entertainment programming than Public Service Broadcasters. Pay TV operators rely even more heavily than free commercial broadcasters on acquired programming.

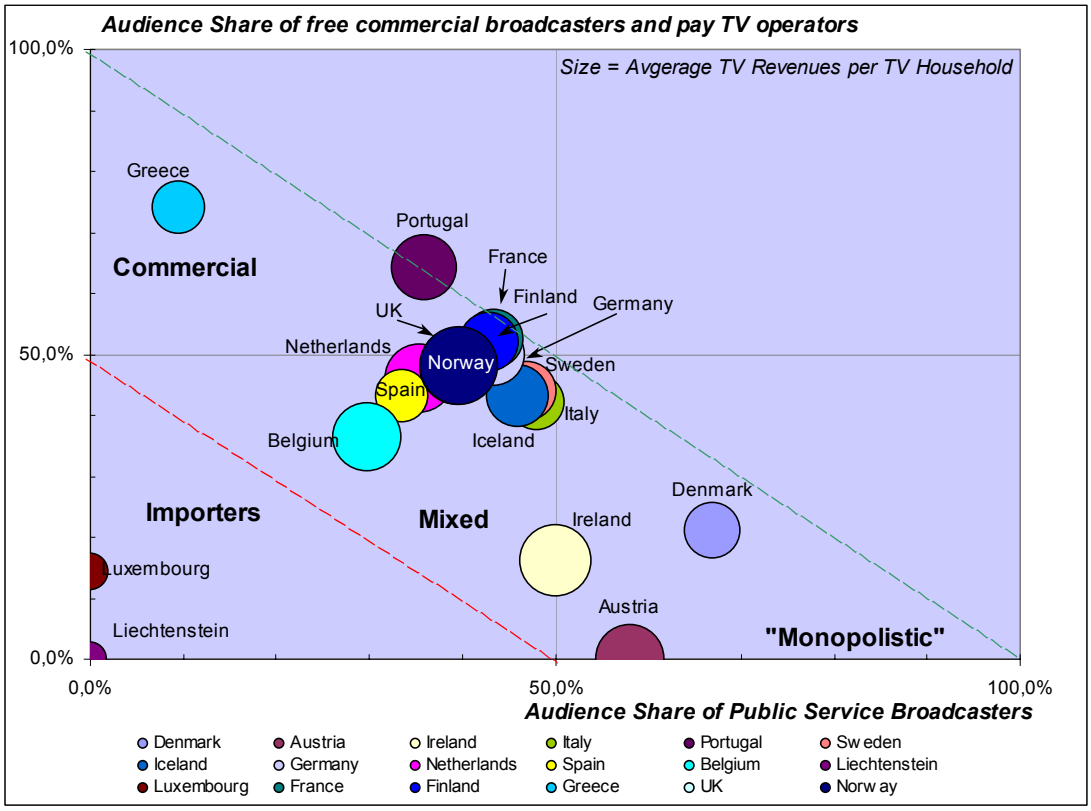
The figure below plots the average audience share of the Public Service Broadcasters versus that of the free commercial broadcasters in their local media markets. The size of the market refers to the average TV revenue per TV household (advertising and public funding only). On the basis of the above analysis there are a number of different market models that emerge:

- Mixed model – an almost equal audience share for the Public Service Broadcasters and free commercial broadcasters. This is the predominant model in Europe and exists across Norway, Sweden, Finland, Denmark, Iceland, The Netherlands, Belgium, Luxembourg, Ireland, France, Germany, Italy, and the UK;
- Commercial model – a dominance of free commercial broadcasters and pay TV operators. This model pertains to Greece, Portugal and Spain; and
- Monopolistic model – where broadcasting is dominated by one broadcaster with a strong public mission. This model exists in Austria, Denmark and Ireland. Ireland however, is moving to a mixed economy model with the launch of TV3 in late 1998.

[21] A "Free-to-air" business model means that consumers do not pay a subscription for the programmes, although in some countries consumers pay an access subscription

However, countries like Liechtenstein and Luxembourg, with almost no media market of their own, cannot be classified in any of the above models. In this segmentation, they will be called 'importers', as they are typically users of television channels from other countries in the same cultural region.

**Figure 4: Dominant market models (2000 data)**[22] [23]




Note that in the figure above the distance from the green diagonal can be interpreted as the market share that is not taken by domestic broadcasters. It can be taken by broadcasters from the neighbouring countries (same cultural region) as is often the case in smaller or monopolistic markets. The combined audience share of both Public Service Broadcasters and free commercial broadcasters in most countries is well above 50 percent (red diagonal).

The three dominance models explained above, can be further expanded upon by examining the financing structure that exists in these markets. The figure below illustrate the sources of television revenue for each of the 18 countries and their relative size.

[22] Compliation by Andersen based on EAO, Statistical Yearbook 2001 (for public funding figures, see also chapter 4, section 4.3), Zenith Media (for advertising and subscription figures) and IP, Television 2000 (for audience shares); Andersen analysis

[23] Source audience figures: IP, TV 2001, all day audience figures for the most complete universe available(Adults + 10 for Finland; Adults + 15 for Belgium, France, Ireland, Italy, Portugal, Sweden;Adults + 12 for Austria, Denmark, Luxembourg, Norway; Adults + 14 for Germany; Individuals + 6 for Greece; Adults 12-80 years for Iceland; Adults + 13 for the Netherlands; Adults + 16 for Spain, the UK

The segmentation outlined above along with the relevant funding sources, will be detailed for the three models *(mixed, commercial and monopolistic)* in the following section.

#### 2.3.2.1 Mixed economy model

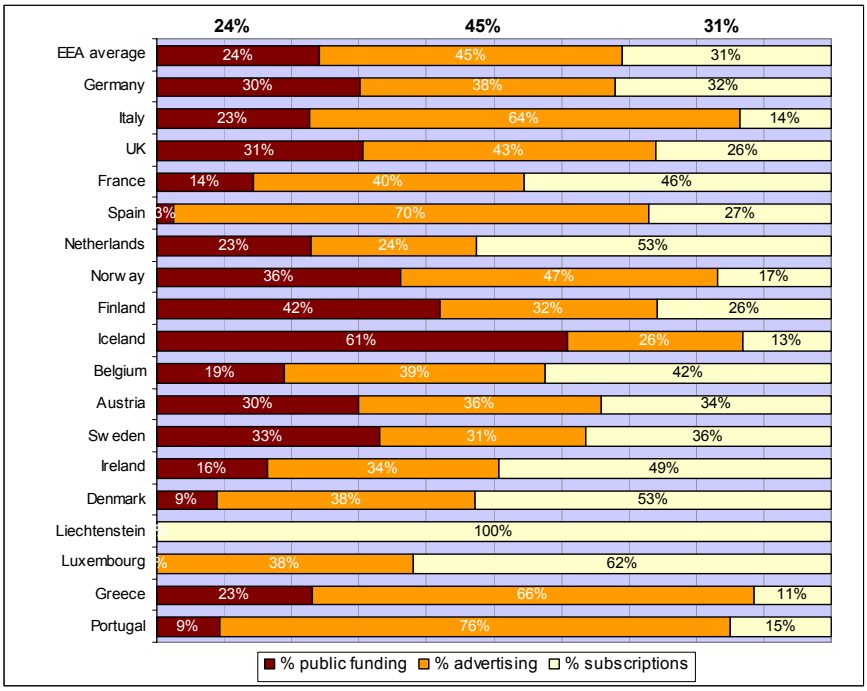
In the mixed economy model, there is an almost equal prominence of public and commercial activities. Across most of the mixed economy model countries, the following market features apply:

- Strong public service remit for one or more broadcasters;
- License fees provide an important source of funding;
- Public Service Broadcasters are large enough to encourage competition;
- Free commercial broadcasters capture a majority of advertising revenues but when mature they tend to devote relatively large proportions of revenues to domestic production; and
- Although there is a substantial amount of competition for audiences, free commercial broadcasters place greater emphasis on entertainment and fiction, and Public Service Broadcasters place greater emphasis on factual programming.

The mixed economy model generally involves a pluralistic approach to the introduction of free commercial broadcasters. In other words, different broadcasters are able to serve different markets. This is facilitated by the fact that Public Service Broadcasters and free commercial broadcasters only partially compete for the same sources of funding as opposed to the pure commercial model, in which they compete for the same funds.

The countries where the mixed model applies, have different features. As we can see from the figure below, the largest markets (see previous segmentation) get the lion's share of their revenues out of advertising. Hence there is more competition among the free commercial broadcasters and the pay TV operators. The smaller but relatively richer markets' public funding per capita matches the advertising spending per capita. This indicates that the advertising market in these countries is not mature yet and has potential to grow.

**Figure 5: Finance structure of the market (1999 data, percentages of total volume)**




## 2.3.2.2 Commercial model

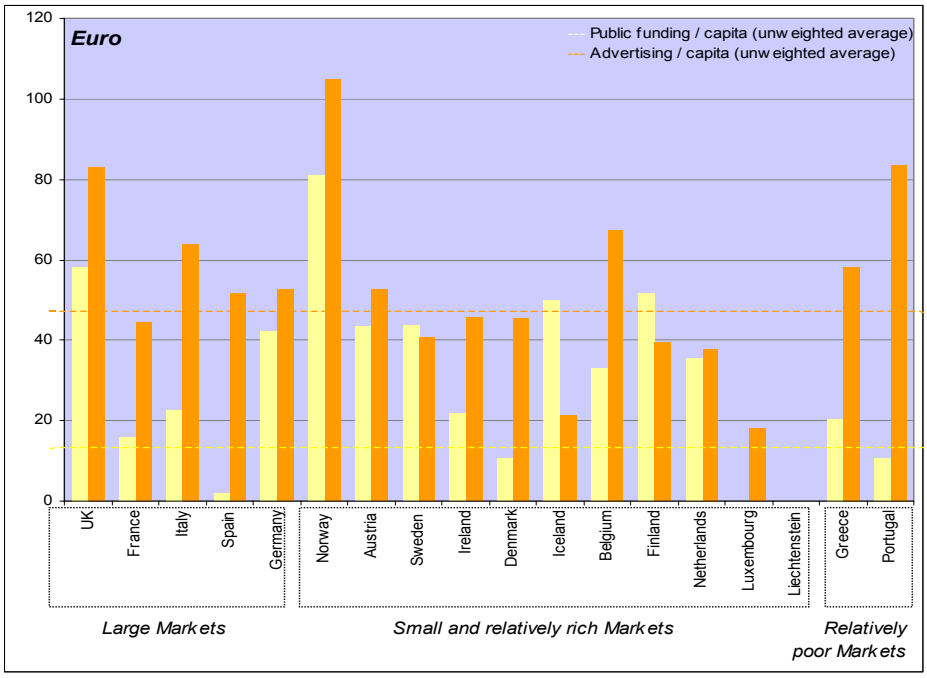
The countries where commercial funding is the primary determinant of programming are Greece, Portugal and Spain. Although the percentage of public funding in Greece is substantial, new broadcasters, which are commercially funded, entered the market and developed the commercial television market. In this way, the percentage that is represented by public broadcasting revenues, is diluted, so the country can be considered within the commercial model. Spain is included in the commercial model since only a small part of its revenues are derived from public funds[24], while 70 percent comes from the advertising market. The characteristics of this model are:

- New broadcasters are launched frequently in an attempt to capture a part of the advertising market. However, these new broadcasters tend to disappear quickly since the advertising market remains fairly stable and large broadcasters remain strong.
- Broadcasters with public missions tend to have financial difficulties because of a very low level of public funding per capita and thus an over-dependence of the public broadcaster on advertising revenues; and
- Output tends to be entertainment driven, and acquired programming is extensively used.

[24] Spain has a low figure of public funding because the "deficit system", which is a form of public funding that has not been taken into account in this chart.

The markets within the commercial model tend to be fairly uniform: there is a very low 'public funding per capita level', but public broadcasters are highly exposed to the advertising market, in contradiction to the two other models.

**Figure 6: Average yearly advertising spent vs. average yearly public financing per capita (1999 data)**[25]




### 2.3.2.3 "Monopolistic model"

The "monopolistic model" is in decline, and is confined to Austria and Denmark. The characteristics of this model are:

- One national broadcaster with a strong public service mission;
- Use of more than one frequency, very often to fulfil ethnic minority or cultural services; and
- Higher than average public funding per capita.

Ireland, up until the end of 1998, could have been classified as a "monopolistic" country but is now moving away from this position and has clearly become a mixed model market.

All of these countries face competition for the domestic audience from television services originating in neighbouring countries, partly explaining the relatively high expenditure on programming that is common across these countries.

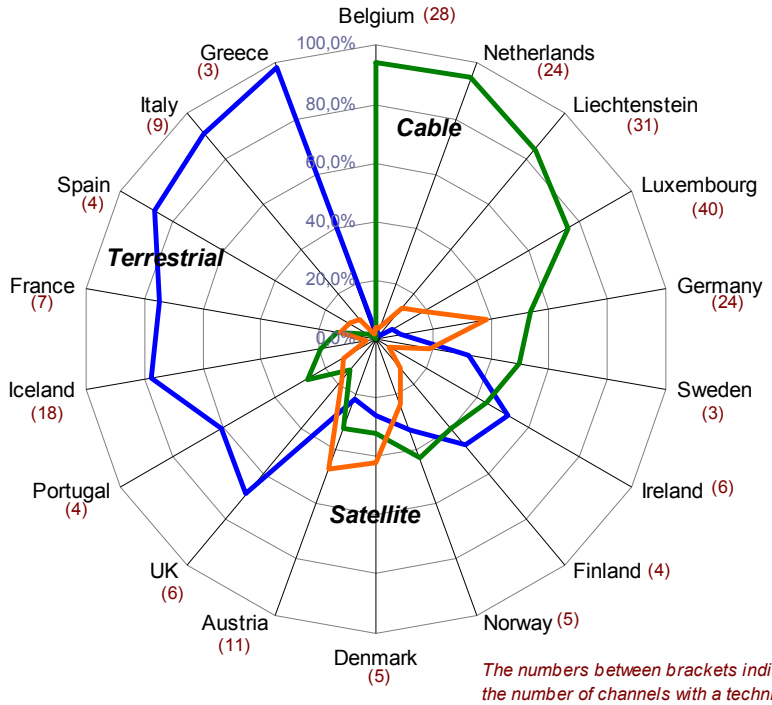
[25] Compilation by Andersen based on Zenith Media (for advertising figures and subscription figures) and EAO, Statistical Yearbook 2001 (for public funding figures, see also Chapter 4 section 4.3)

### 2.3.3 The main reception mode in the local media market[26]

A third way of segmenting the media markets is to look at the main modes of transmission and reception in these markets. There are three principal modes: Terrestrial, Cable and Satellite. To measure the main reception mode, we have used the following data :

- *Cable* : television households subscribing to cable, which includes the active customers and not the homes passed;
- *Satellite* : number of active decoders in the market, both analogue and digital[27];
- *Terrestrial* : television households receiving TV signals via terrestrial signals, both analogue (the difference between the analogue terrestrial coverage of TV household and the penetration of cable and satellite distribution channels) and digital (the number of digital terrestrial viewers). This means that if a household has a cable or satellite connection and an analogue terrestrial connection, the latter is not counted as an analogue household.

**Figure 7: Penetration of Terrestrial, Cable and Satellite distribution in percentage of TV Households (2000 data)[28]**




*% of TV Households*

*The numbers between brackets indicate the number of channels with a technical penetration (access) of at least 70% of the TV households*

[26] Sources for this section: compilation by Andersen based on IP, Television 2000, Andersen analysis
[27] Note that piracy, or the percentage of consumers who have active decoders and who watch television channels without paying for them, was not taken into account.
[28] Compilation by Andersen based on IP, TV 2001

As the above figure shows five segments can be identified :

- *Cable countries*: especially the Netherlands, Belgium, Luxembourg and Liechtenstein where more than 80 percent of all television households are connected to cable networks. These countries also have a high average number of channels that reach more than 70 percent of the population;
- *Terrestrial countries:* especially Greece, Italy, Spain, Portugal, France and Iceland. In terrestrial countries, the number of channels that reach 70 percent of the television households is low due to spectrum limitations. Although digital terrestrial television would partly alleviate this restraint, it is in most European countries still unsure how and when digital terrestrial television will be launched. Until 2001, most operators and governments took into account that analog switch-off could occur between 2006 and 2010. The difficult economic environment, the fact that the channels that are currently transmitted on analog terrestrial networks do not have any interest to promote digital terrestrial television and the difficulties to find adequate financing to build digital terrestrial networks, will probably delay the expected analog switch-off. Gradually, governments are indeed becoming unsure whether or not it is reasonable to expect that the largest part of households will be able to access digital terrestrial television. Without this widespread penetration, analog switch-off will not be considered by local governments.
- *Cable/Terrestrial countries* : where both cable and terrestrial reach more than 70 percent of the television households. These countries are Sweden, Finland, Norway and Ireland;
- *Cable/Satellite countries* : where both cable and satellite reach more than 70 percent of the television households. These countries include Germany, Austria and Denmark. In these countries, the number of channels reaching 70 percent of the television households is comparable to the cable countries;
- *The UK* : in the UK, the three possible distribution platforms are competing, with terrestrial still the main reception mode for around 50 percent of the television households, but there is strong competition from new digital cable (NTL) and satellite (BskyB) platforms. The UK is the only country with a significant digital terrestrial rollout (the financially troubled ITV Digital[29]). The number of channels that reach 70 percent of the population seems relatively low for the UK because the analogue terrestrial distribution is still the only way to reach 70 percent of the population. However, the average number of channels received by any household (taking into account only free-to-air channels) is around 14 to15 because about 54 percent of the population is subscribed to a DTT, Satellite or Cable service.

[29] Formerly known as OnDigital

## 2.4 Combined segmentation

Based on the three dimensions described above, the table below presents a combined segmentation of the 18 media markets considered in this study and classifies all 18 countries within this segmentation.

Based upon the dimensions “size and revenue potential”, “model” and “distribution mode”, it is possible to describe all relevant markets in the following five meaningful patterns:

- *Large markets*
- *Commercially driven markets*
- *Mixed Model markets*
- *“Monopolistic” markets*
- *Importers*

This segmentation is used throughout the report. It should be noted that although the five largest countries have been regrouped into one subgroup “large markets”, these countries are studied separately.

**Table 4: Overview of the combined segmentation**

| *Dimension* | Large Markets | Commercial Markets | Mixed Model Markets | "Monopolistic" Markets | Importers |
|---|---|---|---|---|---|
| Size | Very large markets (larger than 10 Mio. TVHH) with average per capita income. | Medium to larger markets with below average per capita income. | Small to medium countries with above average per capita income. | Small markets. | Small markets. |
| Model | Mixed, market share divided between commercial and Public Service Broadcasters | Commercial broadcasters dominate in terms of market share. | Mixed, market share divided between commercial and Public Service Broadcasters. | Public Service Broadcasters dominate the market. | Import content from neighbouring countries (or same cultural region). |
| | Almost equal division of revenues between public funding, advertising and other revenues. | Highly dependent on advertising, even for the public broadcasters. | Higher than average public funding but well developed advertising markets. | Strong dependence on public funds. | Very small local advertising budgets flow to foreign broadcasters. |
| Distribution | Highly dependent on country. Early move to digital distribution. | Mainly terrestrial, start of digital development to enhance capacity. | Cable or cable/terrestrial combination. | Cable or Satellite. | Cable networks with foreign programming. |
| Countries | UK, France, Germany, Italy, Spain | Portugal, Greece | Belgium, Netherlands, Sweden, Finland, Norway, Iceland and Ireland (after 1998) | Austria, Denmark, Ireland (before 1998) | Luxembourg, Liechtenstein. |

## 2.5 Data collection exercise

### 2.5.1 Delphi Study

A “Delphi” study is a market research technique that consists of interviews performed among industry experts in order to gain qualitative and quantitative insight about a specific matter, the audio-visual industry in this case. The questionnaires and interviews are not designed to gather quantitative information and should therefore not be regarded as primary research. The purpose is to gain a better understanding of the industry trends and to validate some of the key dynamics described in this report.

The following process has been used:

- Desk research on the key issues in the media industry;
- First draft of the questionnaire validated by Andersen industry specialists;
- Testing of the questionnaire with a small selection of market actors;
- Redesign of the final questionnaire (see attachment) and distribution to a selected audience (see segmentation criteria below);
- Follow-up of the questionnaire through individual interviews.

When establishing the list of experts to contact, the criteria were developed in order to:

- Ensure broad coverage of the audio-visual value chain;
- Ensure balanced geographical coverage;
- Ensure balance between public and private operators;
- Ensure the representation of organisations of various sizes and net worth.

A summary report of the Delphi study is presented in attachment.

### 2.5.2 Workshops and expert groups

Public workshops and experts groups are particularly useful to gain qualitative insight about a topic. In this case, the objective is to get the industry expert’s view of the future of the audio-visual industry in Europe.

A first workshop was organised in May 2001, in order to present the initial findings from secondary research and in order to foster discussion among the industry actors on some key issues raised by Andersen. A number of white papers or positioning papers relating to the issues discussed have been received subsequent to the workshop.

A second workshop has been organised in December 2001, where the draft final conclusions of the study have been presented to the industry stakeholders. This report

takes into account all the reactions industry stakeholders have formulated, both verbally or in writing, until January 31st, 2002.

### 2.5.3 Desk research

#### 2.5.3.1 Data sources

Besides the primary, mainly qualitative, research described above, secondary market research has been conducted in order to develop a set of calibrated data. The data is used to refine the industry analysis and the scenarios.
In collecting the required data, several sources were used, the most significant of which are summarised in the table below.

**Table 5: Main sources used for data collection**

| Source | Type of information |
|---|---|
| Baskerville Communications Corp. | Revenues, programme expenditure and audience share figures for European broadcasters |
| CEPI (European independent producers organisation) | Specific study developed for this project in collaboration with Andersen |
| European Audio-visual Observatory Statistical yearbook 2000, 2001 | Revenues, programme expenditure and audience share figures for European broadcasters across mainly Western Europe |
| Financial Times World television, 2000 | Cable and satellite penetration, audience share and ownership structure for European broadcasters |
| IP Television 1997, 1998, 1999, 2000, 2001 | Cable and satellite penetration, audience and advertising shares, viewing patterns |
| Screen Digest, 2000 | Programme expenditure and viewing figures across Western Europe |
| Zenith Media World press trends 2001 | National level advertising figures |
| Forrester, Datamonitor, Durlacher, etc. | Market trends and visioning |

A full list of the sources used can be found in Appendix 6: “Sources”.

#### 2.5.3.2 Quality of available data

Due to the wide range of sources, the overall quality of the data is generally not consistent and often contradictory, be it on the period covered or in the nature of the information. The main problematic issues relate to:

- Finding aggregated data on a European level;

- Finding quantitative information relating to the content production industry (which is very fragmented).

None of the main sources outlined in the table above are entirely consistent and a great deal of care needs to be taken with these figures, as without a good understanding of the market they can be quite misleading. The main reasons for these inconsistencies are that some of these sources have not managed to validate the information received from market actors. Others do adjust the data, but do not provide details of the adjustments, and others are not always accurate or clear in their use of exchange rates. In using these sources of information all efforts have been made to validate and adjust the data where possible.

#### 2.5.3.3 Validation and adjustments to the data

There have been three main adjustments made to the data:

- Aggregated European figures have been compared with figures from member states and adjusted where relevant;
- Extrapolation of data for 2000, as some countries publish statistics very early while others have a slower process. Depending on the availability of information we have chosen to update some figures to 2000, or only include 1999 figures;
- Extrapolation of data for some geographic regions. Countries like Iceland and Liechtenstein are not always discussed. Depending on the type of data, different extrapolation techniques have been used.

Most of the adjustments made to the data occurred where either data was believed to be inaccurate, or where there was a gap in the data series. The only attempts to estimate gaps have been done for markets where relatively robust information was available.

## 2.6 Systems Dynamics and business modeling

Given the complexity of the audio-visual industry and its dynamics, it is very difficult to make solid predictions about the audio-visual industry's future. Therefore, various scenarios are considered in which systems thinking and a business modeling approach have been applied.

Systems thinking is a method used to enhance learning in complex systems. It is a method used to develop management simulation models to help learn about dynamic complexity, understand the source of policy resistance and design more effective policies. This methodology is used to better articulate the complex interconnections of circular causality in a specific environment. Systems thinking provides tools to help users organise their thoughts and articulate ideas. One of these systems thinking tools is the "Causal Loop Diagram" that provides a useful way to represent dynamic

interrelationships. They make explicit one's understanding of a system's structure, provide a visual representation to help communicate that understanding and capture complex systems in a succinct form.

Causal Loop Diagrams are built of variables and arrows, the latter indicating a causal link between two variables:

**Figure 8: The language of Links and Loops**

| | |
|---|---|
| ⟶ | Indicates a causal link between two variables. |
| s | Placed next to an arrowhead, indicates a causal change in the Same direction. |
| o | Placed next to an arrowhead, indicates a causal change in the Opposite direction. |
| RL | A "Reinforcing" feedback loop that amplifies change. |
| BL | A "Balancing" feedback loop that seeks equilibrium. |

In the context of this study, causal loop diagrams have been developed for each industry segment. Each causal loop diagram represents the profitability system (costs and revenues) of one of these actors. Causal loop diagrams represent the causal relationships between variables. These variables can receive inputs from the system itself, are modified by it (they are at the end of an arrow). Other variables are exogenous or external, providing inputs for the system but are not modified by it. Typically, these external variables are different from country to country, or vary over time.

Models must be clearly focused on a specific purpose, and should not be built on generalities. Therefore the most important step in the modelling process is to articulate the problem.

A typical modelling process consists of 5 steps, which are outlined below:

- *Problem articulation and boundary selection:* A clear purpose is the single most important ingredient for a successful modelling study. The usefulness of models lies in the fact that they clarify the situation, creating a picture that can be easily understood. In model building, it is crucial to know what data to omit, and the purpose acts as the guide for deciding what data is relevant and what data should be omitted. The purpose provides the criteria to decide what can be ignored so that only the essential features necessary to fulfil the purpose are left;
- *Formulation of dynamic hypothesis*: Once the problem has been identified and characterised over an appropriate time horizon, modellers must begin to develop a theory, called dynamic hypothesis, to account for the problematic behaviour. The goal is to develop an endogenous explanation for the problematic dynamics.

The Delphi study, the interviews and industry expertise provide the necessary information to start formulating the dynamic hypothesis.

- *Formulation of a simulation model:* The initial dynamic hypothesis needs to be formalised in a conceptual model. Formalisation helps articulate vague concepts and resolve contradictions that went unnoticed during the conceptual phase. The formulation of the simulation model will be tested in the interview process and during the expert workshop.
- *Testing* needs to begin as soon as the first equation is written. Part of testing is comparing the simulated behaviour of the model to the actual behaviour of the system, but testing also includes the verification of all variables and all equations. Models must also be tested under extreme conditions.
- *Policy design and evaluation.*

## 2.7 Scenario Building

Because there is much uncertainty about the changes that could affect the audio-visual industry, scenarios are the most appropriate manner in which to consider the future. In a scenario process, several plausible situations for the future are considered. These potential situations must be carefully researched, oriented towards real-life decisions, and designed to illuminate an understanding of the possibilities. When collectively considered, the scenarios provide a basis for forming perceptions about the future of the industry. The point for the European Commission is neither to pick a preferred future nor to find the most probable future, the point is to make sound, strategic decisions for all plausible future situations.

The scenario building process is comprised of 5 phases:

- *Identification of the focal issue or decision*: scenarios need to be developed from the inside out, which means that one should start with identifying a specific issue or decision and then develop it according to the environment;
- *Identification of key forces in the environment*: the key factors influencing the success or failure of the decision and the driving forces in the macro-economic environment should be listed;
- *Ranking of these forces by importance and uncertainty*: next comes the ranking of the key factors and driving forces on the basis of the degree of importance for the success of the focal issue and the degree of uncertainty surrounding those factors and trends;
- *Selecting a scenario logic*: the results of this ranking exercise are the axes along which the eventual scenarios will differ. The axes should be represented as a spectrum with one to three dimensions;
- *Detailing the different scenarios:* finally, each scenario will be detailed through a narrative that will be the basis for a strategic conversation.

The purpose of scenarios relating to a market environment is not to predict the future but rather to provide a tool for thinking of what could happen in extreme conditions. Scenarios are therefore not necessarily realistic or mutually exclusive. Andersen expects the future to be a combination of the scenarios.

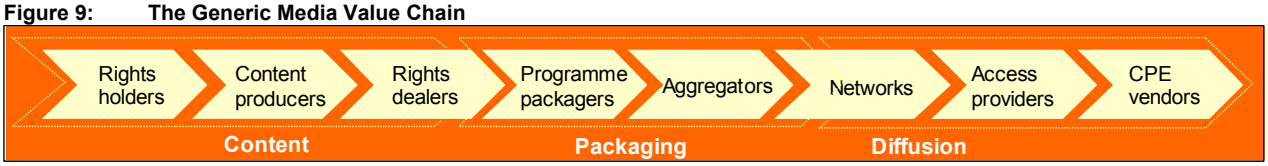
# 3 Structure of the European Audio-Visual Industry

In this chapter, the value chain of the European audio-visual industry is analysed. This value chain will be used throughout the whole report and will play a particularly important role for the understanding of the scenarios. This chapter will also introduce a systems thinking approach that provides better insight in the relations and dynamics between industry stakeholders. This systems thinking approach has also been used to develop the forecasting models. Finally, the chapter also gives an insight of the trends between 1995 and 2000 that have been identified in the audio-visual industry.

## 3.1 The Generic Value Chain

The audio-visual industry's value chain presented in the figure below, focuses on 8 different roles. Andersen has chosen to segment the value chain of the audio-visual industry in a very detailed way as it considers that changes in the industry structure and the relation between industry stakeholders will be one of the key trends for the coming years.

**Figure 9: The Generic Media Value Chain**




For the purpose of this study, the 8 different roles have been grouped into 3 categories:

- The first category relates to the content production and distribution part of the value chain. It groups following roles:
  - *Rights holders* are recognised as the primary and stable source of content rights. Numerous intellectual rights owners exist (individuals or small companies), but they usually have agreements with a few corporations that manage and commercially use the rights. Often these corporations also play the role of rights dealers. Examples of rights holders are the majors (Sony, Universal, Time Warner, etc. ) but also some broadcasting companies hold rights.
  - *Content producers* assume responsibility for the production of audio-visual works by combining artistic, financial and commercial know-how. They can produce content or be solely responsible for the creation of formats. Examples of content producers are Endemol, Freemantle Media, Studio Canal, etc.
  - *Rights dealers* are companies that trade content rights. These companies usually play the role of intermediary. Their main function is to facilitate the distribution of independent productions through the aggregation of film and TV programmes from many producers in an extensive rights catalogue. Another role is to alleviate the transaction costs associated with the rights' search and selection. The US based UIP is a good example.

- The second category relates to the packaging of content into customer value propositions. It groups following roles:
  - *Programme packagers* are responsible for the selection of individual programmes, for the creation of a schedule through packaging of programmes into channels and for selling advertising airtime to fund this schedule. Some channels will outsource content production while others will produce internally. Typical programme packagers are Public Service Broadcasters, free commercial broadcasters and pay TV operators. Although they are also active in other parts of the value chain, their core business relate to programme packaging.
  - *Aggregators* are responsible for the aggregation of individual channels that will be sold to customers (often in a subscription mode). In view of the development of new media applications, aggregators are also increasingly working on the integration of applications and services in broadcasting (e.g. creation of walled gardens, enhanced and interactive applications, etc.). Many companies integrate the two functions of aggregator and access provider (e.g. Canal+, BskyB, etc.). MSN (Microsoft) is a good example of an aggregator that is not linked to any access provider or network.

- The third category relates to the diffusion of content. It groups following roles:
  - *Networks* transmit data across their infrastructure using broadcast or point-to-point way. They are responsible for the development, the maintenance and the operations of their transmission infrastructure. Networks can be unidirectional or bi-directional. Typical examples of networks are telecom companies (France Telecom, Deutsche Telekom, Telefonica, etc.), cable companies (Callahan Associates, UPC, NTL, Liberty Media, “intercommunales”, etc.), satellite carriers (SES-Global, Eutelsat, etc.) and terrestrial networks (Nozema, YLE, etc.).
  - *Access providers* operate physical media platforms and manage end-user equipment (set-top boxes). Typically, access providers are responsible for the billing process, the usage tracking (through conditional access) and the customer relationship (some say they “own” the customer). Access providers are often called gateways as they offer customers access to a range of services as well as the Internet. Examples are Canal Satellite, BskyB, etc.
  - *CPE vendors* are the actors in the value chain that are responsible for the manufacturing, selling and marketing of the end-user equipment (also called Customer Premises Equipment). CPE ranges from television sets, set-top boxes to mobile phones and personal computers.

The different roles will be detailed in the following section, which will focus on a systemic analysis of the industry segment and the key trends that have been observed between 1995 and 2000. Since these roles can differ according to the local market place, Appendix I analyses the actual implementation of the value chain in the 18 countries covered by this study.

Obviously, a large number of companies active in the audio-visual industry regroups several of the roles described above. Appendix III illustrates the leading multi-media groups in the world. These examples give an idea of the group structure of some audio-visual groups, including their initial positioning (sometimes difficult to assess in case of merger) and the strategic moves that led to the current group structures.

## 3.2 Content production and distribution

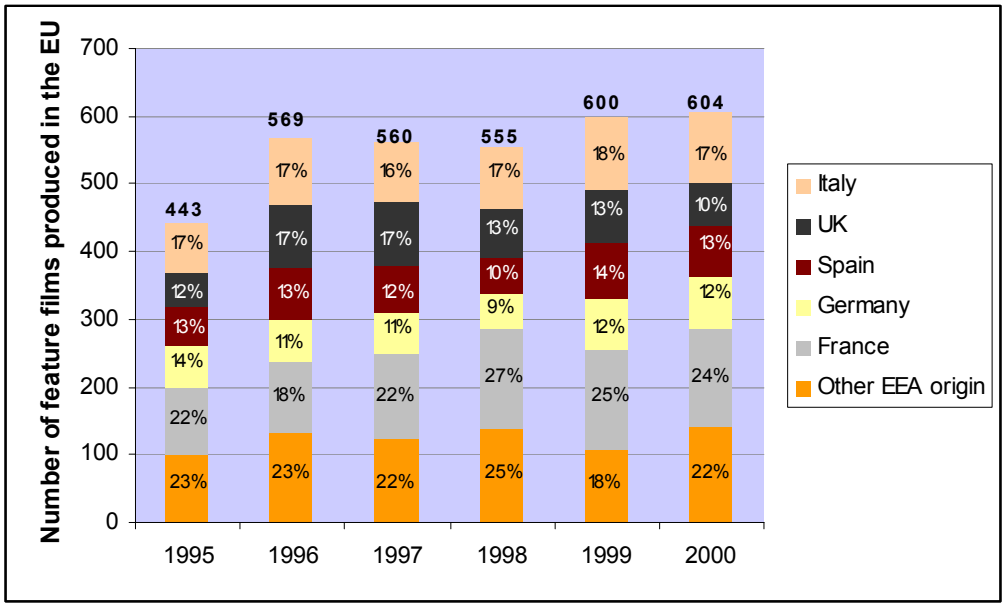
### 3.2.1 Market size

The audio-visual content industry mainly consists of 2 segments[30], movie theatre production and the TV production. A third segment, facilities companies, is often also regarded as part of this industry although the role is limited to the supply of equipment and/or subcontractors. The latter segment is not taken into account in this study as a content producer.

The European movie production industry turnover is estimated to amount to 4 000 million Euro in 1999. These estimates are based on an extrapolation of country specific information and should be taken as approximations. The 50 leading European film production companies combined have operating revenues of more than 2 800 million Euros[31]. The production of feature films in the European Union member states in terms of number of films produced grew by 36 percent between 1995 and 2000 (from 443 in 1995 to 604 in 2000[32]). The overall growth during 1995-2000 was mainly due to the growth in a limited number of countries: national productions in France, Germany and Italy and majority co-productions in Spain. The figure below provides an overview of the production share of the largest European countries.

[30] The web-specific production does not yet represent a significant amount of the audio-visual production market. The future of web-specific production will depend on the ability of distributors to generate significant revenues, and make profits on that type of activity. In Europe, we estimate that today, the production of web-specific contents is a small market, probably around 100 Mio Euro.
[31] Compiled by Andersen
[32] Compiled by Andersen, data excluding minority co-productions, US and foreign production in UK. Note that different sources mention different figures, e.g. Mediasalles, European cinema yearbook, 2000, mentions 578 movies produced in 1995 and 683 in 1999 and estimates of 650 for 2000.

**Figure 10: Breakdown of total European Union film production**[33]




This growth is due to the renaissance of movie theatres (as measured by the increasing number of visitors) and due to the new opportunities provided by the increased number of thematic channels (as measured by the explosion of the number of thematic channels – see later).

The European TV production sector turnover is estimated at 10.700 million Euro in 1999 and 11.200 million Euro in 2000[34] and experienced continuous growth for more than 15 years. The drivers of such growth are the opening of the market to commercial broadcasters and the resulting multiplication of TV channels, sustained by a growing advertising market. Major European TV production countries are identical to the major movie production countries: Germany, UK, France, Italy and Spain. The increasing prices for US productions and global sports rights and the increasing taste for local content further fuelled this growth. The TV production market can be further segmented according to following dimensions:

- The first dimension relate to the difference between production of stock programmes and production of flow programmes. Stock programmes (mainly fiction, documentaries and animation) are likely to be broadcast several times, and have a patrimonial value after their first transmission. Flow programmes (e.g. games, sporting events, talk shows, etc.) are sold to broadcasters only once, and have nearly no value after their first broadcast. While stock programmes represent most of the production market in value (selling price), flow programmes are growing faster;
- The second dimension relate to difference between production from independent production companies and broadcasters' related production.

[33] Compilation by Andersen based on European Audiovisual Observatory , data excluding minority co-productions, US and foreign production in UK.
[34] Eurostaf, Les marchés de la production audiovisuelle en France et en Europe, 2001.
[35] Eurostaf, 2001; 2000 figures

The TV production industry is not homogenous in Europe. The main differences relate to:

- The size of the market, providing opportunities and critical mass to content producers;
- The application of support mechanisms and regulation towards the content producers;
- The cost of content production (expressed in hourly selling price).

Despite these differences, some similarities can be found:

- The low barriers to entry lead to an overall fragmentation of the content production market while the rights owners and rights dealers market is very consolidated;
- The overall emergence and consolidation of large production concerns, which mostly originate from large geographical markets;

### 3.2.2 Systemic analysis

The industry structure and the relations between the content production and distribution industry segments can be analysed using a systems thinking approach. Two main causal relationships can be observed. The first relationship (as pictured in reinforcing loop RL1) shows the historical relationship between programme packagers (broadcasters) and content producers, the first commissioning content to be produced by the latter. In case the programme produced satisfies the public, broadcasters will be satisfied too and may commission more programmes to the content producer.

This relationship is governed by following revenue models that are applied in the industry:

- Some production houses work on a *time and materials basis*. This type of revenue mostly relates to facilities companies that will rent equipment and/or manpower. These producers have no risk and therefore no premium is paid.
- Other revenue streams relate to *fixed fees*. Typically fixed fees are charged when the production company performs an assignment ordered by a broadcaster. Fixed fees producers have a low risk-reward profile as the only risk is associated with project management (and therefore control of costs). The largest part of TV-programmes are commissioned by broadcasters using the fixed fee model.

Some content producers, relying on their creative skills and financial resources, have decided to get out of this commissioning loop and to start producing content on their own (second reinforcing loop RL2). They become rights owners. If the created programmes are successful (i.e. the public is satisfied), they will generate rights and enable

production companies to invest in new productions. The type of rights attached to a production depends on the type of production.

**Table 6: Type of revenue models**

| Type of production | Theatrical rights | Television stock rights | Broadcasting rights | Video/DVD rights |
|---|---|---|---|---|
| Movie production | X | X | X | X |
| TV stock production | | X | X | |
| TV flow production | | | X | |

The financing mechanism also depends on the type of production.

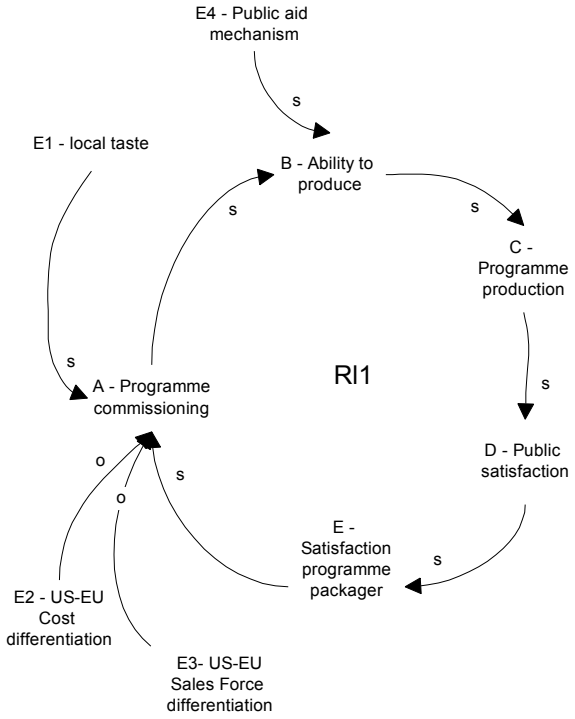
**Table 7: Type of financing models**

| Type of production | Pre-financing | Mix | Mostly Commissioning |
|---|---|---|---|
| Movie production | X | | |
| TV stock production | | X | |
| TV flow production | | | X |

The full economic risks associated with movie rights relate to project management risk (a production needs to be done on a fixed budget) and a commercial risk. The exploitation of TV stock rights is very profitable, but still carries much risk, about the same as for movie rights (full economic risk), mitigated by the fact that broadcasters typically pay for the a major part (90-95 percent) of the production cost. Overall, 100 percent of flow programmes have been ordered by broadcasters (mostly through commissioning). These productions carry the lowest risk.

There is no structural barrier to entry to prevent content producers to evolve from a commissioning model (see reinforcing loop RL1) to an pre-financing and rights dealing model (see reinforcing loop RL2).
The first causal relationship (commissioned production pictured in reinforcing loop RL1) has following characteristics:

**Figure 11: Causal loops content production and distribution segment**




S indicates a causal change in the same direction

O indicates a causal change in the opposite direction

**Table 8: First causal loop content production and distribution industry**

| Dynamic | Characteristics | External factors |
|---|---|---|
| A | Programme packagers need high quality programmes to obtain high audience shares. Partly, they produce their own programme, partly they acquire existing programmes or use their libraries of existing content. Some part of the programme expenditure will however be commissioned to content production companies. | Local taste (E1) may have a positive impact on the number of commissioned programmes, since commissioned programmes are typically produced nationally. Local taste varies from country to country and remains quite stable over time.<br><br>The fact that international production companies (mainly US companies) have a better distribution infrastructure (E2) will favour the acquisition of international content (see also section 3.2.2.6).<br><br>The fact that international programmes are less expensive than local programmes (E3) will have a negative impact on the number of commissioned programmes. The cost differential varies over time and between countries as production costs are very different in the EU members states. |
| A→ B | The commissioning of programmes have an impact on the ability of programme producers to produce original content. | Public aid mechanisms (E4) also have a positive influence on the ability to invest of programme producers. |

| | | |
|---|---|---|
| B → C | The ability to invest of programme producers will influence positively the volume and quality of their programme production. | |
| C → D | Programme production, when appropriate, will generate public satisfaction. | |
| D → E | Depending on the level of public satisfaction attained, the programme will gain the programme packager satisfaction.<br>The appropriateness of programmes according to programme packagers often concerns the reach of high audience shares and a high revenue potential during peak-time (advertising) while it concerns low cost programmes during non peak-time. | The audience share of a programme may also be influenced by promotion, brand recognition, competition, etc. (see programme packagers loop) |
| E → A | If the expectations regarding audience shares are met or even exceeded, this will lead to high advertising revenues and therefore the broadcaster will order and commission new programmes. This impact is however delayed over time. | |

The second causal relationship (pre-financed production pictured in reinforcing loop RL2) has following characteristics:

**Figure 12: Causal loops content production and distribution segment**

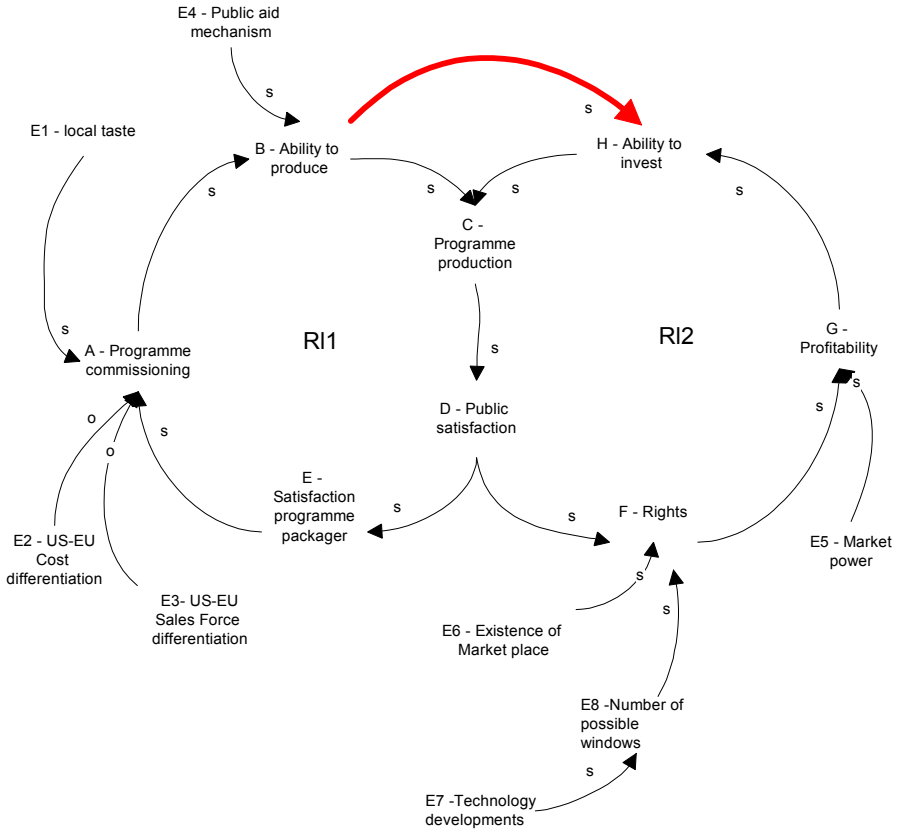



**Table 9: Second causal loop content production and distribution industry**

| Dynamic | Characteristics | External factors |
|---|---|---|
| B → H | Some content producers, relying on a strong ability to produce, decide to evolve toward a new model of own production. They dedicate a part of their resources to build their "ability to invest", which means that they create and produce new programmes, not commissioned by a programme packager. | There is no structural barrier to entry to prevent content producer to evolve from one model (commissioning – RL1) to another one (self production – RL2). They only need sufficient financial resources (ability ton invest) and moreover, they need to have creative ideas and maybe courage or audacity to dare the jump. |
| H → C | Based on its ability to invest, the content producer starts producing programmes (or formats). | |
| C → D | Programme production, when appropriate, will generate public satisfaction (same relationship as in RL1).. | |
| D → F | Depending on the public satisfaction, and therefore on the audience share reached by the programme, this one will attract programme packagers desire. They will pay the rights to the content producers to either broadcast its | The ability to market own productions will depend on the size of the company (and therefore the content library), will depend on the integration with other players in the value chain and will depend on the existence of a content market place (E6) that could |

| | | |
|---|---|---|
| | programme or use its format.<br>Typically own productions provide higher return on investments than commissioned programmes (higher risk/reward profile). | facilitate transaction, especially cross-borders.<br><br>The number of possible windows (E8) (e.g. movie theatre, television, video, etc.) influences the granting of rights licenses . The technology developments (E7) may allow the creation of new windows (e.g. DVD, VoD, etc.). |
| F → G → H | Although the risk of own productions is higher, it will lead to an increased profitability and therefore to an increased ability to invest | The profitability depends on their market power (E6), which is influenced by recent successes and quality programmes, by the size of the company and its content libraries.<br><br>Profitability also depends on the ability of the content producers to control production costs |

### 3.2.3 Trends

#### 3.2.3.1 Digitisation

According to Forrester[36], the US industry (major studios, independent distributors, TV and cable networks, and video rental chains) expects two main elements to influence the industry in the next five years:

- The advent of the digital cinema, which will yield millions of dollars in savings of shipping and printing costs, and which will also allow the monitoring of how much and when movies are shown. Although digital cinema will have an impact on the cost structure of rights owners and rights dealers, this innovation will not change the industry structure;
- The uptake of VoD through cable or other broadband distribution channels (streaming is not regarded as a serious distribution alternative).

New distribution mechanisms like Digital cinema and VoD through broadband networks (mainly cable) are some of the key changes the industry is facing. Currently, copyright negotiation in an Internet environment is an unsolved issue. Internet rights for films (and events) are generally included in contracts based on the same geographical distribution principle as cinema or television viewing. This makes these rights (for the most part) impossible to exploit, since no standard system exists guaranteeing the origin of the viewer (although e.g. the EBU[37] is working on this issue). Technology solutions are expected to emerge and provide the necessary control.

[36] Forrester, Movie distribution's new era, 2000
[37] European Broadcasting Union

Digital technologies have also a positive impact on *operational costs* for producers (decreased costs, increased efficiency) as explained in the following examples:

- News footage: the process of capturing quality pictures supported by ever cheaper digital equipment, is reinforced by the increased ability to edit footage on simple PC's with cost effective software solutions; this dramatically increases the availability of news footage in particular against ever lower costs. These cost reductions will only be fully realised once the entire production chain is digitised;
- Experimental movies ("the Blair witch project"): the same kind of effects can be observed in the film industry, where low cost productions are and will increasingly be proposed to the public, either through traditional or new channels, eventually creating a recognised "style";
- Post-production: the development of digital technologies is making post-production easier and more integrated with the production processes; the initial investment barrier is coming down; due to the rise of DVD distribution, more investment is done on translation and sub-titling, forcing costs down in the medium term, and more material from the production (rushes, animated characters, etc.) can be funded.

But the introduction of these technologies requires *investments* from production companies, and in some cases, skilled individual professionals in order to facilitate the work of their teams.

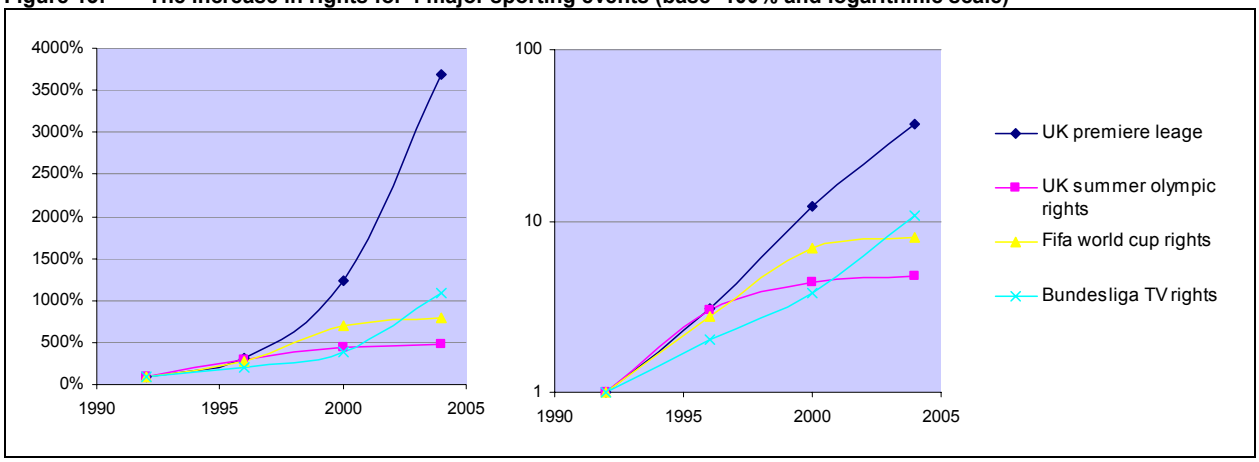
The Delphi study conducted in the framework of this report, confirms that digitisation is one of the key trends of recent years as about 58 percent of respondents believe it will increase their revenues and about 86 percent believe it will improve their innovation capacity. The industry also believe that digitisation will be the main trend impacting the business in the future (75 percent of respondents).

#### 3.2.3.2 Explosion of the cost of content rights

Another major trend is the explosive growth of premium content rights prices.

The explosive growth of premium content rights can be best illustrated through the growth in sports rights. The development of pay-TV platforms and the increasing popularity of large sporting events have led to an increasing professionalisation of this market segment, leading to overall higher costs of distributing these major events. The following figures clearly indicate the increase in costs (the first graph compares the increase of rights costs of 4 major events in Europe and world-wide, the second graph plots this on logarithmic scale).

**Figure 13: The increase in rights for 4 major sporting events (base=100% and logarithmic scale)[38]**




If plotted on a logarithmic scale, it becomes clear that there is a major difference between European based events and worldwide events. Worldwide events are increasing at a slower pace, while European based events are still in an explosive growth phase. This difference is mainly due to the difference in maturity between both markets. It is therefore expected that the growth rate of prices of rights will not accelerate further in the future, even in Europe (however, in the "personalisation" scenario - see chapter 9 - it is expected that the importance of live events will increase, hence become more expensive).

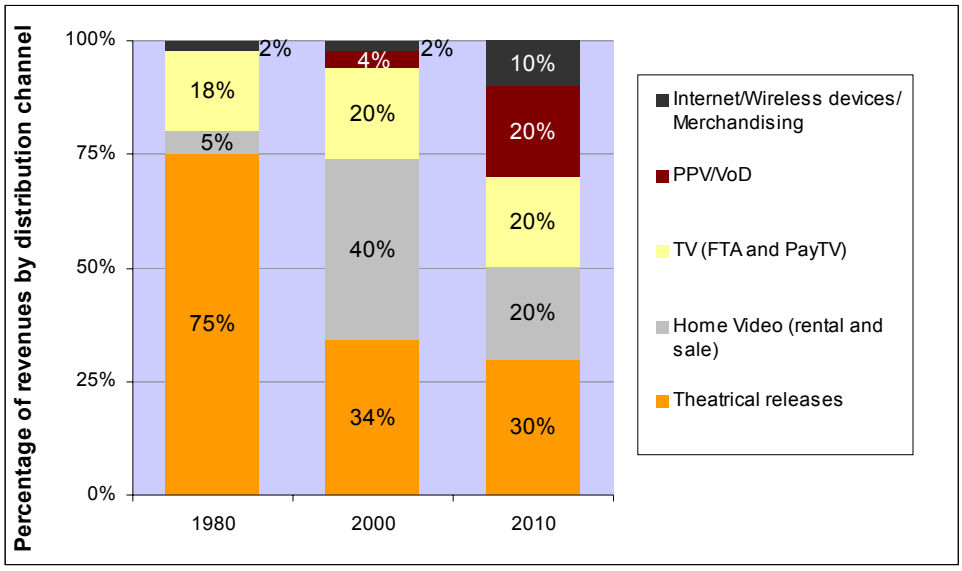
### 3.2.3.3 Evolution in the business model

The content production and distribution industry derives revenues from a wide spectrum of opportunities, ranging from cinema exhibition to direct sales to video cassette editors (see figures below). The timing of these different revenues is defined by the release windows. Generally, 80 percent of revenues are produced during the first year of a movie's life.

Recent analysis conducted by Andersen clearly indicates that a significant shift in the revenue model already took place in the US market place. Between 1980 (the start of the pay-TV activities of HBO[39] in the USA) and 2000, cinema exhibition decreased from 75 percent to 34 percent of the total revenue by distribution channel, while home video increased from 5 percent to 40 percent.

[38] Source: Andersen analysis
[39] "Home Box Office", division of Time Warner

**Figure 14: US movie studios revenue (wholesale) by distribution channel[40]**



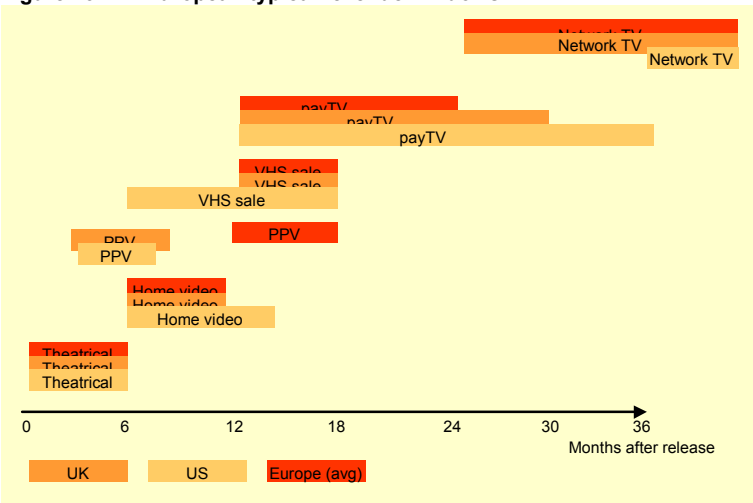

The current revenue model of rights holders is based on window-management, which means that rights for productions are sold by rights holders (often through rights dealers) to different distribution channels (theatres, video stores, pay-per-view, pay-TV and free-to-air TV or network TV) over time. The following figure presents the traditional European (average of countries of the European Union) revenue windows, benchmarked with release windows in the UK and the US[41].

The main geographic differences found in this generic model are:

- Video entry is delayed in the following markets: Italy (8 months), Belgium (6 months), France (6 months) and Portugal (12 months);
- PPV entry is early in the following countries: Austria (8 months), France (9 months) and Netherlands (9 months);
- Pay-TV is delayed by 9 months in Greece and 12 to 18 months in other countries;
- Free TV entry is early in Portugal (12 months), Greece and Denmark (18 months);
- Free TV (network TV) entry is delayed in Belgium (30 months) and France (36 months).

[40] Source : Andersen, An entertainment oddyse ; The figures include the US studio revenues gained worldwide
[41] Note that the release window "Pay TV" relates to subscription based pay-TV

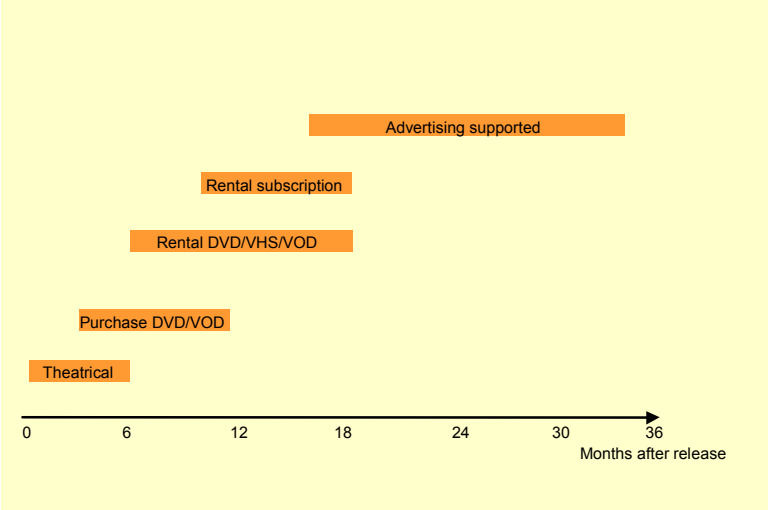
**Figure 15: European typical revenue windows**[42] [43]




These differences are dictated either by national laws (as opposed to EU-wide laws), by industry practices, or in some cases by commercial practices. Distributors currently use the windows in order to test new films on specific markets, and optimise their international strategy.

New technologies, like the Internet or digital cinema, that will allow the unlimited international release of a given movie and the proliferation of distribution platforms (especially VoD), will lead to changes in this system.

**Figure 16: Possible future revenue windows**[44]




Forrester[45] predicts that the release window systems will be reorganised around transaction-based windows rather than channel-based windows. Instead of a home

[42] Source: Screendigest , European programme rights market, 2000; Andersen, 2010: An entertainment odyssey, 2001
[43] The home video revenue window and the VHS sales window comprises both VHS and DVD rental/sales
[44] Source: Screendigest , European programme rights market, 2000; Andersen, 2010: An entertainment odyssey, 2001
[45] A compilation of Andersen based on Forrester, Movie Distribution's New Era, 2001

video (VHS and DVD rental) window, there will be a window for each type of video rental. On the one hand, DVD/VHS rental and VoD on a pay-per-view basis will be a revenue window, while on the other hand, VoD on a subscription basis will be another revenue window.
Internet and to a larger extent the spread of VoD services will sooner or later change the films rights management system in its temporal and geographical dimension.

#### 3.2.3.4 Direct access to customers

Content producers and rights holders have looked at a number of different possibilities to have a direct access to customers. The main trends can be summarised as follows:

- New technologies enable the creation of a direct link between rights holders, content producers and end-customers through new platforms;
- New technologies also enable the creation of new ways of distributing content and therefore the possibility for the end user to enjoy the same content on different platforms (e.g. music on radio or mobile phone; movie on TV or Internet, etc.);
- The current rights holders will remain a dominant force in the industry, but will play a different role. Moving away from the physical distribution, they will increasingly focus on multiple distribution channels, on customer information and on new window-management;
- New business models will emerge (already occurring in the music industry – e.g. Napster, MP3.com, etc.-, almost non-existent in the movie industry) and revenues (and therefore risks) will be distributed among an increasing number of participants.

While these new services and business models were first adopted by start-up companies, large groups are reclaiming centre stage after several years of defensive action against new (digital) technologies. In a market where established formats, pricing and distribution standards have been heavily altered, they have recently taken proactive steps to secure their place in the industry. Two recent acquisitions in the music industry are the most prominent example of this revival:

- The investment of Bertelsmann in Napster for nearly 67,5 million Euro. Investment was made by Bertelsmann as rights holder in order to avoid the free distribution (and loss of revenues) of, among others, BMG music rights;
- The acquisition of MP3.com by Vivendi Universal, as rights holder, for nearly 418,5 million Euro was made in order to guarantee a new type of distribution for Universal Music rights.

It is likely that intermediaries will continue to operate in the content rights business, but their role may evolve. New intermediaries will become the primary points of contact for on-line consumers. These intermediaries will aggregate content, arrange distribution,

organise the billing and payment cycle and capture consumer data. They will become "virtual supermarkets" of content.

One example of rights holders looking for direct access to consumers relates to the creation of dedicated broadcast channels by football clubs (e.g. Manchester United) and the acquisition or participation of media players into football clubs:

- BskyB (UK) has minority stakes in 5 English clubs while NTL (UK) has minority stakes in 2 English clubs;
- Canal+ (France) has majority stakes in 2 French clubs while Ufa sports/M6 (RTL group) owns Bordeaux.

3.2.3.5 Fragmentation of the industry despite the consolidation of top-end players

Overall, the content production industry seems to be very fragmented although some production companies have been able to secure a strong position in recent years. It is expected that the market will remain very fragmented despite the consolidation wave because barriers to entry remain low and because some geographic differences exist, like the importance of local taste, the cost differentiation and/or the structure of the industry (Germany has about 5 times more production companies per household than the UK).

The current status of the market can be summarised as follows:

- Although there are no reliable figures about the total number of production companies[46], Andersen estimates that there could be up to 12.000 production companies. Some examples clearly show that most marketplaces are very fragmented[47]. Some of them are also not very stable as the number of companies may vary strongly in the time (by seasons, years, etc. or even by project):
  - The large markets: Figures are very unreliable and even unavailable for Germany, Italy and Spain. France accounted for more than 800 production companies (the real figure could be close to 2.000 according to some industry experts), the UK has about 1.000 production companies;
  - The commercial markets: Greece has about 75 production companies;
  - The mixed model markets: Belgium has about 130 production companies, Finland has about 65 production companies;
  - The monopolistic markets: Denmark has about 50 production companies (overall monopolistic markets have strong public broadcasters, and therefore produce more internally);
  - The importers have no local production companies[48].
- The 5 major European players (see table below) do not account for more than 25 percent of the market, and the fifth largest only represents a 1,6 percent

[46] One of the main problems in assessing the number of production companies is defining a "production company". As the industry works a lot with freelance workers, definition can vary.
[47] Andersen analysis, based on discussions.
[48] Note that RTL Group is considered as a European group

market share. Most companies are pre-financing their content and selling rights (reinforcing loop RL2).

**Table 10: Market share of the leading European TV producers[49]**

| Rank | Group | TV production revenues 2000 (M Euro) | Weight of TV production in group's activities | Market share (as % of European TV production) | Cumulative market share[50] |
|---|---|---|---|---|---|
| 1 | RTL Group (Pan-European) | 1.083 | 28% | 9,7% | 9,7% |
| 2 | Endemol (NL / Spain ) | 437 | 100% | 3,9% | 13,6% |
| 3 | Granada (UK) | 425 | 25% | 3,8% | 17,4% |
| 4 | Carlton (UK) | 352 | 11% | 3,2% | 20,6% |
| 5 | Expand / Ellipse (France) | 174 | 100% | 1,6% | 22,2% |

The consolidation process is expected to generate a number of key benefits such as:

- Economies of scale (through more efficient amortisation of structure costs on increased turnover; ability to acquire and retain key people and increased bargaining power with broadcasters);
- Specialisation (recognition among market for specific expertise in key segments, e.g. games for Endemol). Some producers tend to specialise in specific content formats (i.e. talk shows, interactive programmes) in order to improve their market share but also reduce their overall costs, and improve profitability.

#### 3.2.3.6 Dominance of the US market players

European films are not only difficult to export to the US, but are also difficult to export to other local European markets[51]:

- The market share of US films amounts to 73,7 percent of the cinema admissions in the European Union;
- The market share of national films in their own market amounts to 17 percent;
- The market share of other films (which consists of a mix of European films distributed in other European countries and foreign films (non-US)) amounts to 9,3 percent[52].

[49] Eurostaf, Les marches de la production audiovisuelle en France et en Europe, 2001
[50] Calculation: sumof the market share of group 1 with group 2, group 3, group 4 and group 5
[51] EAO, Statistical Yearbook 2001, p. 97, 2000 figure. Market shares according to the origin of feature film, on the basis of admissions recorded in the LUMIERE database.
[52] EAO, Statistical Yearbook 2001, p. 96-97, 2000 figure.

Although these percentages may vary significantly over time (high volatility), these trends have remained unchanged since 1996 (in 1998 US films were peaking at 77 percent). National films are very popular in France (26,8 percent), Denmark (27,5 percent) and Italy (16,5 percent), while they are very weak in The Netherlands (5,3 percent) and Belgium (2,5 percent).

Other European films (non-national) are very strong in Norway (34,7 percent), Denmark (15,2 percent), Sweden (17,3 percent), The Netherlands (18,9 percent) and Spain (14,2 percent) while the UK market remains difficult (2 percent).
It is interesting to notice that in Europe, US films are distributed in all or most European countries while European films often have more difficulties accessing European-wide distribution. European films also take longer before they are distributed in all European countries: it takes about 9 months for a US movie to be seen on all European markets while it takes up to 3 years for European movies to be seen.

The same trend can be observed on the TV market where European non-national films are typically broadcast during non-peak hours, preventing these films from reaching mass audiences.

With a market share of 71 percent[53], US-originated companies clearly dominate the European distribution market. Out of the 50 largest European distribution companies, 50 percent are subsidiaries of US companies. When it comes to TV programmes and associated rights, European companies dominate. Only 4 percent are subsidiaries of US-companies.

While most film distribution companies are vertically integrated with rights holders, TV programme distributors are often integrated with programme packagers. The market share of programme packagers in the distribution industry is about 43 percent[54].

In general, the European audio-visual industry has no business-to-business distribution force[55] that links links the production industry and the programme packagers. Conversely, the US benefits from a very efficient business-to-business distribution force. The specific structure of the US can be mainly attributed to national regulation, which has historically enforced a separation between the different audio-visual activities, i.e. production, distribution, and transmission.

According to many European independent producers, the establishment of a structure similar to the American UIP[56] in Europe would be a key contributor of the development of the circulation of European originated audio-visual products for the production industry[57]. The Delphi study shows that, cultural differences aside, the absence of a true rights market place is one of the main reasons why European productions are not scheduled (on both theatres and TV).

[53] Andersen compilation based on the data sources mentioned in section 2.5.3.1
[54] Andersen compilation based on the data sources mentioned in section 2.5.3.1
[55] E.g. rights dealers that distribute audio-visual rights to business-to-consumer distributors
[56] Union of Independent Producers
[57] TV w/o Frontiers Workshop, May, 30th, 2000

As explained above (see also right owners and content producers), many examples show that the absence of an effective distribution platform for European content is a competitive disadvantage for European producers compared to US producers:

- Examples show that even successful European films take a long time to find distributors in all European countries;
- Examples show that very few films of European origin are fully distributed in each European country.

European rights holders, traditionally less organised and consolidated than their US counterparts, will benefit from the digitalisation trend by finding newer and more efficient distribution channels for their fragmented content. Overall, the creation of pan-European content producers and rights holders will also promote pan-European distribution of European content.

## 3.3 Packaging

In the current broadcast environment, programme packagers are the companies responsible for the aggregation of content. In a new media environment, a new bread of companies is positioning themselves in this role. Examples relate to :

- In the world of the Internet, search engines and portals (T-Online, Tiscali, TerraLycos, Wanadoo, etc.) can be considered as aggregators;
- In the mobile world, where some companies are specialised in vertical content domains (e.g. sport results, subway maps, etc.);
- Companies like MSN (Microsoft) which have the ambition and the possibility to become a multi-device aggregator;
- Companies like UPC-Chello, Excite@Home have ambitions to become aggregators on broadband platforms.

### 3.3.1 Market size

***Broadcasting***

Programme packagers (broadcasters) are responsible for the acquisition and packaging of content into channels and for the selling of advertising airtime to support those programmes. Some broadcasters will outsource content production while others will produce it internally. Typically the type of broadcasters can be segmented as follows:

- By the type of content broadcast: “generalist”, “thematic” and “community”;

- By the type of business model: “public service broadcaster”, “free-to-air commercial broadcaster” and “Pay-TV”.

**Table 11: Leading European broadcasters[58]**

| Rank | Group | Operating revenues 1999 (Mio. Euro) | Market Share[59] | Cumulative market share[60] |
|---|---|---|---|---|
| 1 | BBC (UK) | 5.337 | 10,2% | 10,2% |
| 2 | RTL (Germany) | 2.943 | 5,6% | 15,8% |
| 3 | RAI (Italy) | 2.649 | 5,1% | 20,9% |
| 4 | RTI (Italy) | 1.691 | 3,2% | 24,1% |
| 5 | ZDF (Germany) | 1.525 | 2,9% | 27% |

Aggregators are responsible for the acquisition and aggregation of channels into (digital or pay-TV) bouquets. Aggregators have a purely commercial function. In view of the development of new media applications, aggregators are increasingly working on the integration of applications and services in the broadcasting stream (e.g. creation of walled garden, enhanced and interactive applications, etc.). The role of aggregator appeared when pay-TV platforms were launched. Aggregators are often associated with access providers. In this study, they are however considered separately in view of the introduction of multi-device and multi-channel platforms. In the audio-visual industry, separate aggregators have not yet penetrated the market (ABSat in France could be considered an exception since it offers its packages on both CanalSat and TPS, the two rival satellite platforms).

The audio-visual broadcasting industry has largely evolved since the introduction of new pay-TV platforms (cable, satellite and digital terrestrial). The evolution has been marked by the following factors:

- Exponential increase in the number of private and commercial broadcasters, which has lead to a decrease in public service broadcasters’ market share;
- Introduction of new types of broadcasters (from “generalist” broadcasting to “speciality” broadcasting);
- Development of integrated broadcasters, aggregators and platform operators (e.g. Canal+ and Canal Satellite, SkyOne and BskyB, etc.)

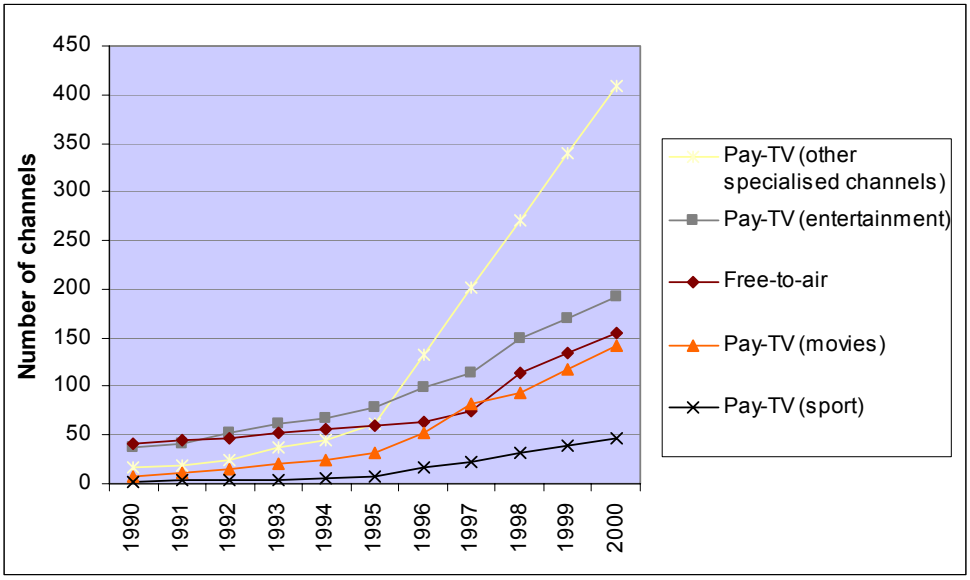
The introduction, development and digitisation of new broadcasting technologies (cable, satellite and digital terrestrial) allowed access providers to carry more TV channels. This increased available bandwidth has been used to:

- Introduce existing channels to new geographic areas (channels of other European countries, but also US channels);
- Carry newly created channels.

[58] Andersen compilation based on on the data sources mentioned in section 2.5.3.1
[59] Calculation: operating revenues of the group divided by the total operating revenue of the 100 leading European radio and television companies
[60] Calculation: sumof the market share of group 1 with group 2, group 3, group 4 and group 5

According to ScreenDigest, the total number of TV channels in the European Union in 1998 was 659[61]. The breakdown of this number is displayed in the figure below.

**Figure 17: Number of European cable, Satellite and DTT TV Channels/genre[62]**

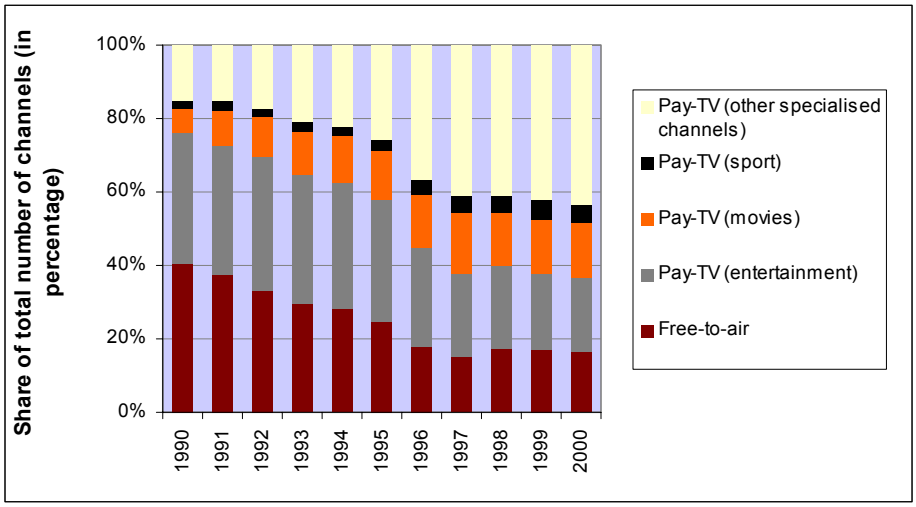



It is clear that technological innovation and the deployment of new pay-TV platforms (both analogue and digital) have caused the number of channels to multiply. Traditionally, the primary driver for customer adoption of pay-TV services is the increased choice of channels and greater access to premium content. The growth of pay-TV channels will be further sustained in the coming years due to the introduction of digital TV.

The TV market is more specialised than it was 10 years ago. In the past, programme packagers broadcast a small number of specialised thematic programmes on their generalist channels. This trend evolved towards programme packagers launching new channels and broadcasting only one type of thematic content (e.g. the sports channel Eurosport, the news channel Euronews, the music channel MCM, etc.). As can be seen from the figure below, a large number of thematic channels have emerged in the past ten years.

[61] The number of TV channels is the total number of cable, satellite and digital terrestrial channels transmitted across Eastern and Western Europe in 1998.
[62] Compiled by Andersen based on Screendigest, European programme rights market, 2000.; Andersen analysis (Data for 1999 and 2000 have been estimated)

**Figure 18: Specialisation of the TV Market**[63]




Although general industry trends relating to the multiplication of channels can be observed all over Europe, one needs to make a difference between:

- Countries like the UK, France and Spain, which traditionally had a small number of channels before the launch of pay-TV platforms, and are therefore driving the increase in number of channels;
- Countries like Germany and the Benelux, which have had high cable penetration for years, and therefore had already carried up to 40 free-to-air channels. The increase in number of channels was less important in these countries.

The same trend can also be observed in the radio landscape. The number of radio stations has likewise increased since 1982 when European countries vastly augmented the number of FM frequencies available for broadcasting. Until then, there were only a few publicly owned stations in Europe. It is expected that digitisation will further boost this tendency (e.g. through the commercial launch of DAB services or through the creation of cable and Internet radio's).

### *New media*

The rapid development of the Internet has driven the development of new business models and the creation of new roles in the multimedia value chain. This is the case of the ISPs (Internet Service Providers) that have progressively become content portals and aggregators of content.

The growing use of the Internet has prompted content suppliers to offer their services more and more via the Internet. The consequence is the vital interest of these content suppliers to gain access to the distribution channels of the telephone companies. There

[63] Compiled by Andersen based on Screendigest, European programme rights market, 2000.; Andersen analysis (Data for 1999 and 2000 have been estimated)

interest particularly focuses on globally-operating ISPs as only these providers guarantee a market penetration which will reach internationally-broad populations. This explains also the globalisation wave of the ISPs: the greater the range of the networks, the more intensive the global market penetration is for the variety of products of the content providers.

The European ISP market is still dominated by a large number of local providers. Yet market leaders already started to strengthen their presence through acquisitions in Europe (e.g. France Telecom's Wanadoo, Deutsche Telekom's T-Online, Tiscali, etc.). These acquisitions are either based on a geographical expansion and/or based on an expansion of the model towards a global-Internet player. This is the case for example of Terra Networks (Telefonica's ISP) that merged with US giant Lycos.
On a worldwide basis, Internet players are now competing on all levels of the value chain, with AOL still number one, followed by Yahoo! (portal).

**Table 12: Main European ISPs (end of 2000 figures)[64]**

| ISP | Revenues | Internet access accounts |
|---|---|---|
| T-Online International AG | Around 800 million Euro | Around 7,9 million users :<br>6,5 million T-Online<br>0,6 million Club Internet<br>0,7 million Ya.com<br>0,1 million in Austria and Portugal |
| Tiscali SpA | Around 600 Mio. Euro | Around 6,5 million users<br>(in Italy, Netherlands, France, Germany, UK, Belgium, etc.) |
| Terra Networks SA (Terra Lycos) | Around 560 million Euro | Around 6,1 million users in Europe |
| Wanadoo SA | Around 1100 million Euro | Around 2,4 million users in France<br>Around 2 million users in UK (Freeserve)<br>Around 0,6 million users in Spain, Netherlands and Belgium |
| AOL Europe | n/d | Around 4,6 million users in Europe, but first ISP worldwide (33 million users) |

Both trends together (globalisation and integration of content and distribution) drive the development of very powerful multimedia groups (such as Vivendi and AOL-Time Warner). These groups are expected to take the lead in the development of multi-media aggregators.

### 3.3.2 Systemic analysis

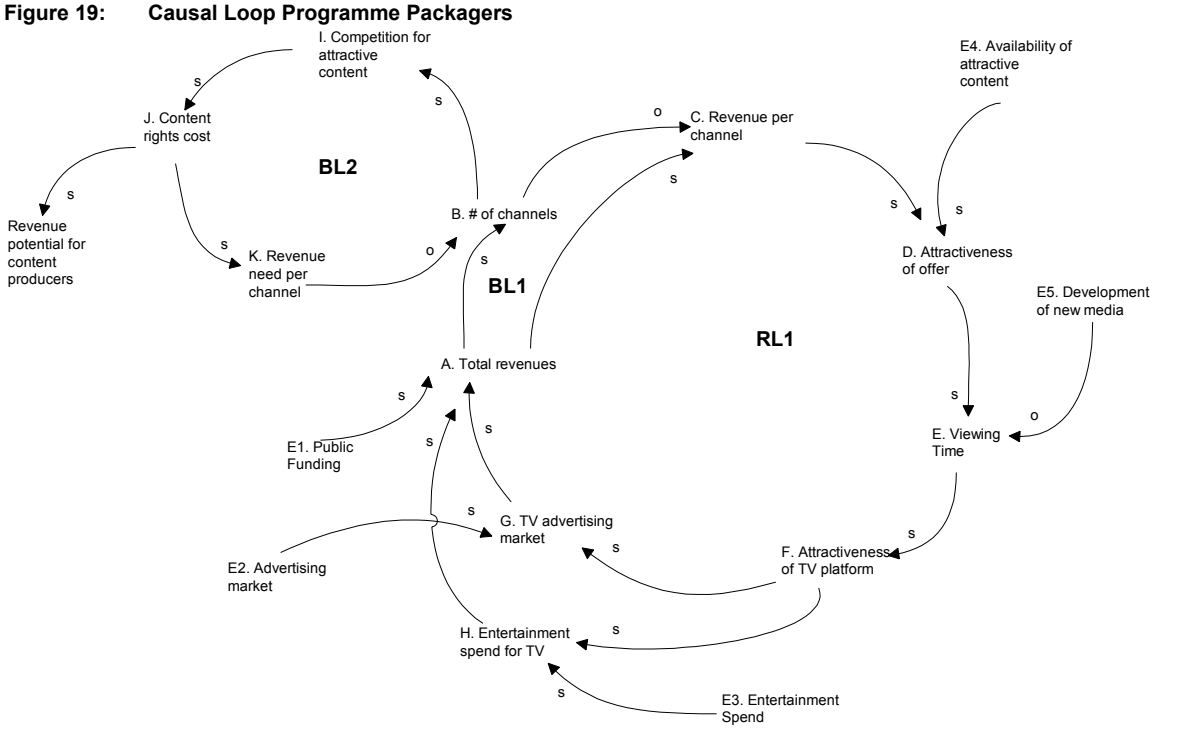
As mentioned above, the key value proposition of programme packagers is to select (commission, acquire or produce) content, package this content into a schedule and

[64] Analysys ISP profiles; World Markets Research Centre

fund this schedule (this process is described in the reinforcing loop RL1). The ability of programme packagers to perform these activities well, will generate a virtuous cycle. Three main external drivers will influence this loop:

- The ability of programme packagers to access content and access it at reasonable prices;
- The amount of viewing time (total) of end-consumer and the programme packager's audience share, (which will partly depend on external variables such as the competitiveness on the market);
- The total size of the advertising and subscription markets.

**Figure 19: Causal Loop Programme Packagers**




As pictured above, programme packagers generate revenues by attracting audiences through appropriate programming. In the case of free commercial broadcasters, audiences lead to increased advertising while in the case of pay TV operators, audiences lead to increased subscriptions (this process is pictured in the first reinforcing loop RL1 about the short-term revenue impact of the changing market environment).

On a longer term, increased revenues for the prgramme packaging industry segment lead to an increased attractiveness of the industry and therefore to increased competition. The number of programme packagers will increase as new players will identify the market opportunity (this process is pictured in the first balancing loop BL1).

The second long-term impact relates to the consequences of the increased number of channels on the content acquisition and commissioning cost. Increased competition will increase costs and therefore decrease the average revenue per programme packager. This mechanism balances the first process (BL1 and BL2 balances with RL1). The combination of the three causal relationships will lead to a balanced number of programme packagers. The final number of programme packagers will depend on the external variables (E1 till E5).

**Table 13: Causal Loop Packaging**

| Dynamic | Characteristics | External factors |
|---|---|---|
| A → B | The total revenues of the industry will determine the market potential for new programme packagers and aggregators. This relation is a long-term relation | The total revenues of the industry depend on two endogenous variables, the advertising market and the TV spending market, and one exogenous variable, public funding (E1). |
| B → C | Given the total revenues of the industry, the number of channels have a direct impact on the average revenue per channel. | |
| A → C | Total revenues have also a direct, short-term impact on the average revenue per channel. This impact lasts until the market equilibrium is restored. | |
| C → D | The revenue per channel, which is similar to the ability to invest, will determine the attractiveness of the content and service offer (in the model it is assumed that there is a direct link between the ability to invest and the attractiveness of the offer; in reality other factors are also important). | The availability of attractive content (E4) (see content production and distribution causal loop) will determine the attractiveness of the offer. |
| D → E | The attractiveness of the offer will lead to an increased TV-viewing time, as compared to other entertainment time | Viewing time will also depend on the competition from other new media content and services (see also the interactivity scenario) |
| E → F → G<br>E → F → H | Increased TV-viewing time will lead to an increased attractiveness of the platform for advertisers (G) and to increased subscription revenues for pay-tv platforms (H) | Advertisers will determine the percentage of their total advertising budget (E2) that will be invested in television advertising<br><br>Consumers will determine how much disposable income (E3) they will invest in television related entertainment. |
| G → A<br>H → A | Advertising and subscription revenues will have a direct impact on the revenues of the industry | Public funding is the third revenue source of the industry (E2) |

The causal relationship pictured above will be used as a basis for the modeling process. One of the key elements to assess is the number of channels that will be carried in 2010. The number of channels and the fragmentation of audiences provide a good indicator for customer choice and control. The structure of the model is explained in chapter 7 and will be used throughout the scenarios (chapters 7, 8 and 9). The size of the advertising

market, the potential for consumer spending and the assumptions relating to public funding are detailed in chapter 4.

### 3.3.3 Trends

#### 3.3.3.1 Maturity among most free commercial broadcasters and appearance of pay TV operators (1995-2000)

The period before 1995 captures much of the initial impact of the arrival of free commercial broadcasters. In general, where new entry has enabled the creation of a television advertising industry, the revenue size of the broadcasting industry has typically doubled in the period 1990-1995. This trend seems normal in countries where the existing broadcasters were entirely publicly funded or where they had not tapped into television advertising in a substantial way. Where existing broadcasters had mixed funding (that is, some broadcasters receive license fees as well as advertising revenue), or were entirely supported by advertising funds, the impact on revenues is more restrained.

Most of the new entrants during the pre-1995 period used a strategy of indirect competition, where the new broadcaster attempts to obtain the maximum market share at the lowest cost, typically using low-cost acquired (foreign) programming. This strategy is likely to result in modest audience share, and whilst not a substantial threat to the existing broadcaster, it can be very profitable. This means that the new entrant's initial product mix was substantially different from those of the established broadcasters. As these channels reached maturity over the period 1995-2000 they gradually took up more commissioned local content and moved to a more generalist programme schedule.

Overall, the growing importance of acquired programming is recognised as a key trend amongst all broadcasters due to the new competition. While on average public service broadcasters spend 7 percent of total programme expenditure on acquired content, this percentage increases to 30 percent for free commercial broadcasters and even to 40 percent for pay TV operators and pay-TV platforms[65].

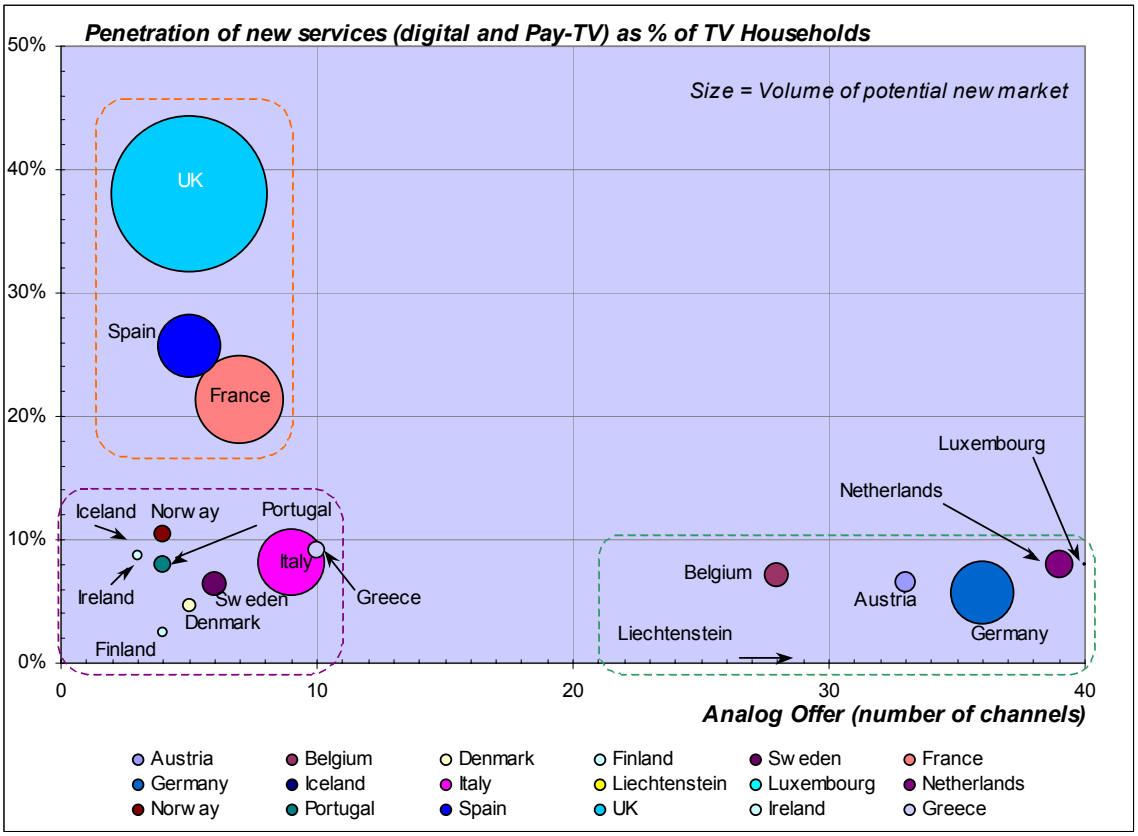
#### 3.3.3.2 Growth of Pay-TV and First Digital Platforms

The period from 1995 to 2000 saw the first successes among pay TV operators (thematic and pay-TV) as well as the emergence of digital platforms. As indicated in the figure below, the better the quality of the analogue offer, the lower the penetration of new digital services. The pick-up of pay-TV and digital services can be split in three groups:

[65] Andersen analysis

- *Countries with a strong pickup*: UK, France and Spain. In these countries, the key driver for the growth of pay-TV and digital services is the increase in the number of channels and premium content offering as a whole;
- *Countries with low pickup and little choice in the current offering:* The Nordics, Greece, Portugal. Despite the relatively small choice of the existing offer, pay-TV platforms have not emerged in these countries because of their limited geographic size, low customer spending and high terrestrial penetration. It is expected that these countries will develop digital pay-TV offering based on digital terrestrial platforms;
- *Countries with a low pick-up and better choice in the current offering*: Germany, Belgium, the Netherlands, etc. These countries are mainly characterised by a high penetration of cable, which deliver a large offering of services (about 30-40 channels) for a relatively low cost. In most of these countries, cable companies will upgrade their network and gradually offer digital pay-TV services. The value proposition will need to be more balanced and advanced than in other countries.

**Figure 20: Pickup of Digital and Pay-TV Services**[66]




### 3.3.3.3 The appearance of aggregators

Aggregators are responsible for the packaging of content into a market offer that will be sold to customers (often in a subscription or usage-based mode). Aggregators have a purely commercial function. In view of the development of new media applications, aggregators are increasingly working on the integration of applications and services in the broadcast stream (e.g. creation of walled garden, enhanced and interactive applications, etc.).

The appearance of digital TV and the development of Internet as a media capable platform, caused the appearance of a new type of aggregator. Andersen expects the role of programme packager will radically change as the focus will change towards aggregation of content :

- New platforms and the implementation of EPG's (electronic programme guides) will gradually lead to a decreased importance of the schedule. Audiences will gradually change from schedule-based viewing to programme-based viewing;

[66] Compilation by Andersen based on IP, Television 2000 ; Andersen analysis

- This will also lead to changes in the advertising market. Andersen expects advertisers will partly shift budgets from broadcasters towards access providers / aggregators and content producers. The impact of this shift on the broadcasters will likely depend on the ability of the audio-visual market to grow the advertising market (e.g. below the line advertising, etc.). Programme packagers will gradually get revenues from subscription and new services.

## 3.4 Diffusion

### 3.4.1 Market size

While in an analogue terrestrial environment networks were solely responsible for the diffusion of content, a digital environment requires two separate roles. The network role is maintained but a new role is created: access providers are responsible for the development of a digital platform, for billing, for customer relationship management and for the management of set-top boxes. The role of access provider first appeared with pay-TV platforms (were access providers were among other elements responsible for the management of the conditional access system) and will become increasingly important in the digital environment.

Access providers operate physical media platforms and manage the equipment for the customer's premises (set-top boxes). Typically, access providers are responsible for the billing process[67], the usage tracking (through a conditional access) and the customer relationship (some say they "own" the customer). Access providers are often called gateways because they offer customers access to a range of services.

Some access providers own their networks (this is typically the case for cable networks), while others outsource network operations to specialised companies (this is often the case for satellite and terrestrial operators).

The current role of access providers was created by the introduction of pay-TV. The role will become even more pronounced in a digital environment. Pay-TV plays an important role in the digitisation process as pay-TV operators account for more than 95 percent of the digital households, but the introduction of digital terrestrial services brings free-to-air and public service broadcasters into the digital TV market.

[67] Billing and usage tracking could technically be done by other industry players. This has been ensured by current regulation. It is however a market reality that the above mentioned operations are carried out by access providers.

**Table 14: Leading European networks and access providers[68]**

| Rank | Group | Transmission | Operating revenues 1999 (Thousand Euro) | Market Share[69] | Cumulative market share[70] |
|---|---|---|---|---|---|
| 1 | Deutsche Telekom (Germany) | Terrestrial and cable | 1.917.000 | 20,8% | 20,8% |
| 2 | NTL Incorporated (UK) | Terrestrial and cable | 974.065 | 10,6% | 31,4% |
| 3 | TDF Telediffusion de Paris (France) | Terrestrial and cable | 674.364 | 7,3% | 38,7% |
| 4 | Société européenne des Satellites (Luxembourg) | Satellite | 630.473 | 6,8% | 45,5% |
| 5 | Telewest Communications (UK) | Cable | 488.400 | 5,3% | 50,8% |
| 6 | Eutelsat (Europe) | Satellite | 469.000 | 5,1% | 55,9% |
| 7 | Cable & Wireless (UK) | Cable | 396.627 | 4,3% | 60,2% |
| 8 | United Pan-Europe Communications | Cable | 363.348 | 3,9% | 64,1% |
| 9 | Retevision (Spain) | Terrestrial | 362.308[71] | 3 ,9% | 68% |
| 10 | Telenor Satellite Services | Terrestrial and satellite | 213.892 | 2,3% | 70,3% |

The development of the different access technologies is one of the key elements for the European audio-visual industry. Increased competitiveness in this industry segment will increase customer choice and control on the content. The different scenarios developed as from chapter 6 will focus on the forecasts of the penetration of these different access technologies.

#### 3.4.1.1 Cable Industry

The cable industry has experienced significant consolidation over the last years and this trend is expected to continue. The consolidation of the industry was mainly due to:

- A very fragmented structure in most European countries where cable infrastructure was traditionally managed by local public organisations;

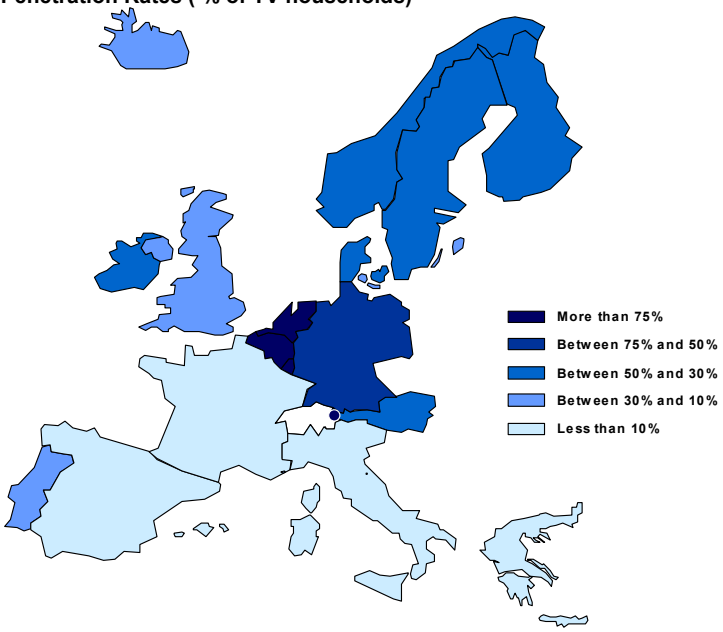
[68] Andersen compilation based on on the data sources mentioned in section 2.5.3.1
[69] Calculation: operating revenues of the group divided by the total operating revenue of the 40 leading radio and television signal transmission companies in Europe
[70] Calculation: sumof the market share of group 1 with group 2, group 3, group 4, group 5, etc.
[71] 1998 figure

- The telecom deregulation that forced some large market players to sell-off their infrastructure (e.g. Deutsche Telekom in Germany);
- The increasing interest of major US players in the European cable industry (Callahan Associates, Liberty Media, UPC, etc.)

Fragmentation remains important in countries where the cable industry is still managed by the public sector (Luxembourg, Liechtenstein, The Walloon Region (Belgium), etc.).

In the cable industry, the role of access provisioning and the role of network is played by the same companies. Examples of pan-European groups are Callahan Associates, Liberty Media, NTL and Telewest.

**Figure 21: Cable Penetration Rates ( % of TV households)[72]**




### 3.4.1.2 Satellite Industry

The satellite business is extremely concentrated due to very high infrastructure costs. Technical penetration of satellite is close to 100 percent, but the actual penetration of the technology within the TV household may strongly differ by country, depending on competition with other networks (terrestrial, cable, xDSL, digital terrestrial, etc.).

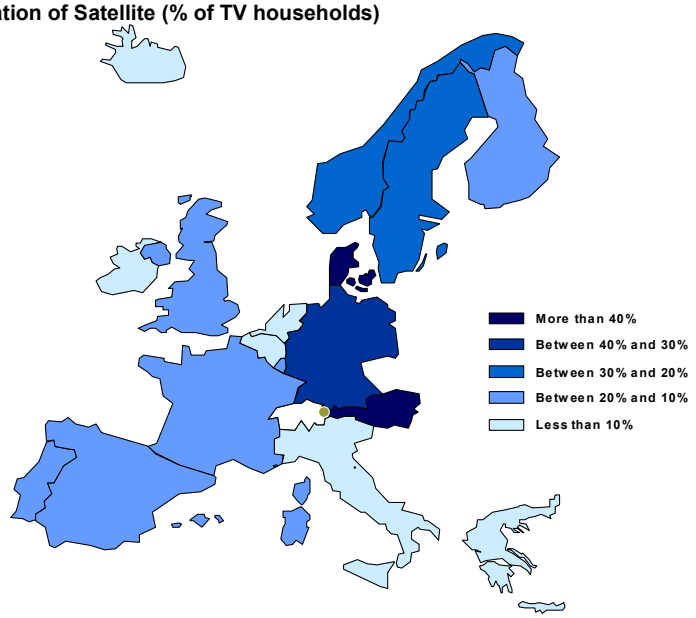
The main benefits of satellite are the coverage and speed of deployment. The main drawback is the fact that satellite is unidirectional. Satellite companies are working on

d[72] Compliation by Andersen based on Idate, Andersen update

bi-directional technologies, but these are not yet available for end-consumers. Currently the return path is conducted through PSTN or ADSL technologies.

In the satellite industry segment, a strong difference is made between the access providers like Canal Satellite, TPS or BskyB and the networks like SES-Global and Eutelsat.

**Figure 22: Penetration of Satellite (% of TV households)**



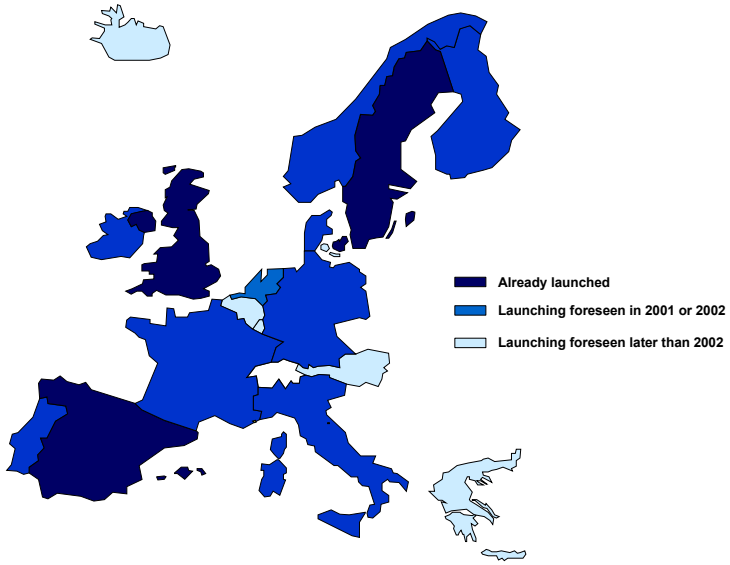

### 3.4.1.3 Digital Terrestrial Industry

In most European countries, analogue terrestrial distribution is still the most important form of distribution. Therefore, the introduction of digital terrestrial television is an important event. The UK was the first country to launch DTT services with the introduction of iTV[73] digital. It is expected that several countries will follow with commercial launches between 2002 and 2003.

In the DTT industry segment, a strong difference is also made between access providers such as ITV Digital, Quiero, etc. and the networks such as Crown Castle, TDF, Nozema, etc.

[73] iDTV Digital was called OnDigital at the time of its launch in 1998

**Figure 23: Penetration of DTT[74]**




### 3.4.1.4 Mobile Industry

The mobile industry segment can be considered as very competitive with usually 3 to 4 mobile operators per country. However, in most countries, the smallest operator is lagging behind the 2 dominant players in terms of market share, which is a strong competitive disadvantage (network's fixed costs are amortised over a smaller volume of revenues). The UMTS licensing costs paid to European public authorities have led to a further consolidation. Mobile operators will enter the audio-visual market as they need to develop new, attractive services to justify the high investments in new licenses and infrastructure.

### 3.4.1.5 ISP Industry

The European ISP industry is very fragmented with 10 to 200 players per country. The launch of free-ISP business models further increased the number of players. However, in most countries, large nationa ISP's have a market share that ranges from 30 percent to 60 percent (in number of subscribers). Currently, the slump in the high-technology capital markets coupled with the free ISP's financial difficulties fuelled a new consolidation trend. Consequently, there has been the emergence of a few major pan-European players (T-on-line, AOL Europe, Tiscali, Wanadoo, etc.).

[74] Source: www.digitag.org

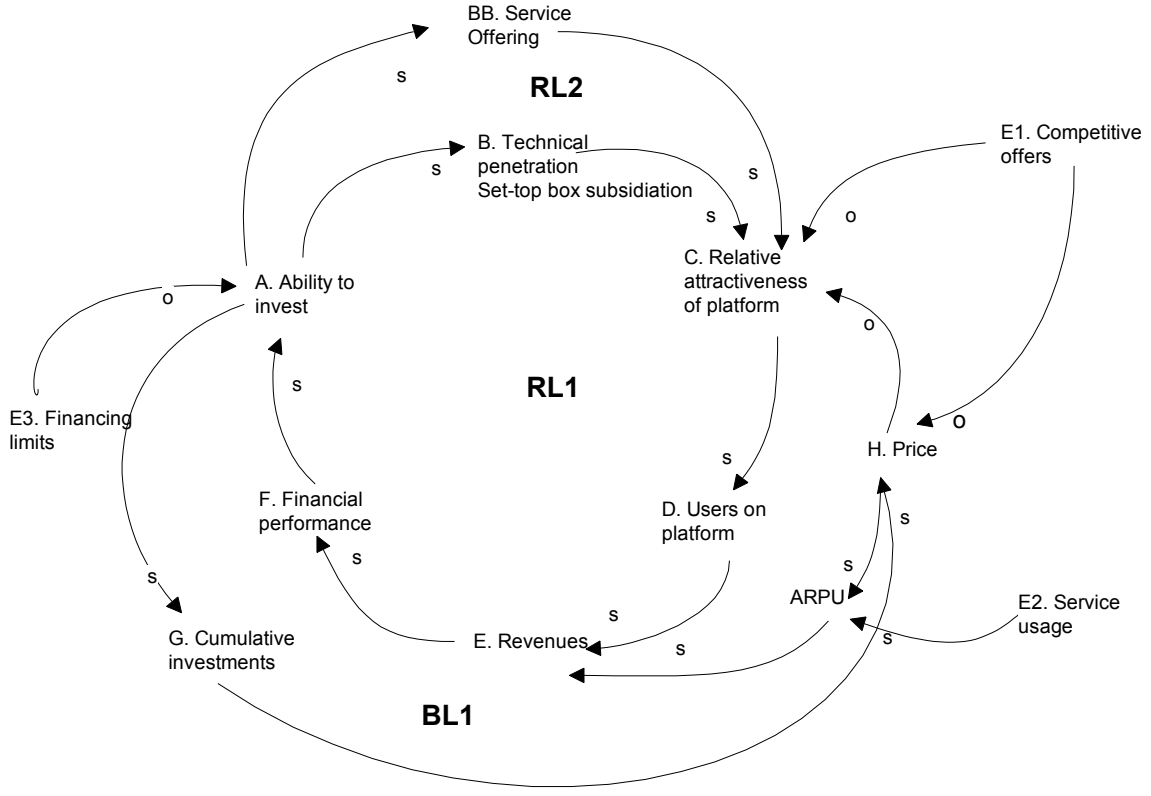
### 3.4.2 Systemic analysis

Access providers generate revenues from subscriptions, usage based services and commissions. To generate these revenues, access providers need to attract clients. To do this, three requirements need to be fulfilled:

- Potential customers need to be within the reach of the access provider, which means that they need to be able to connect. Potential customers also need access to a set-top box. The cost of these boxes is often an important impediment for customers. A subsidy for these set-top boxes by the access provider will decrease this barrier and encourage customers to subscribe to the service (This is pictured in the reinforcing loop RL1);
- Premium content and services must be featured (This is pictured in reinforcing loop RL2).

Once the access provider has installed a set-top box, he can build customer knowledge, sell services and function as a gateway for aggregators and other services providers (e.g. walled garden operators, t-commerce channels, etc.). The service provider will be able to generate advertising revenues and will receive commissions on t-commerce revenues. These revenues will depend on the service usage (E2).

**Figure 24: Causal loops diffusion**




S indicates a causal change in the same direction

O indicates a causal change in the opposite direction

The basic causal relationships (pictured in reinforcing loops RL1 and RL2) relate to the deployment of networks and the development of services:

**Table 15: Reinforcing Causal Loop Diffusion**

| Dynamic | Characteristics | External factors |
|---|---|---|
| A → B | Access providers can offer services only after they have deployed an installed-base:<br>• Satellite providers have an important initial investment but have an immediate footprint,<br>• DTT operators have a somewhat more progressive roll-out;<br>• Cable operators need to roll-out or upgrade their network in order to have homes passed<br>The speed of service uptake will be increased through the subsidiation of set-top boxes.<br>Both elements will be influenced by the ability to invest of the access provider | Technology innovation and cost decreases affect the access providers in their efforts to maintain their installed-base.<br><br>Ability to invest will be determined by the ability to find appropriate funding on the financial markets (E3). |
| A → BB | Ability to invest will also enable access providers to develop attractive service and content offerings | |
| B → C<br>BB → C | The higher the number of homes passed (B) and the attractiveness of the services, the higher the relative attractiveness of the platform. | The number of homes passed that will become subscribers depends on the competitiveness of the market (E1). Some homes will be able to choose between satellite, cable, DTT or even other distribution mechanisms, while others will only have a limited choice or no choice. The degree of competitiveness will determine the customers' choice and control. |
| C → D | The higher the relative attractiveness of the platform, the higher the number of users on the platform | |
| D → E | The higher the number of users, the higher the potential revenues of the platform. The revenue potential is direct, through subscription revenues, or indirect through the advertising market | |
| E → F → A | TV revenues lead to an increased financial performance, which leads to an increased ability to invest | |

This virtuous relationship is balanced by the fact that the high investments require an adequate return. The expected return is one of the key drivers of the access providers' price-setting, but also determines the final attractiveness of the platform compared to other platforms (price-quality/services return).

**Table 16: Balancing Causal Loop Diffusion**

| Dynamic | Characteristics | External factors |
|---|---|---|
| A → G | The past investments in infrastructure and set-top boxes lead to high cumulative investments | |
| G → H | These cumulative investments will be one of the key | |

| | | |
|---|---|---|
| | drivers of the price setting policy | |
| H → C<br>H → I → E | High prices have a negative influence on the relative attractiveness of the platform<br>At the same time, high prices positively influence the average revenue per user (ARPU), and therefore the total revenues of the platform | The usage of the services (E2) (PVR, VoD, e-mail, internet, etc.) has a positive impact on ARPU. Usage is determined by consumer habits. |

As can be seen from the causal loops pictured above, access providers need to create a balanced revenue strategy, that takes into account the relative attractiveness of the platform and the average revenue per user.

### 3.4.3 Trends

#### 3.4.3.1 Market consolidation

The structure of the access provisioning industry strongly depends on the type of access. For satellite access, the market is very concentrated since there are usually no more than 1 or 2 players per country (e.g. in the UK, BskyB; in France, CanalSatellite and TPS; in Germany, Premiere, etc.).

For cable operators, the market structure may differ depending on the country. Some are very fragmented (Austria, Finland, Luxembourg, Belgium-Wallonia), with one cable operator in each geographical territory (some of these territories can be very limited). Other countries are already consolidated (UK, France, Germany). Overall, the trend in the cable market is consolidation, both within the country and on a pan-European scale (e.g. UPC, NTL, Callahan Associates, etc.). Andersen expects the consolidation process to be synonymous with a “repricing” of the infrastructure.

The development of DTT will yield the emergence of new access providers. Countries will probably have no more than 1 player, mainly for technological reasons: the management of the attributed multiplex and bandwidth will be easier if controlled by one single company.

Access providers will not only consolidate, but will also integrate vertically with other roles in the value chain, such as network operators, aggregators and programme packagers.

#### 3.4.3.2 Triple play and quad play

In order to drive more revenues from their infrastructure and their customer knowledge, access providers have gradually expanded their product portfolio. Most cable companies for example want to offer telephony, internet access and digital television services on

their upgraded networks. Some are even planning to combine this with mobile telephony services.

#### 3.4.3.3 Disappearance of the set-top box subsidiation model?

Capital expenditures are a very important component of the cost structure of access providers. The development of a platform and the subsidisation of set-top boxes are financially constraining. As most investments are not very scalable, it is important to gain customers as fast as possible. Access providers typically provided the set-top boxes for free in order to attract new customers.

The current downturn of the financial markets has put pressure on this subsidy model. Moving to retail models requires a standardised or interoperable set-top box. Although initiatives are currently being taken to create such a standard (MHP), Andersen expects it will likely take up to 5 years before access providers can effectively evolve toward retail markets.

## 3.5 Conclusion

The following table provides an overview of the main elements that have been analysed for each of the roles in the value chain. It concludes with Andersen's assessment of the expected evolution in market power and relevancy.

Andersen believes that the value chain of the audio-visual industry will be altered significantly between 2000 and 2010 (in contrast to modest changes between 1995 and 2000). Some roles will be created or reinforced (e.g. the role of aggregator and access provider) while other roles will be threatened due to the decreasing value of intermediaries (e.g. the role of rights dealer and programme packager).

Overall, Andersen sees significant threats for commercially funded programme packagers and networks:

- The role of commercially funded programme packagers is to acquire or commission content, create a schedule and monetise this schedule through selling advertising slots. New technologies will allow content providers to directly address the consumers and could lead to a partial desintermediation;
- The role of networks will remain but competition will increase. Other network technologies will gradually become media-capable and will threat the existing networks. At the same time cable and satellite will gradually become broadband capable.

Opportunities are likely to the content production industry segment and the access provisioning industry segment:

- Content producers and rights holders will be able to develop new services and business models. These business models will partly focus on direct access to

customers or access providers, leading to the desintermediation of programme packagers. New content formats such as interactive programmes could also lead to new opportunities. VoD and PVR strategies (see scenarios) will lead to an increased importance of top rights (sports, movies, events, etc.);

- Access providers and aggregators will become the main consumer brands and will lock the customers through a better monitoring of customer wants and needs. Aggregators will become the new intermediaries, if any, between content providers and audiences.

**Figure 25: Main characteristics of each role**[75]

| | Rights holders | Content producers | Rights dealers | Programme packagers | Aggregators | Networks | Access providers | CPE vendors |
|---|---|---|---|---|---|---|---|---|
| Role & segmentation | ▪ Commercial exploitation of rights | ▪ Creative & executive talent | ▪ Promote and sell content | ▪ Create & monetise schedule | ▪ Repackage & create offer | ▪ Transport content | ▪ Manage customer | ▪ Provide terminal equipment |
| Market Structure | ▪ International oligopoly | ▪ Highly fragmented market | ▪ Consol. in US<br>▪ Fragm. in EU | ▪ National / Regional oligopoly | ▪ Emerging<br>▪ Fragmented | ▪ Consolidating into regional oligopolies | ▪ Regionally consolidated | ▪ International oligopoly |
| Revenue models | ▪ Window-management | ▪ Commissioned content | ▪ Commission on transaction | ▪ Advertising<br>▪ Public funding | ▪ Undefined mix of advertising & subscription | ▪ Carriage fees | ▪ Subscription fees from end-users | ▪ Retail |
| Cost models | ▪ Project based | ▪ Project based | ▪ Sales & admin infrastructure | ▪ Content acquisition | ▪ Rights acquisition | ▪ Infrastructure deployment & maintenance | ▪ Channel acq.<br>▪ Customer mgt infrastructure | ▪ R&D<br>▪ Engineering<br>▪ Production |
| Trends | ▪ Direct consumer branding<br>▪ New rights | ▪ Partnerships with access providers<br>▪ New formats | ▪ Creation of open marketplace | ▪ Subscription<br>▪ Usage-based channels | ▪ Will remain integrated with access providers | ▪ Competition between platforms<br>▪ Consolidation in segment | ▪ Increasing role in security & CPE provisioning | ▪ Horizontal, vertical and diagonal markets<br>▪ Hardware to software |
| Strength to control the value chain | ↑ | ↑ | ? | ↓ | ? | ↓ | ↑ | = |

The value chain presented and detailed in this chapter and the main conclusions drawn here are applicable to the European market as a whole. Referring to the segmentation per country introduced in chapter 2, some differences can be noted between countries. These differences are further analysed in Appendix 1 (Country Profiles).

[75] Note that the output of the "strength to control in the value chain" is considered in a business as usual scenario

Large markets:

- All large markets have developed a very competitive content production industry. The size of the domestic market is the main driver of success for this development. In addition, some countries, like the UK and France, have been able to develop significant export of productions;
- All large markets have a large number of national free-to-air and pay-TV channels;
- The distribution infrastructure is very different in each of the large markets.

Commercial markets:

- Commercial markets are traditionally free-to-air markets; distribution is still mainly terrestrial;
- The content production market is very local with almost no export.

Mixed model markets:

- All countries have a very fragmented content production market, with little export to other European markets;
- Despite the increase in number of channels, the public service broadcasters still attract high audience shares. Most Nordic countries offer a limited number of local channels while other countries have seen the development of a relatively large number of local channels;
- Due to a small number of powerful broadcasters, commercial broadcasters are living in an oligopoly environment. This enables them to have a high power ratio (ratio between advertising share and audience share);
- Mixed model markets enjoy better than average quality of the distribution infrastructure.

Monopolistic markets:

- Monopolistic markets are still dominated by public service broadcasters;
- The content production markets are relatively poorly developed;
- Pay-TV has a relatively high penetration rate.

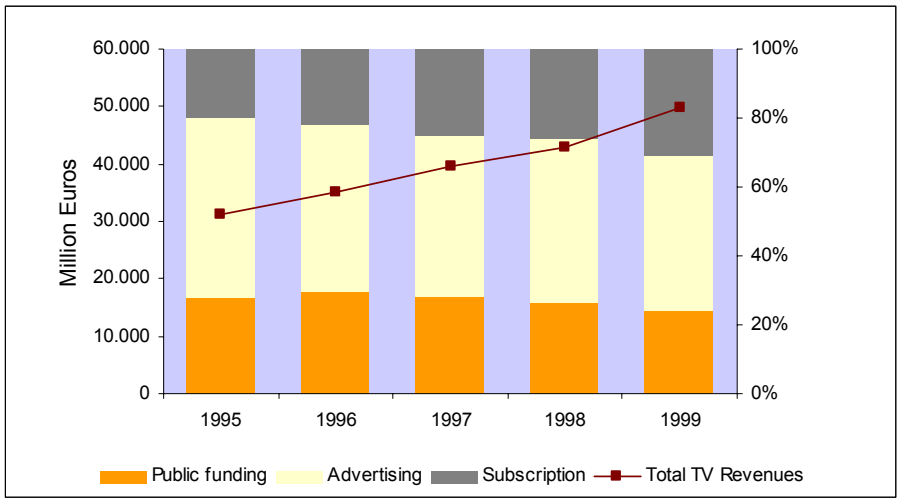
Importers:

- Importers have a limited audio-visual industry with only networks and access providers.

# 4 Disruptive economic factors

Advertising, subscriptions from households and public funding are the three main sources of revenue of the audio-visual industry. These revenues (the structure, the amount, the flows, etc.) will change significantly in the years to come and may therefore impact the whole media industry.

**Figure 26: Evolution of TV revenues over time in Europe**[76]




## 4.1 Advertising

### 4.1.1 Definitions

Advertisements are messages, paid for by those who send them, intended to inform or influence people who receive them.

Advertising appears in different media including newspapers and magazines, television and outdoor posters, commercial radio, direct mail, the cinema, posters in shops. The audio-visual media sell space in their broadcast schedule or time to advertisers.

The cost of advertising time on television or radio varies according to the size of audience that the station expects to have at the time when the advertisement goes out, and of course, on the length of time bought. For advertisers who want to get a message to a large number of consumers - that is, people who might buy their product or service - television is one of the most efficient advertising mediums.

There are usually two main categories of advertising: “above-the-line” advertising and “below-the-line” advertising:

[76] Compilation by Andersen based on EAO, Statistical Yearbook 2001 and ZenithMedia (advertising and subscription). The height of the bars can be read on the right axis of the figure, the figures on the line can be read on the left axis

- *"Above-the-line"* advertising includes classically displayed advertisements, such as advertisements on paper press, TV, movie theatre, radio, billboards or the Internet.
- *"Below-the-line"* advertising is usually more difficult to apprehend and measure. It covers the following elements:
  - Presence in points of sale ("displays"): this activity has increased with the development of large supermarkets and department stores;
  - Direct marketing, such as tele-marketing, direct (e-)mailing, etc.;
  - Abstract advertising, such as price cuts, organisation of contests, etc.

The advertising figures are difficult to compare from one country to another since their definitions vary strongly both geographically and over time. The differences may be due to the scope of the definition (including or not "below the line" advertising, online advertising, etc.), and the nature of amounts taken into consideration (before or after discounts, including or not production costs and including or not agency commissions). However, in the following section Andersen has tried to quantify the key elements of the European advertising industry that are relevant for the audio-visual industry.

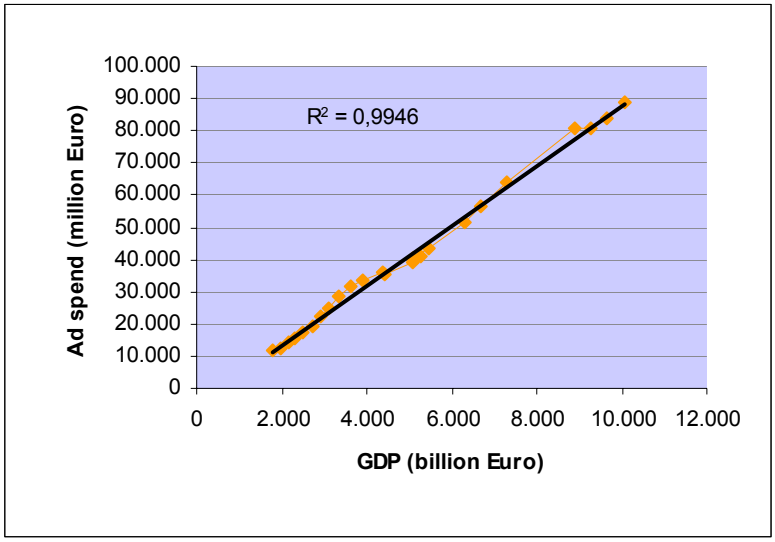
### 4.1.2 General overview of advertising in Europe

#### 4.1.2.1 GDP as the fundamental driver of advertising expenditure

Advertising is the main financial resource for the audio-visual industry in Europe.

The key long-term driver for advertising expenditures is Gross Domestic Product (GDP). A strong correlation can be observed between GDP and advertising expenditures in European countries over time. In fact, it is generally accepted that advertising expenditure anticipates GDP growth by 3 to 6 months since advertising budgets are allocated with this lead time before the actual advertising exploitation.

**Figure 27: Correlation between GDP and advertising expenditure in Europe (1980-2003)**[77]



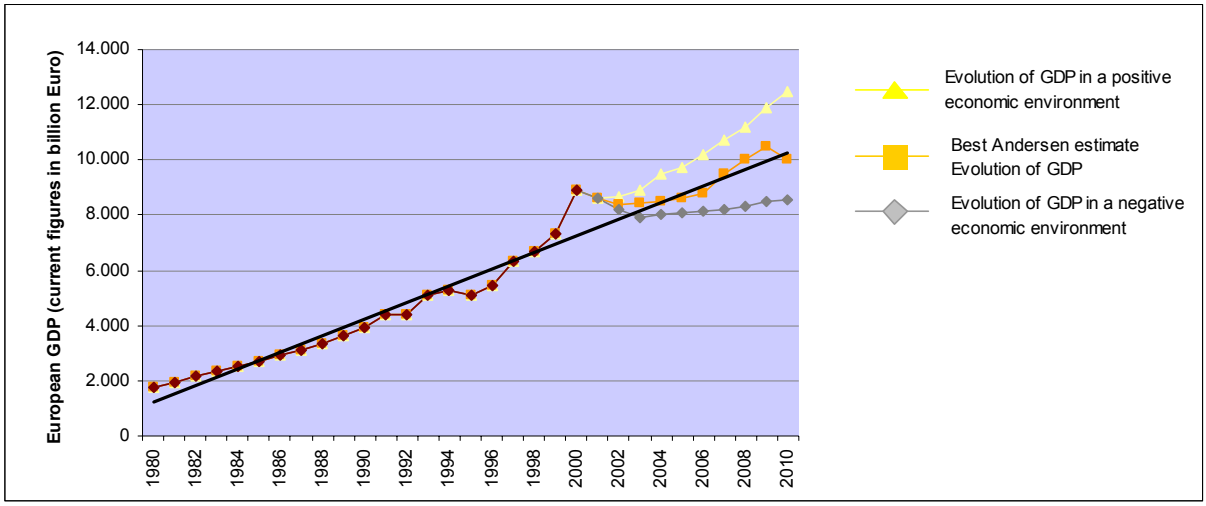

The figure above shows the regression analysis between GDP and advertising expenditure in Europe. The linear trend line drawn across the graph, shows a strong correlation between GDP and advertising expenditure (R-squared Value of 99,46 percent).

This correlation will be used in Andersen's models for planning advertising expenditures based on future GDP growth.

In this model, two possible scenario's for future GDP variations will be studied: a continued growth environment (+2,5 percent per year) and a recession environment (-1 percent per year). The figure below shows the GDP growth used in the model. These variations are developed based on historical GDP data. GDP forecasts will induce variations of advertising expenditures and therefore TV revenues through the correlation explained above.

[77] Compilation by Andersen based on the additional historical file received from Zenith Media as a complement to their report "Television in Europe to 2010", 2001, hereafter referred to as 'Archives ZenithMedia'

**Figure 28: European GDP : historical data and possible forecasts (1980-2010, billion Euro)**[78]




The GDP is only the long term driver of the advertising expenditure; other factors will explain the differences (often cyclical) of the advertising expenditures along the trend line in the above figure and illustrate the correlation between advertising expenditure and GDP in Europe. Some of these factors are listed here:

- Short or medium term economic factors, such as employment, interest rates, etc. These are indicators of the current economic climate in each country. Typical periods last 4 to 5 years and are cyclical (4 to 5 years optimistic economic climate -"bull periods"-, followed by 4 to 5 years of pessimistic economic climate -"bear" periods);
- Industry creation, as well as the degree of maturity of an industry. These may impact the advertising market either directly or indirectly. This has been the case with the development of free commercial TV broadcasters, or more recently with the development of the Internet. The launch of new devices and application used to personalise content and interactivity are also expected to impact the advertising market.

However, for the purpose of this study, it is assumed GDP evolution is sufficient to explain the trends in advertising expenditure up until 2010.

#### 4.1.2.2 Overview of key advertising markets in Europe

Since the advertising market differs from country to country, the following analysis will segment the European advertising markets by their level of maturity.

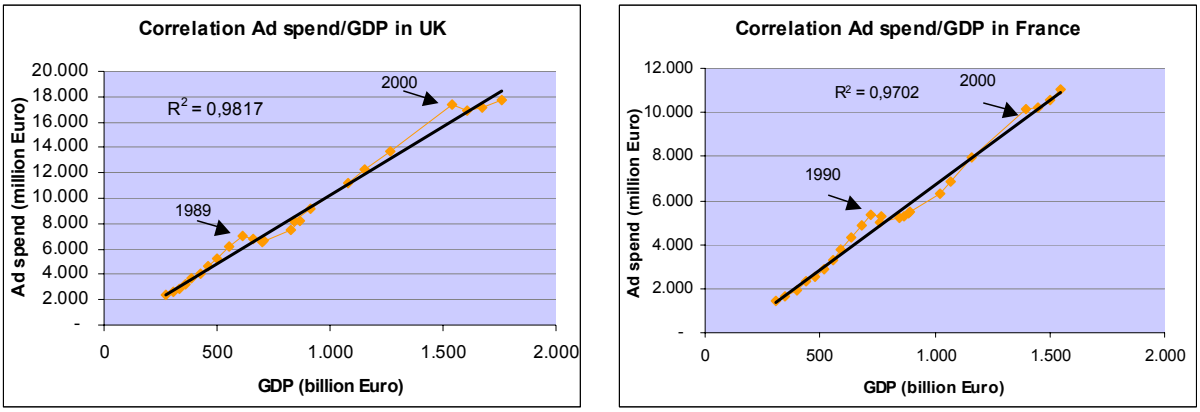
Advertising per household has not been used as a relevant indicator for the maturity of advertising markets. The interviews conducted for this study clearly indicate that advertising per household is closely linked to cultural differences.

[78] Compiled by Andersen based on Archives ZenithMedia, Andersen analysis

### *Mature markets*

Several countries in Europe have a mature advertising market, characterised by a stable relationship between GDP and advertising expenditure. This is the case for most large countries (the UK, France, Germany and Italy). Short or middle term variations along the linear evolution can be seen, due to overall economic situation factors.

**Figure 29: Correlation between GDP and advertising expenditure in European mature markets (1980-2003)**[79]




The two main peaks observed along the curves reveal booms in the advertising expenditures: the first one in 1989 for the UK and 1990 for France and the second one in 2000, both followed by limited or negative growth. These peaks are linked to the global economic climate on the financial markets.

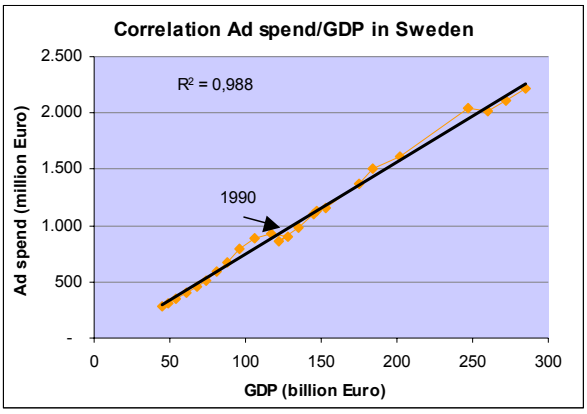
### *Mixed development markets*

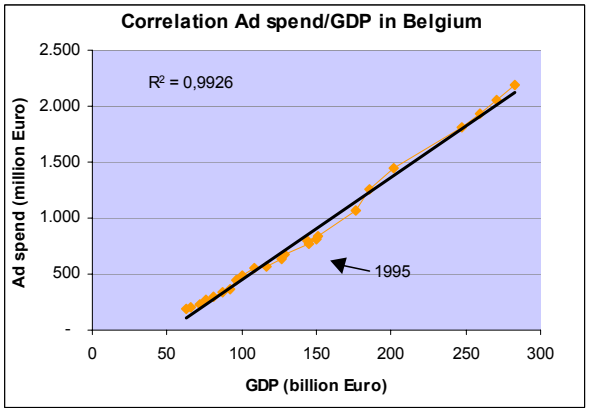
Some European markets have proven to be very stable over time, even if they were not yet fully mature.

Nordic countries saw the development of Television advertising in 1987-1988, but have still maintained a stable relationship between GDP and global advertising expenditure (the development of television advertising decreased the growth of newspaper advertising).
In other countries, such as Belgium and Austria, there has been a constant growth of advertising expenditure, revealing a market that is not yet mature. In Belgium's case, the late launch of free commercial broadcasters and the introduction of Television advertising for Public Service Broadcasters can explain this situation.

[79] Compiled by Andersen based on Archives ZenithMedia

**Figure 30: Correlation between GDP and advertising expenditure in mixed development markets (1980-2003)**[80]



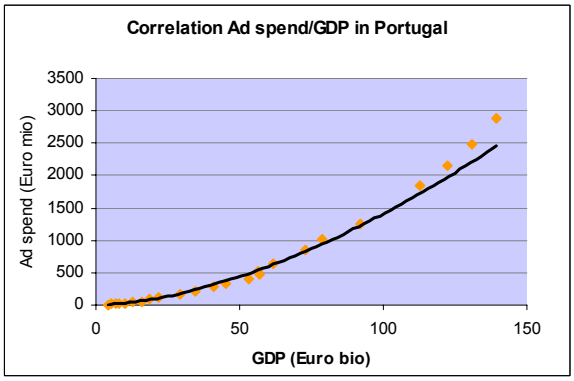

## *Emerging markets*

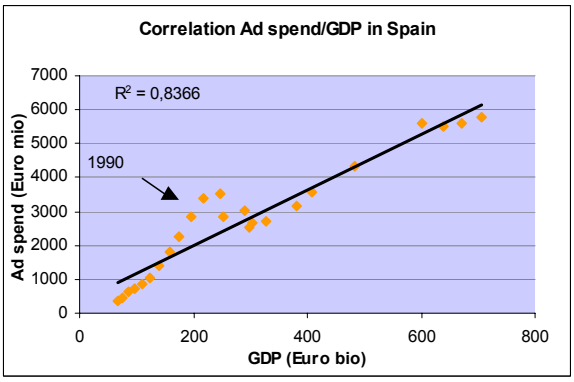
At last, there are some European countries where the evolution of advertising expenditure is unusual.

In countries such as Greece and Portugal, the advertising markets were totally immature in the early eighties (less than 15 million Euro in 1980). These countries have seen an explosive development in advertising (growth of more than 13.000 percent over 20 years, or an average annual growth rate of more than 28 percent), leading to a current situation of very commercial markets from an audio-visual point of view.

Another unusual country is Spain, which has seen an explosion of advertising from 1987 to 1990, followed by a deep advertising crisis between 1992 and 1994. Newspaper advertising suffered the most in 1992, with a decrease of 35 percent.

**Figure 31: Correlation between GDP and advertising expenditure in atypical markets (1980-2003)**[81]




These countries are expected to stabilise over time. Greece and Portugal, for example, have reached a certain point of maturity and will experience linear relationship between growth in GDP and growth in advertising expenditure in the future.

[80] Compiled by Andersen based on Archives ZenithMedia
[81] Compiled by Andersen based on Archives ZenithMedia

### 4.1.3 Breakdown of advertising expenditure per media

The global advertising expenditure described above represents the sum of different media advertising expenditures. The repartition of these media in the global advertising varies from country to country.

**Table 17: GDP and Advertising expenditure per European country (2000 figures)[82]**

| | GDP (Euro Mio) | Adv. Exp. (Euro Mio) | TV (%) | Newspaper (%) | Magazine (%) | Radio (%) | Cinema (%) | Outdoor (%) |
|---|---|---|---|---|---|---|---|---|
| Austria | 205.824 | 1.888 | 25% | 31% | 29% | 8% | 1% | 6% |
| Belgium | 247.690 | 1.808 | 43% | 23% | 14% | 10% | 1% | 9% |
| Denmark | 176.140 | 1.465 | 18% | 50% | 4% | 2% | 0% | 3% |
| Finland | 131.122 | 1.094 | 19% | 56% | 16% | 3% | 2% | 3% |
| France | 1.394.886 | 10.120 | 30% | 18% | 33% | 7% | 1% | 12% |
| Germany | 2.048.402 | 19.443 | 24% | 43% | 24% | 4% | 1% | 4% |
| Greece | 119.912 | 1.760 | 36% | 18% | 28% | 4% | 1% | 13% |
| Iceland* | 9.030 | 109 | 33% | 55% | 8% | NA | 1% | 3% |
| Ireland | 101.611 | 611 | 26% | 55% | 2% | 7% | 1% | 9% |
| Italy | 1.159.335 | 7.879 | 52% | 23% | 14% | 5% | 1% | 4% |
| Liechtenstein* | 813 | NA | NA | NA | NA | NA | NA | NA |
| Luxembourg* | 19.893 | 80 | 10% | 54% | 17% | 15% | 2% | 3% |
| Netherlands | 395.724 | 3.659 | 17% | 48% | 26% | 5% | 0% | 3% |
| Norway | 150.422 | 1.575 | 36% | 44% | 12% | 5% | 1% | 2% |
| Portugal | 112.946 | 1.846 | 60% | 11% | 14% | 7% | 0% | 8% |
| Spain | 601.768 | 5.602 | 41% | 30% | 13% | 9% | 1% | 5% |
| Sweden | 246.636 | 2.043 | 23% | 54% | 15% | 3% | 0% | 4% |
| UK | 1.537.092 | 17.382 | 32% | 40% | 16% | 4% | 1% | 6% |
| **Europe** | **8.659.246** | **78.363** | **32%** | **35%** | **20%** | **5%** | **1%** | **6%** |

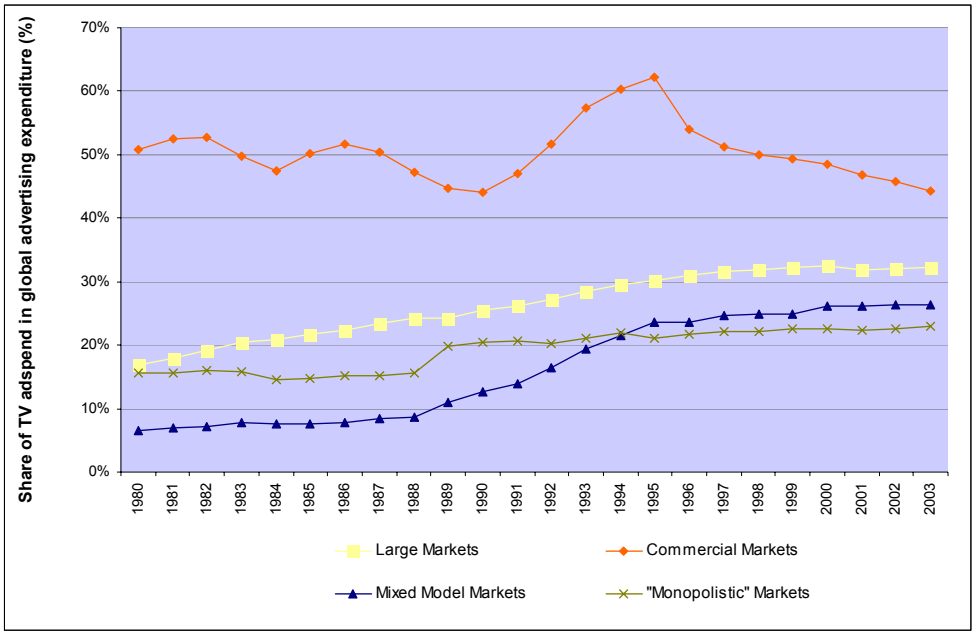
Some differences can be observed in certain regions, mainly due to cultural differences such as:

- The weight of Newspaper advertising in Nordic countries, and overall its higher importance in Northern Europe than in Mediterranean countries;
- The higher importance of outdoor advertisements in Southern Europe;
- The weight of TV advertising within global advertising for “audio-visual commercial market models” (Portugal, Greece, Italy and Spain).

Overall, TV advertising expenditures represent a large part of total advertising expenditures. Besides cultural differences that largely explain the difference in the current level of TV advertising, the evolution of TV advertising is explained by the maturity of the market. Sweden only developed TV advertising in 1987 while the first free commercial broadcaster was launched in 1989 in Northern Belgium.

[82] Compiled by Andersen based on Archives ZenithMedia,. (*) Iceland, Liechtenstein and Luxembourg figures relate to 2000: IP, Television 2001

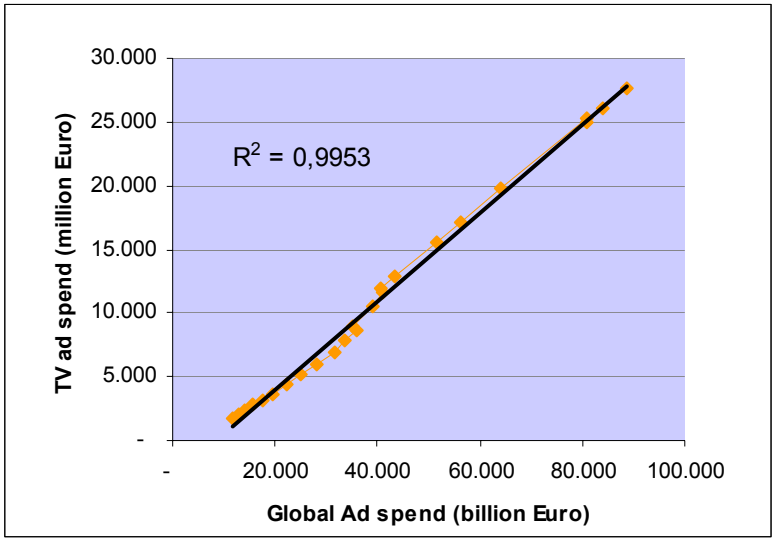
**Figure 32: Share of TV in global advertising expenditure in some European countries (1980-2003)**[83]




Overall, one can observe that TV advertising expenditure is directly linked to global advertising expenditure. Except in some cases of non-mature markets at a particular period in time, a strong linear correlation can be drawn between TV and global advertising expenditure. This means that TV advertising expenditure forecasts will follow the same evolution as global advertising expenditure (see above).
A variation of 1 percent of global advertising in million Euro would imply a variation of 0,35 percent of TV advertising in million Euro (European average).

[83] Compiled by Andersen based on Archives ZenithMedia

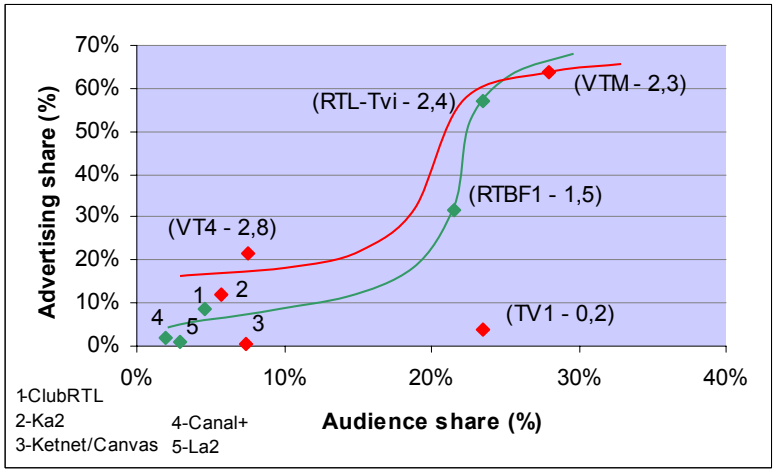
**Figure 33: Correlation between global ad expenditure and TV ad expenditure in Europe (1980-2003)**[84]




As explained above, media planning consists of attributing an advertising budget to a specific media, depending on the targeted audience. In the audio-visual industry, advertisers allocate TV or radio-advertising budgets to a programme packager depending on the audience they intend to reach, and the price they are prepared to pay (and depending on the legislation applicable in the country).

The link between audience share and advertising share for each programme packager is called the "power ratio" – the higher the audience share, the higher the advertising share for the programme packagers. Yet this curve is limited both on top and bottom. Above a certain percentage of audience share (this percentage depends on market maturity, e.g. 80 percent), the advertising share levels out, while below a certain amount of audience share, there is usually no advertising (also depending on market maturity, e.g. 5 percent).

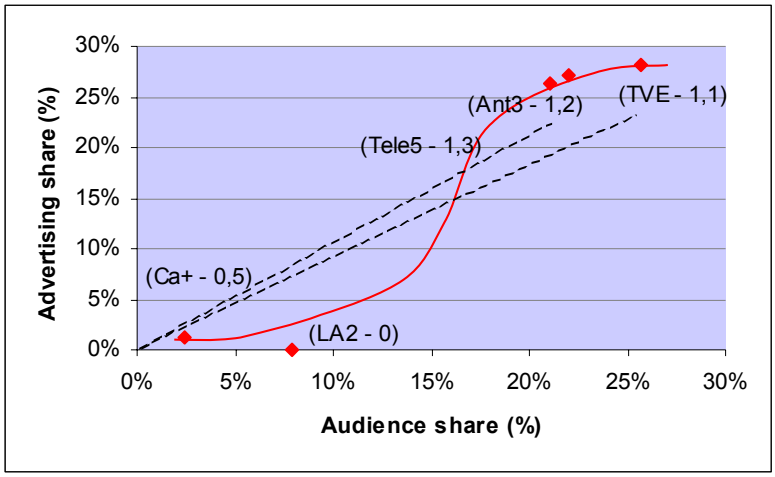
**Figure 34: Power Ratio of TV programme packagers, example of Belgium (2000 figures)**[85]




[84] Compiled by Andersen based on Archives ZenithMedia
[85] Compiled by Andersen based on IP, Television 2001, 2001.

The power ratio represents the inclination of the line joining the programme packager point and the origin of the graph (in this case, VT4 power ratio is 2,8 in 2000: a 7 percent audience share gives a 18 percent advertising share in the northern part of Belgium). A power ratio of 1 indicates that the advertising share equals the audience share. Overall, all programme packagers' power ratio points may be aligned on a curved line (red for Northern Belgium and green for Southern Belgium).

**Figure 35: Power Ratio of TV programme packagers, Spain (2000 figures)**[86]




Depending on the advertising regulation, Public Service Broadcasters usually have lower power ratios (usually <1) than free commercial broadcasters. In some European countries, Public Service Broadcasters are not allowed to advertise, and therefore have power ratios equal to 0.

The table below indicates average power ratios of programme packagers according to their generation in European countries for 2000.

**Table 18: Overview of average Power ratios per programme packagers in Europe (2000 figures)**[87]

| | | Public Service Broadcasters | Free Commercial Broadcasters | Pay TV Operators |
|---|---|---|---|---|
| Large Markets | *United Kingdom* | 0,0 | 1,8 | NC |
| | *France* | 0,5 | 1,6 | 0,8 |
| | *Germany* | 0,2 | 1,9 | NC |
| | *Italy* | 0,7 | 1,3 | NC |
| | *Spain* | 0,8 | 1,3 | 0,6 |
| Commercial Markets | *Portugal* | 0,7 | 1,2 | NC |
| | *Greece* | 0,4 | 1,3 | NC |
| Mixed Models | *Belgium North* | 0,1 | 2,2 | NC |
| | *Belgium South* | 1,3 | 2,4 | 1,9 |
| | *Finland* | 0,0 | 1,9 | NC |
| | *Iceland* | 0,6 | 1,2 | 1,3 |
| | *Ireland* | 1,7 | 2,2 | NC |
| | *Netherlands* | 0,7 | 1,7 | NC |
| | *Norway* | 0,0 | 2,0 | NC |
| | *Sweden* | 0,0 | 2,1 | NC |
| "Monopolistic" markets | *Austria* | 1,5 | 0,7 | NA |
| | *Denmark* | 1,0 | 1,6 | NC |
| Importers | *Liechtenstein* | NA | NA | NA |
| | *Luxembourg* | NA | NA | NA |

[86] Compiled by Andersen based on IP, Television 2001, 2001.
[87] Compiled by Andersen based on IP, Television 2001, 2001; Andersen analysis

The recent increase in the number of channels, especially in the number of thematic channels, has to some extend fragmented the audience. The fragmentation of audience is important to study because an increasing number of channels are reaching audience shares below the 3-5 percent threshold. The figure above clearly indicates that these small programme packagers do not attract large audience shares. Hence, they will not be able to attract a substantial part of the advertising revenues.

However, thematic channels will be able to increase their advertising revenues in the future due to:

- Thematic channels offer advertisers a more targeted audience, with a higher "cost per GRP[88]/cost per thousand" (increases of around 20 to 40 percent for cost per thousand[89]). They may in certain cases be considered in the same light as specialised magazines, allowing better return on advertising investment;
- The model of mass advertising may change in the future, with the development of better audience measurement tools that would allow the smallest channels accurately measure and track their audience. This would remove the 3-5 percent threshold;
- The increase in the thematic channels' advertising revenues may come from funds previously spent on generalist channels or even in some cases from magazine advertising budgets, since thematic channels target audience may be compared to specialised magazine audiences.

### 4.1.4 Trends towards online advertising and other models

Advertising across all media has shown the first signals of changes in the last few years. There has been a move towards a greater need to understand how to reach the intended audience through niche targeting. New media is accelerating the shift by recognising the value of a deeply segmented consumer market. Among new media and related advertising models, two main trends will be further studied:

- Personalised advertising;
- Interactive advertising.

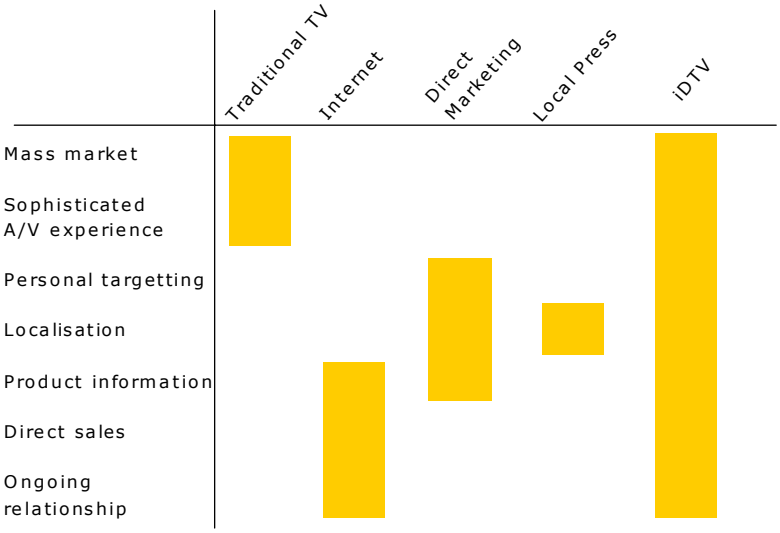
Personalisation is closely related to the introduction of better audience measurement systems. Through better audience measurement systems, niche channels (e.g. thematic channels, community channels, etc.) could become relevant for advertisers. It is expected that advertising budgets could shift internally (from generalist channels to thematic channels) or could come from magazine related advertising.

In order to better understand the issues relating to interactive advertising, the remainder of this section will focus on online advertising, as a predecessor of interactive television advertising.

[88] GRP (Gross Rating Point): total number of contacts delivered through an advertising campaign, expressed in percentage of the reference population (target).
[89] Interviews with industry experts.

Compared to other media types, online advertising offers advertisers the opportunity to integrate three steps of the sales cycle (information, transaction and follow-up), whereas traditional media are mainly focused on mass marketing and information. Interactive and personal advertising on iDTV platforms will go even further as they combine some characteristics of online advertising with characteristics of traditional TV and press advertising (see figure below).

**Figure 36: Online advertising and iDTV advertising compared to other media types**[90]




In addition, the Internet and iDTV bring the new abilities to advertisers such as: interactivity, customer tracking, customer targeting and reporting. Therefore, they appear to be the most advanced advertising tool and promise to be successful, all the more because development of technologies will allow new services.

In particular, “below-the-line” advertising could partly shift to the audio-visual industry as new interactive platforms will allow a one-to-one communication between the advertiser and many members of the target audience.

As a new flourishing market, the Internet has developed many new techniques and new business models for advertising (sponsoring, bartering, product placement, etc.). For more details about the new advertising techniques (both for Internet and television), the reader can refer to the study “Development of new advertising techniques”[91].

According to Britain’s Interactive Advertising Bureau[92], total online advertising expenditure for Europe was nearly 2 billion Euro in 2000, an increase of over 700 percent compared to the 270 million Euro spent in 1999. This amount can be compared to the 668 million Euro of cinema advertising and 4,1 billion Euro of radio advertising in Europe in 2000.
Yet, the structure of online advertising is highly concentrated in terms of:

[90] Compiled by Andersen based on Datamonitor, Andersen analysis
[91] Study relating to the Television without Frontiers Directive, Lot 3: “Development of new advertising techniques”
[92] In a report prepared by PricewaterhouseCoopers, compiling online advertising expenditure between 1998 and 200 across Europe’s national markets.

- Location: the UK (344 million Euro), France (280 million Euro) and Germany (272 million Euro) represent more than half of the total online advertising revenues;
- Advertisers: IT companies, dotcoms, financial institutions TV and recruiting sites represent the main part of the advertising demand;
- Websites: only top sites generate revenues. This effectively means that despite the large fragmentation of content on the Internet, only a few key sites attract the highest part of advertising revenues.

Despite all the potential discussed above, the marketing future of the Internet does not look completely defined. The main issues relating to online advertising are:

- Online advertising enables interactivity, but has not yet proved to be able to build a brand and strengthen an image;
- Online advertising, in view of the number of sites, is not a good media to reach large audiences;
- Online advertising, in view of the number of sites, is difficult to manage by companies;
- Online advertising is less intrusive than traditional advertising: it is therefore difficult to measure the real impact on people;
- Online advertising still has not developed relevant metrics and overall accepted measuring standards.

Most of the above remarks will also apply to interactive advertising on iDTV-platforms, although these platforms are easier to manage and will still be watched by mass audiences. iDTV is still in the early stages of development, but in more advanced countries, such as the UK, some positive indications reveal that there is a high potential for success of interactive advertising. Forrester Research predicts that the revenues from walled garden tenancies (i.e. brands that have a permanent position on an iDTV channel) will reach 4 billion Euro in the UK by 2005, while it is less than 160 million Euro today.

iDTV also represents a challenge for the advertising industry and raises some major concerns:

- The increase in the number of channels and the appearance of VoD and PVR will increase the fragmentation of audiences. TV could loose part of its attractiveness as mass media;
- New technologies such as PVR enable customers to skip ads. The advertising companies will need to work with these companies to alleviate this threat. Some changes in advertising formats or techniques will also be developed by advertising professionals to resolve this issue, e.g. small ad screen on TV screen, importance of sound-track in advertising to clearly identify and recognise a brand, etc. (see also study “The development of new advertising techniques” - Lot 3);
- Audiences will use advertising breaks to launch other activities (games, e-mail, e-banking, etc.);

- As the TV-set becomes an access gate, it will more frequently be “always-on”. The current audience measures will be ineffective since they rely today on whether the TV set is on and what channel the viewer is watching.

## 4.2 “Entertainment” spend

Apart from public funding and advertising, the third revenue source for programme packagers is based on subscriptions paid by consumers. This section explains the mechanisms of TV subscriptions, the factors that influence them and their possible future.

### 4.2.1 Global “entertainment” spend

The global “entertainment” spending of households has been defined in this study as follows:

- Entertainment spend for hardware, including annual households expenditures for TV sets, VCRs, DVDs, blank video cassettes, PCs and video game consoles;
- Entertainment spend for software and services, including annual households expenditures for basic and premium TV subscriptions (including license fees if any), movie theatre, video rental and sale, entertainment software and video game cartridges.

The revenues for the programme packagers are currently limited to the premium TV subscriptions (only for pay TV operators), and indirectly the license fees, but the analysis of the global “entertainment” spend is relevant for the scenarios and the forecasts of audio-visual industry as a whole.

Overall, European entertainment spending for hardware amounted to more than 56 billion Euro in 2000 and “entertainment” spending for software and services amounted to more than 35 billion Euro in the same year.

A breakdown of ”entertainment” spending in some European countries is pictured in below figure and table.

**Table 19: "Entertainment" spend per TV household in some European countries (2000 figures)**[93]

| (Euro) | Belgium | France | Germany | Netherlands | Spain | UK |
|---|---|---|---|---|---|---|
| **Entertainment hardware** | **459,8** | **392,9** | **374,3** | **550,6** | **232,3** | **501,3** |
| TV Sets | 73,6 | 73,8 | 72,8 | 93,1 | 76,1 | 92,9 |
| VCRs | 22,1 | 25,3 | 17,0 | 24,2 | 19,8 | 30,5 |
| DVDs* | 2,8 | 7,9 | 3,0 | 4,4 | 2,8 | 5,1 |
| Blank video cassettes | 6,6 | 11,1 | 6,7 | 8,3 | 5,3 | 9,7 |
| PCs* | 343,7 | 263,2 | 265,8 | 413,8 | 118,9 | 350,0 |
| Video game consoles | 11,0 | 11,6 | 9,0 | 6,8 | 9,3 | 13,0 |
| **Entertainment software and services** | **345,2** | **318,5** | **257,4** | **149,0** | **137,9** | **366,2** |
| Ent. Softwares & game cartridges | 11,4 | 34,7 | 32,5 | 21,4 | 21,8 | 19,7 |
| Video rental & sale* | 41,0 | 53,9 | 21,3 | 30,0 | 26,4 | 77,4 |
| Movie theatre* | 27,5 | 36,5 | 20,9 | 15,6 | 40,8 | 35,2 |
| License fee | 230,4 | 114,2 | 167,6 | 0,0 | 0,0 | 171,3 |
| TV subscriptions* | 34,9 | 79,3 | 15,0 | 81,9 | 48,9 | 62,6 |
| **Total** | **805,0** | **711,4** | **631,8** | **699,5** | **370,2** | **867,5** |
| **Average Income per Household** | **15.425** | **14.705** | **15.412** | **15.317** | **10.617** | **16.061** |
| **Ent. Spend as % of household income** | **5,2%** | **4,8%** | **4,1%** | **4,6%** | **3,5%** | **5,4%** |

** 1999 figures*

### 4.2.2 Role of TV in global "entertainment" spend

As explained above, global "entertainment" spend is not limited to the audio-visual industry. Up to now, TV programme packagers and access providers only benefit from TV subscriptions.

#### 4.2.2.1 Importance of TV in "entertainment" spend in different European countries

The subscription market has grown significantly since the launch of the first pay-TV platforms in 1984 (Canal+ in France). Pay-TV platforms mainly have four price setting mechanisms:

- The basic package includes some basic channels, and generally includes the must carry channels (if any), and often the set-top box rental cost;
- Extra channels can be paid for on a per channel basis, or in a package (volume discounts are often granted);
- Specific channels are sometimes sold per game (VoD) or per season (e.g. soccer);
- Some platforms also allow browsing on the Internet for a fixed monthly subscription.

In the pay-TV model, revenues are shared between the platform operator and the programme packager. Overall, we can distinguish three revenue models:

- Fixed fee per channel for programme packagers;
- Revenue sharing between access provider and programme packager; price setting is done by the access provider;
- Revenue sharing for the programme packager who is also responsible for the price setting.

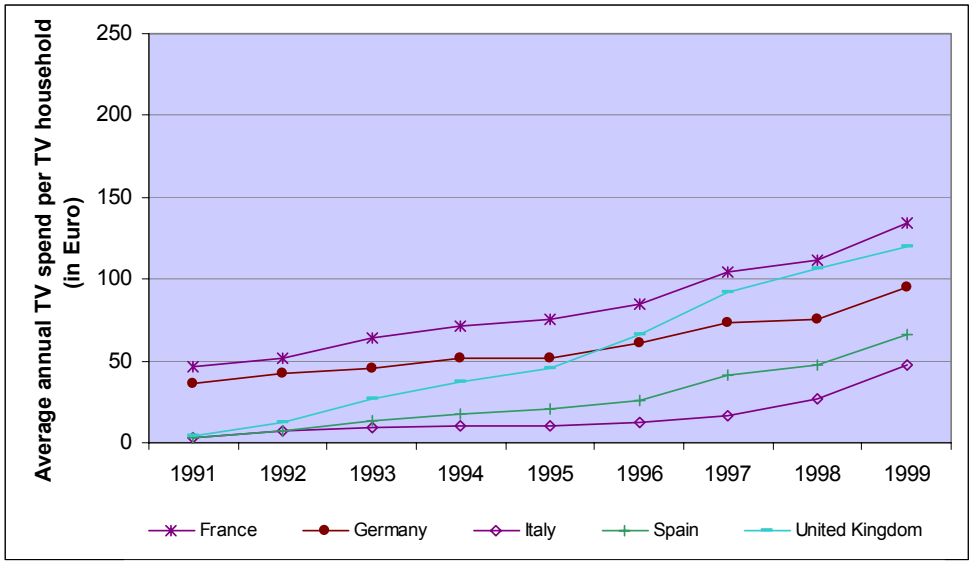
[93] Compiled by Andersen based on ZenithMedia, Television in Europe to 2010; Eurostat Databases, Statistics on audio-visual services.

The average TV spend per television household (TV HH) considered here below includes the basic subscription fees (basic package), which cover the access to free-to-air channels by access subscriptions, and premium subscription fees, which cover the access to pay-TV channels.

The households' spending has changed seriously since 1990, and this evolution has been different from country to country, and more interestingly, from market segment to market segment. Firstly, the evolution in average TV spends per TV HH will be analysed within each market segment. Secondly, a comparison between the 18 markets will be presented in order to outline the major differences and/or commonalities.

### *Average TV Spend per TV Household in Large Markets*[94]

**Figure 37: Evolution of the average TV spend per television household in large markets**[95]




The five countries included in the analysis (France, Germany, Italy, Spain, and the United Kingdom), show similar developments of the average TV spend per television household. Among these evolutions, three sub-types of developments emerge:

- During the last 9 years, Italy and Spain experienced a compound growth of 40 percent per annum, but the two countries still have lower average TV spend per TV household compared to other large markets. The relatively low TV spend per TV household is mainly due to the fact that analogue terrestrial distribution is still the prevailing distribution mechanism;
- Germany is the most stable country in terms of TV spend per television household evolution. The stability is caused by the relatively high, but unchanged, cable penetration;
- France and the UK have the highest TV spend per TV household. The relatively high penetration of pay-TV is the main cause for this evolution. The United Kingdom shows a strong growth over the last 9 years (some 50

[94] The average TV spending mentioned here relates to basic and premium subscription fees while the average revenue per television household (see before) relates to the sum of public funding, advertising revenues and subscriptions
[95] Compiled by Andersen based on ZenithMedia

percent per annum). The UK media industry has evolved from a situation where a premium offer was almost non-existing to a situation with an innovative and leading market with the highest average TV spend in the large market segment. The main factor that fostered this evolution was the low offer of free-to-air channels, that made possible the arrival of pay TV channels, thanks to a high income per capita and a low sensitivity to pricing.

Concerning the distribution platforms, pay TV channels encouraged the development of satellite and to a lesser extent cable. Today, in the UK digital services are offered on all three available platforms (Digital Terrestrial, Digital Cable, and Digital Satellite), and satellite services have already switched off the analogue transmission.

The average TV spend per television household is relatively high in France because of the relatively high penetration of pay-TV operator Canal +. Programme aggregators chose to propose large packages on the satellite in France, which increased the digital satellite broadcasting market share very fast, explaining why the gap between France and Germany increased. The last fact is reflected in the premium subscriptions (vs. basic package subscriptions) which represent a larger part of the TV spend in France (75 percent) compared to Germany (16 percent).

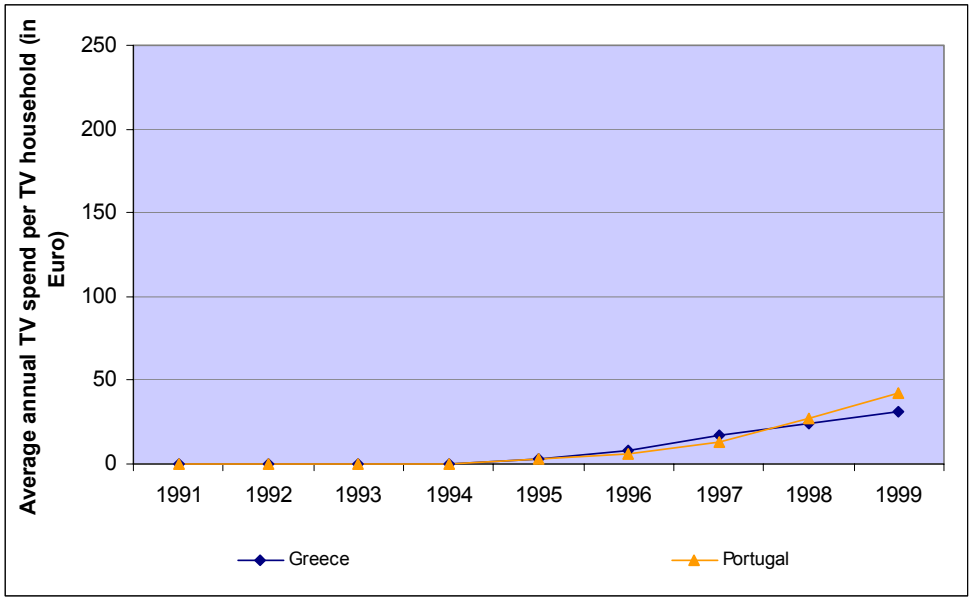
Finally, the United Kingdom and France are the two countries where the digital offer is becoming widely spread, while Germany offers a good analogue cable offering, and Italy and Spain are still at the beginning of the development of a premium offering.

***Average TV Spend per TV Household in the Commercial Segment***

First of all, Greece and Portugal have both low TV spends per television household, but overall increasing from 1994 onwards. Greece launched its first pay-TV channel in 1994 on the terrestrial network, and two others followed in 1996. Portugal launched its first pay TV channel in 1998, which explains why a major increase in TV spends took place between 1998 and 1999.

Even if the TV spends are low, the average annual growth of the TV spend between 1995 and 1999 has been important (more 75 percent for Greece, and 112 percent for Portugal) because these countries had very limited offer previously.

**Figure 38: Evolution of the average TV spend per television household in Commercial markets**[96]



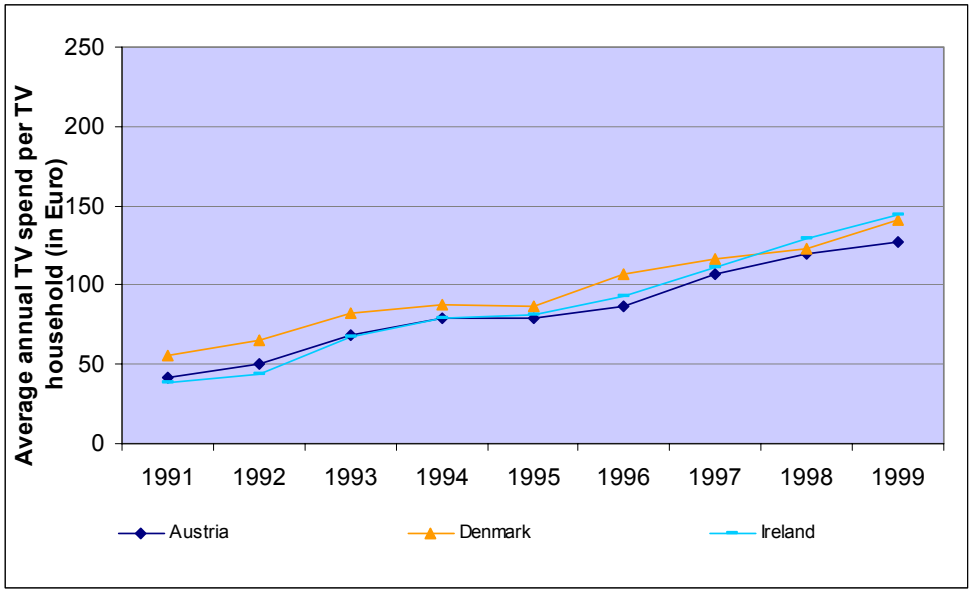

The distribution modes in both countries are still essentially based on analogue terrestrial, and therefore are free. Portugal has yet developed a cable network (penetration of 21,5 percent) which enables the access providers to generate more revenues from television households.

### *Average TV Spend per TV Household in the "Monopolistic" Segment*

The average TV spend per TV household is very similar in the three countries of the "monopolistic" segment, despite difference in distribution mechanism and per capita income. In 1999, Austria had the highest satellite penetration of the three countries (38 percent penetration in comparison with 17,5 percent for Denmark and 4,9 percent for Ireland), and Ireland had a bigger penetration rate of the terrestrial mode (45 percent), while all countries had a comparable penetration of cable.

[96] Compiled by Andersen based on ZenithMedia, archives

**Figure 39: Evolution of the average TV spend per television household in "monopolistic" markets**[97]




In Austria, Denmark, and to a lesser extent Ireland, public service programme packagers capture nearly all the domestic channels audience. Pay TV channels have traditionally been from foreign origin (British for Ireland, German for Austria, and a Nordic offer for Denmark).

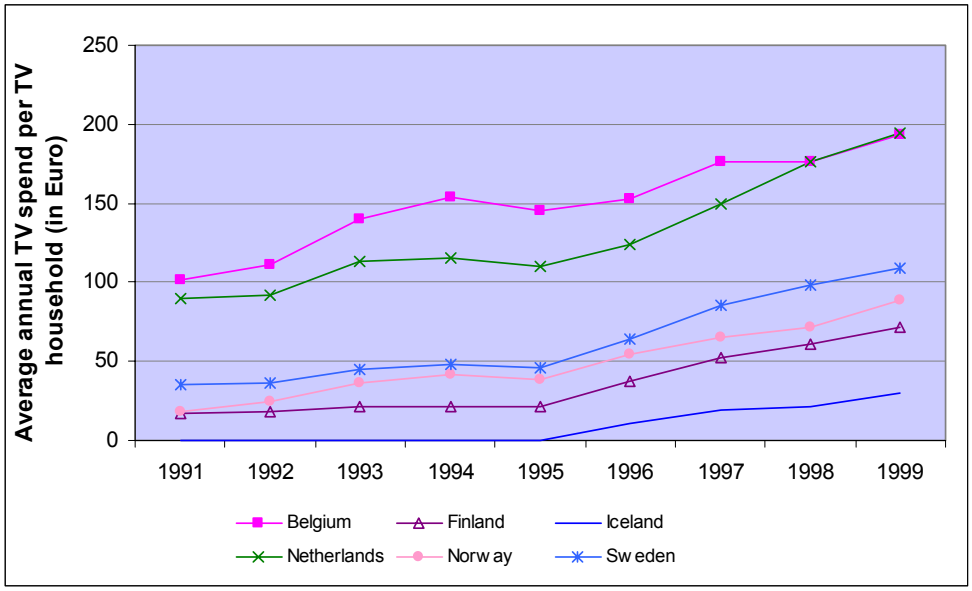
In 1992, "Premiere" pay TV channel became available to the Austrian audience, which explains the growth between 1992 and 1993, while a pay-TV offering has existed for longer in Denmark.

### *Average TV Spend per TV Household in the Mixed Model Segment*

The analysis of the average TV spend per television household in the mixed model segment points out a clear distinction between two sub-segments countries.

[97] Compiled by Andersen based on ZenithMedia, archives

**Figure 40: Evolution of the average TV spend per television household in mixed model markets**[98]




Belgium and the Netherlands have very high cable penetration rates (above 90 percent in both countries) that imply high TV spend per television households. The basic channel packages present a large offer, sufficient for most households, hence a smaller percentage of television households subscribe to premium TV. The growth in Netherlands has been stronger than in Belgium thanks to the development of innovative services (interactive services and content) launched by the Dutch distribution channels.

The Nordic countries (Finland, Iceland, Norway and Sweden) have a cultural tradition less focused on television than other countries in Europe (they watch half an hour less television per day). These countries have experienced a very low growth of their average TV spend in the past years, offering common analogue packages through cable and satellite. The regression analysis shows that the growth in TV spend in the Nordic countries has been 3 times less in the past ten years than in Belgium and Netherlands.

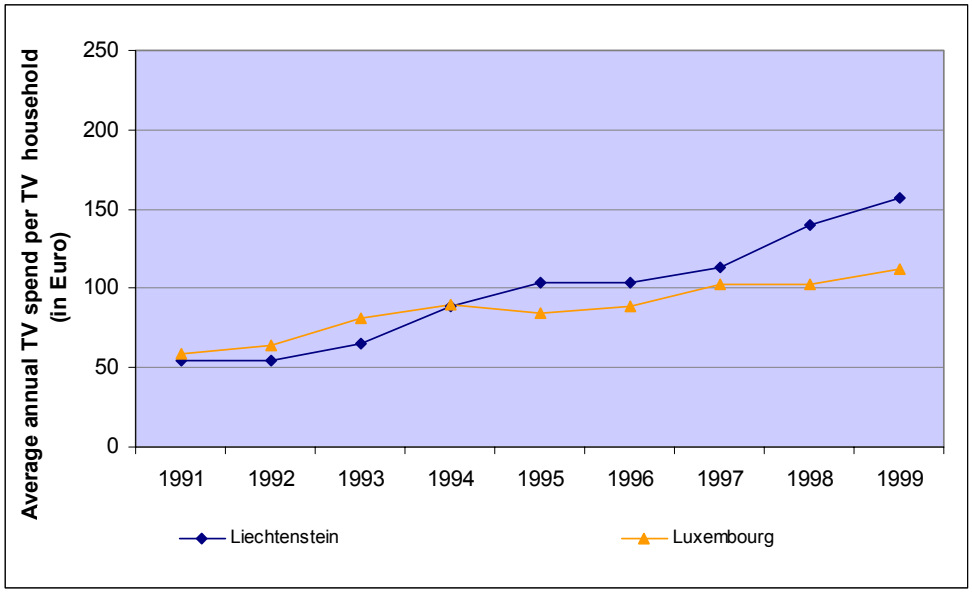
### *Average TV Spend per TV household in the Importers Segment*

The TV spends per television household are relatively high in Liechtenstein and Luxembourg.

Liechtenstein and Luxembourg have historical high penetration of cable access, and very low penetration of terrestrial. Both countries' populations have above European average per capita income and are generally ready to pay for premium services.

[98] Compiled by Andersen based on ZenithMedia, archives

**Figure 41: Average TV spend per television household evolution in Importers market**[99]

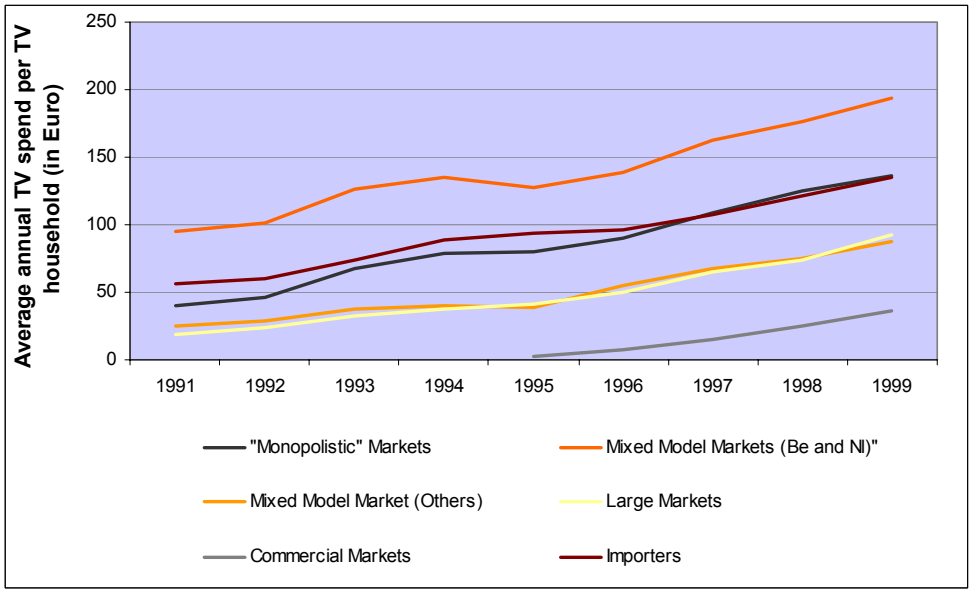



The channels are offered from larger neighbouring countries, both for free-to-air and pay TV channels.

### *Comparison between the different market segments*

In all countries, a linear growth can be observed for average TV spends per television household.

**Figure 42: Averages TV spend per television household for market segments**[100]




Overall, Southern European countries such as Portugal, Greece (Commercial markets), Italy and Spain favour TV as one of their most important media. There is

[99] Compiled by Andersen based on ZenithMedia, archives
[100] Compiled by Andersen based on ZenithMedia, archives; Andersen calculation

still a high growth potential as the premium offer only started a few years ago (more than 30 percent growth per year).

Nordic countries have lower average TV spends per television households than other countries in Europe. This is mainly due to cultural differences.

Other European countries (United Kingdom, France, Germany, Austria, Liechtenstein, Luxembourg and Ireland) show overall relatively high average TV spend per television household. The evolutions and growth rates of their spends per TV households vary strongly according to the maturity level of their market, both in terms of channels offering and technology access.

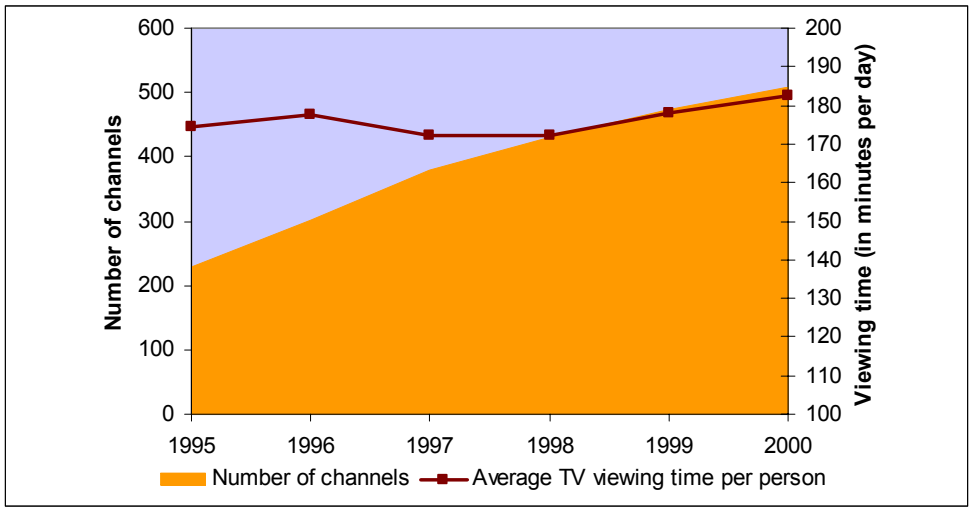
#### 4.2.2.2 Viewing time and number of channels

A distinction needs to be made between “TV viewing time” and “time spent in front of TV”:

- TV viewing time covers the time spent by a consumer who actually watches a TV programme;
- The time spent in front of TV set includes TV viewing time as well as all other activities the consumer may do on its TV set, such as interactive activities (gaming, emails, chat, banking, etc.).

This distinction will become more and more relevant with the development of interactive TV (iTV). Audience measurement tools will need to be adapted to take this distinction into account. Both indicators, time spent in front of TV and TV viewing time, are limited by the total entertainment time of individuals. Overall one observes that this entertainment time has remained quite stable over the last 5 years in Europe. The figure below clearly indicates that while the number of channels increased significantly between 1993 and 1999, the average TV viewing time only increased slightly.

**Figure 43: Viewing time per individual per day**[101]



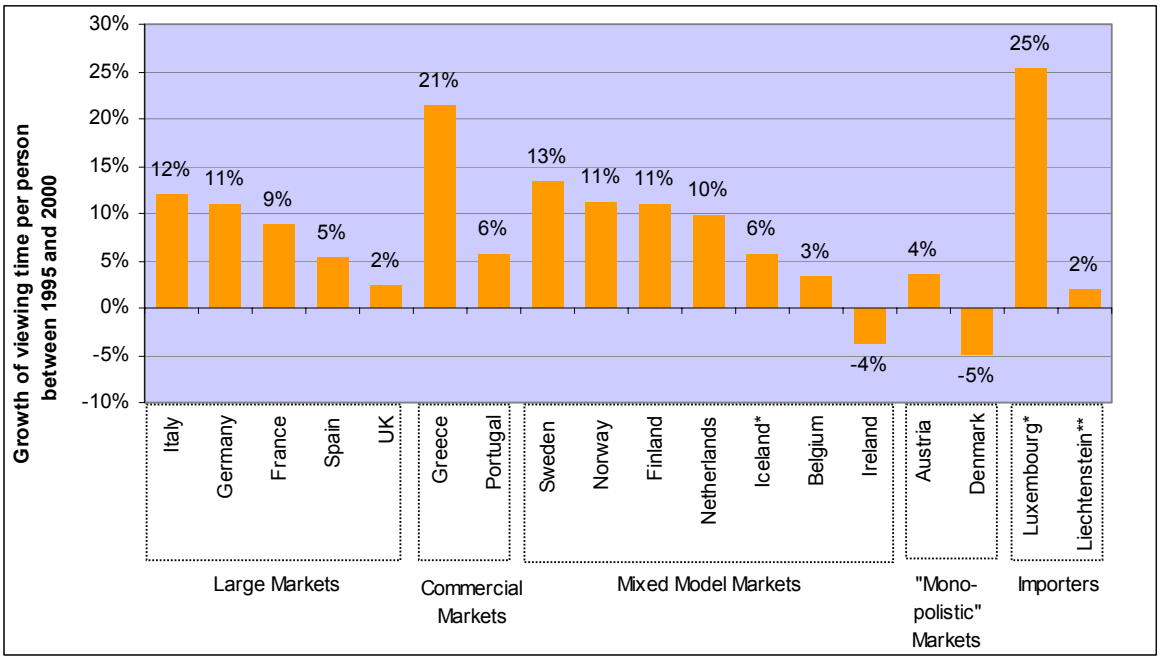

[101] Comiled by Andersen baed on Screendigest, European programme rights market, 2000; Andersen analysis

Between 1995 and 2000, TV viewing time has increased by about 4,5 percent (average annual increase of 0,9 percent). Yet there remain cultural differences among European countries that drive different TV consumption patterns. Overall, North European countries watch less television than South European countries.

Over the same period, the number of channels has increased by 123 percent (average annual increase of 17 percent). The figure above clearly indicates that there is no real correlation between number of channels and TV consumption because the multiplication of channels does not imply increase of TV consumption. It is therefore expected that the introduction of digital terrestrial television and other distribution channels will not significantly increase the TV viewing time, although they will further increase the number of channels.

The figure below shows the average growth of viewing time per individual between 1993 and 1999. It is clear from this figure that the introduction of digital TV and the increase in the number of channels are not correlated with the increase in TV viewing time. Other factors need to be taken into account.

**Figure 44: Average growth of viewing time per individual (period 1995-2000)**[102] [103]




* Growth in period 1997-2000 ** Growth in period 1996-1999 (estimated)

### 4.2.3 Impact of new services (Internet, games, etc.) on traditional media consumption

The impact of new entertainment services may strongly impact traditional media consumption since global entertainment time per day is limited. Traditional media consumption is diminished by the time spent for new media.

[102] Compilation by Andersen based on IP, Television 1997-2001; Andersen analysis. Data not available for Liechtenstein
[103] During the period, Ireland and Denmark still had a monopolistic market model

#### 4.2.3.1 The Internet

The development of the Internet could represent a real threat for traditional media. Research conducted in the US by Jupiter[104] shows that 44 percent of online users decrease their TV viewing time. Moreover, TV is the most affected media far above magazines (25 percent), newspapers (24 percent) and radio (12 percent). Yet it is very difficult to predict what amount of time will shift from one media to another.

The impact of the Internet on the traditional media is clearly correlated with the ability of the Internet to propose:

- A real-time world-wide database covering traditional media services (news, entertainment, etc.) and new services (games, emails, chat, real-time , etc.); and/or
- Direct competition in terms of viewing moment (overall, internet peak time is during TV prime time).

The second reason seems to have the largest impact. Therefore it is reasonable to believe that the Internet will have a strong cannibalisation effect on TV viewing time. Another survey realised in Europe by Morgan Stanley Dean Witter confirms that the impact of the use of the Internet on TV is about –23 percent. Heavy users are more likely to shift leisure time from television to Internet.

**Table 20: Impact of the Internet on other media consumption[105]**

| **Media type** | **% of users reporting decreases in media consumption** | | |
|---|---|---|---|
| | Heavy users | Medium users | Lights users |
| TV | 54% | 38% | 20% |
| Magazines | 25% | 14% | 10% |
| Newspapers | 23% | 14% | 6% |
| Radio | 12% | 6% | 4% |

The impact of the Internet on media consumption will continue to increase (see table below) due to the fact that Internet web sites will develop increasingly equivalent or even better services than traditional media services with an equivalent or better quality of service (through bandwidth increase, compression technologies, etc.).

**Table 21: Impact of the Internet on the consumption of other media types[106]**

| **Media type** | **Impact of internet on the consumption of other media types (assessment)** |
|---|---|
| TV | -51% |
| Cinema | -11% |
| Paper press | -29% |
| Radio | -16% |

[104] Jupiter Consumer Survey Report – Entertainment & Media, 2001.
[105] Source: Morgan Stanley Dean Witter, The European media research, 1999
[106] Source: Ad'link, European media research, 2000

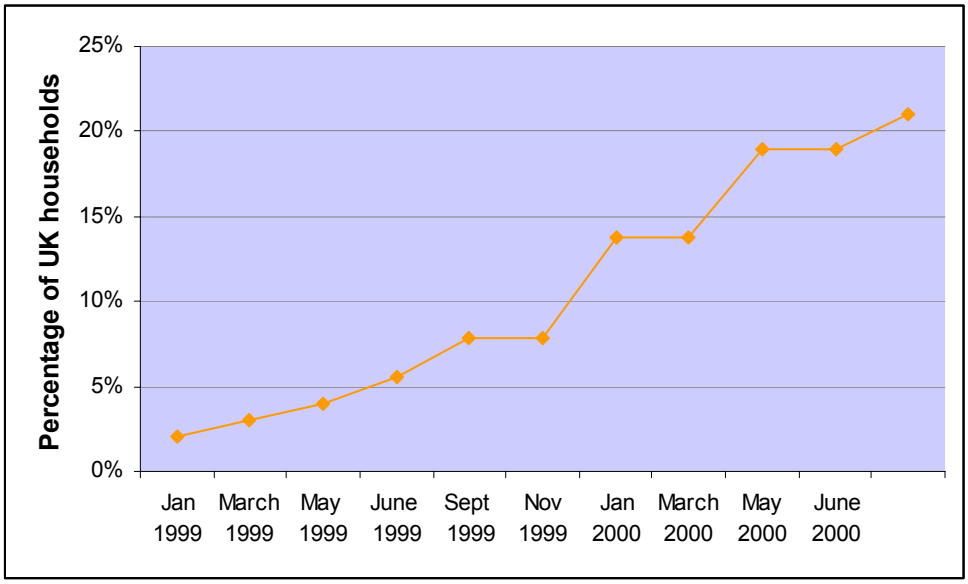
This trend will continue, fuelled by the overall penetration of broadband Internet made possible through the development of devices such as 3G mobiles, PC's, etc. Although the Internet is clearly competing with TV for leisure time, both media are very different and therefore also not true substitutes:

- TV is passive (lean back) while Internet surfing is active (lean forward);
- TV is often a social medium while Internet is personal;
- TV is mostly used for entertainment while Internet is often used for information gathering;
- The majority of online users watch TV while online;
- TV will become more and more interactive.

#### 4.2.3.2 iDTV

Interactive TV represents theoretically the intermediary medium between lean-back (traditional TV) and lean-forward (the Internet) media.
The developments of digital TV and bi-directional networks have driven the development of iDTV in some countries (such as the UK). The following figure shows the penetration of digital TV among UK households.

**Figure 45: Percentage of UK homes with digital TV[107]**



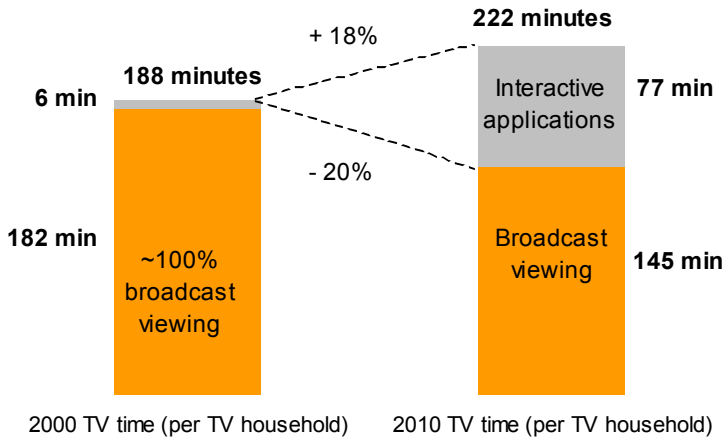

Overall, iDTV's most popular elements are gambling, interactive advertising and the expanded choice of programming[108]. Internet access, email via television, e-banking, etc., however, proved less popular among users, partly because they relate to a business context[109].

Later on, in the scenario analysis, Andersen will address the development of iDTV and interactive activities that will fuel time spent in front of TV. Time spent in front of

[107] Compiled by Andersen based on Oftel, Consumer's use of Digital TV, 2001.
[108] Netpoll, Hands on TV, survey into consumer's attitude towards iTV, 2001.
[109] Compiled by Andersen based on Andersen research, McKinsey Quarterly

TV is expected to globally increase, but it is more likely that the development of interactive activities will occur at the detriment of TV viewing time.
The figure below pictures the future evolution of TV viewing time and time spent in front of TV set in Europe.

**Figure 46: Evolution of time spent before TV in Europe**[110]

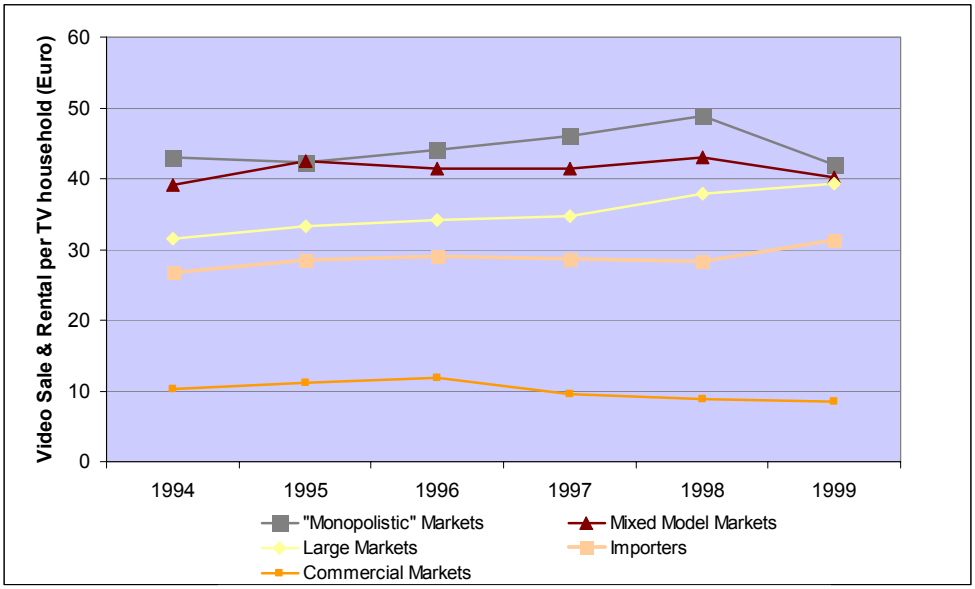



### 4.2.3.3 PVR and VoD

The development of Video on Demand (or near Video on Demand) and Personal Video Recorders (PVR) may substitute the sale and rental of videocassettes.
Later on, in the scenario analysis, Andersen will further develop the personalisation of content through the use of PVR and VoD. The development of these technologies is expected to partly replace the current VCR technology.
The analysis of consumer behaviour regarding VCR and videocassettes is therefore a good proxy for the future of PVR and VoD technologies. The figure below presents historical expenditures of European households for rental and sale of pre-recorded videocassettes.

110 Compiled by Andersen based on IP, Television 2000 , figure of 1999 ; Vrind database for 2007. Note: Current online use relates only to broadband (2001 data)

**Figure 47: Evolution of Video Sale and Rental expenditure per household in Europe (1994-1999)**[111]




Overall, one can observe that the cultural difference across Europe explains the differences of video budgets: Northern Europe countries spend more in video rental and sale than Southern countries, they are therefore expected to adopt more easily VoD (which is already somewhat the case in the UK and Ireland).

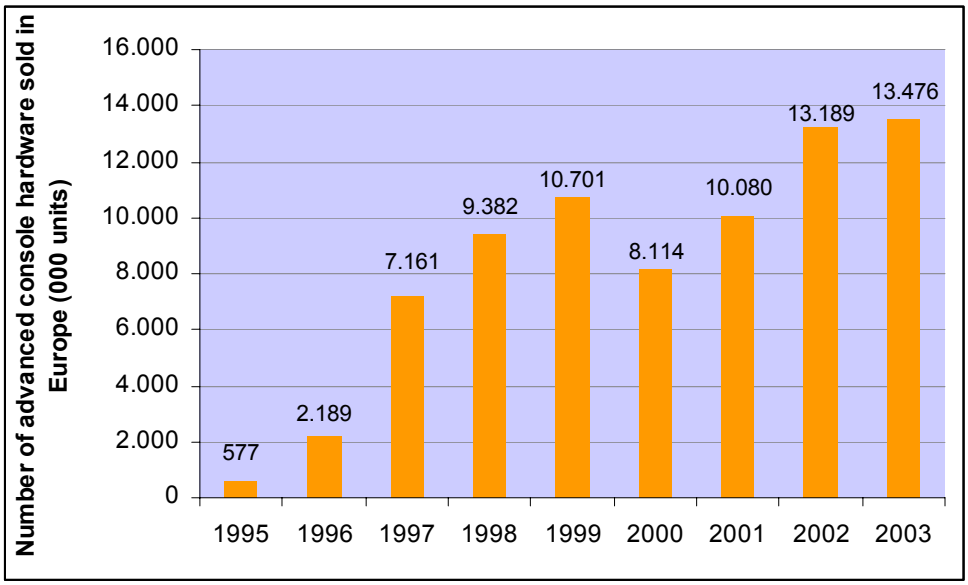
The budgets remain stable over time, but VoD service pricing will probably exceed this yearly budget.

#### 4.2.3.4 Game consoles

Although exact figures on the impact of games on TV-viewing time do not exist, it is expected that this new market will have an important impact. The below figure indicates the number of game consoles sold between 1995 and 2000 in Europe.

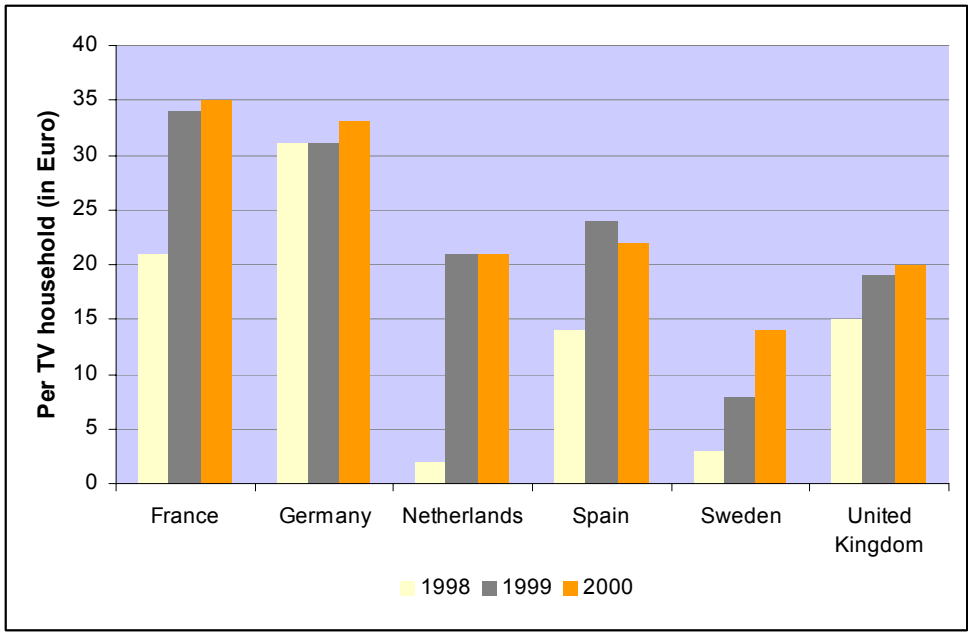
[111] Compiled by Andersen based on the data sources mentioned in section 2.5.3.1

**Figure 48: Sales of game consoles (in number of game consoles sold)**[112]




Available statistics about entertainment software's and video game cartridges expenditures per TV household in some European countries show strong and fast growth (up to 1.000 percent in 3 years for the Netherlands) up to a level that could be the market maturity level (around 25 Euro per TV household per year).

**Figure 49: Evolution of games software expenditures in some European countries (1998-2000)**[113]




Interactive TV includes games in its value proposition. But one can not expect iTV to fully substitute video game consoles, since up to now games delivered on iTV are at a level that is too basic. Many households will use the iTV games as a "short break" activity, but video game console users will probably continue to use their consoles, seeing iTV games as very un-sophisticated[114].

[112] European Audiovisual Observatory, Statistical Yearbook 2000, p.144, figures of 2001, 2002 and 2003 are estimates
[113] Compiled by Andersen based on the data sources mentioned in section 2.5.3.1
[114] Source: Oftel, Digital Television, Consumer's Use and Perceptions, 2001.

### 4.2.4 Trends and outlook for the European audio-visual industry

As explained above, the European audio-visual industry will see the development of two main trends that will impact viewer's behaviour:

- Personalisation of content: viewers will be able to personalise the audio-visual experience by self-selecting programmes, according to their own schedule. These developments will arise through the launch of new devices and services such as PVR and EPG, and/or the further development of VoD;
- Interactivity: programme and access provider innovations will allow audio-visual users to interact with the programmes they watch. They will be able to select the snapshots they want, to participate in TV games (in real-time), or to influence the end of a programme.

These developments will generate major issues for the audio-visual industry:

- Entry of new players on the market, that may become consumers' primary point of contact (e.g. EPG companies, telecommunication companies, etc.);
- With the limited average revenue per TV household, global revenues from households will have to be shared between more categories of players;
- Generally, the revenues per households are limited. Small country players also have limited revenue sources (due to their smaller customer base). This is already the case today (e.g. pay-TV channels), and these players may be urged to merge or may be acquired by larger group

## 4.3 Public Funding in the audio-visual industry

Public funding rules in the audio-visual sector are analysed in two main areas:

- *Public Funding to public service broadcasters:* state financing of public service broadcasters for the fulfilment of their public service remit. The total amount of public funding to public service broadcasters amounted to 12.012 Million Euro in 1999. For legal details about public funding to public broadcasters, the reader can refer to the "Communication from the Commission on the application of State aid rules to public service broadcasting"[115].
- *Public Funding to cinematographic and other audio-visual works.* For legal details about Public Funding to cinema and TV production, the reader can refer to the "Communication from the Commission to the Council, the European Parliament, the Economic and Social Committee and the Committee of the Regions on certain legal aspects relating to cinematographic and other audio-visual works"[116].

[115] 2001/C 320/04
[116] COM(2001) 534 final

### 4.3.1 Public funding of Public Service Broadcasters

The rationale behind public funding to public service broadcasters encompass the fact that, whilst opening the market to competition in the 1970s, Member States considered that public service broadcasting ought to be maintained as a way to ensure the coverage of a number of areas and the satisfaction of needs that private operators would not necessarily fulfil to the optimal extent[117].

The funding granted by Member States to public service broadcasting needs to comply with the provisions of the Treaty establishing the European Community meaning that such funding may not affect trading conditions and competition in the Community to an extent which would be contrary to the common interest, while the realisation of the remit of the public service shall be taken into account.

The revenue from the license fee represents the bulk of State funding allocated to the public service broadcasters in the majority of Member States. The fee has an important function in supporting indirectly production and distribution in the television sector. It allows investment in programming and content that would not necessarily be produced by the commercial sector and it ultimately allows public service broadcasters to fulfil their public service remit: to play an important role in promoting cultural diversity in each country, to provide educational programming, to objectively inform public opinion, to guarantee pluralism and to supply, democratically and free-of-charge, quality entertainment[118].

In 1999, the total amount of public funding for the public service broadcasters in the EEA amounted to 12.012 Million Euro. The table below provides an overview of the public funding in the 18 countries of the EU and EEA.

[117] 2001/C 320/04
[118] Statement of the Commissioner Oreja in the 'The digital age European audio-visual policy. Report from the high level group on audio-visual policy', 1998.

**Table 22: Overview of the allocation of public funding to public service broadcasters [119] [120]**

| Country | Public funding (in million Euro) 1999 figure used for Andersen model | % public funding of total revenues of public broadcasters 1999 figure |
|---|---|---|
| Austria | 352 | 45% |
| Belgium | 337 | 68% |
| Denmark | 56 | 60% |
| Finland | 268 | 77% |
| France | 957 | 54% |
| Germany | 3.457 | 77% |
| Greece | 216 | - |
| Iceland | 14 | - |
| Ireland | 82 | 33% |
| Italy | 1.307 | 50% |
| Liechtenstein | 0 | - |
| Luxembourg | 0 | - |
| Netherlands* | 566 | 67% |
| Norway | 362 | 100% |
| Portugal | 104 | 51% |
| Spain | 75 | 11% |
| Sweden | 387 | 98% |
| UK | 3.472 | 72% |
| **EEA** | **12.012** | **62%** |

** No separate license fee in 2000 anymore, it is now included in income taxes*

It has to be noted that certain states do not collect revenues from license fees; their public service broadcasters receive public funding financed through the general state budget under different forms.

In 1999, public funding represents on average 62 percent of the revenues of public service broadcasters throughout the European Union and EEA Member State zone.

### 4.3.2 Public Funding to Cinema and TV Production and EIB initiative

The public funding to cinema and TV production includes the aids by which the Member States of the European Union promote their audio-visual production industries. Although reliable figures are unavailable, public funding to cinema and TV production can be estimated at more than 1.000 Million Euro in 2000.[121] Both individual Member States as well as the European Union have developed various schemes.

#### 4.3.2.1 Member State mechanisms

Member States implement a wide range of support measures for the audio-visual production of films and TV programmes. This support focuses on the creation

[119] Compiled by Andersen based on IP, Television 2000
[120] No license fee in Spain, Greece, Portugal and Luxembourg
[121] Compilation by Andersen

phases of filmmaking and generally takes the form of subsidies or repayable advances[122].

In a majority of cases, public support to cinema and TV productions is financed from a mix of different sources. Overall, contributions come from public institutions (whether at the state level or at the regional authority level), from the treasury or directly from the public/advertisers via specific levies

In general, member state support mechanisms are focused on the production industry, which receives on average 94 [123]percent of the total funds distributed through public funding schemes. Only a few countries allocate some funds to the exhibition industry. The use of the funds to support content production widely varies by country. However, the main trend is clearly to allocate the majority of funds to the movie production industry, rather than to the TV production industry.

Public funding for the production industry is in most cases allocated to specific audio-visual works rather than to the production companies directly. Only a few countries attribute funds directly to production companies in order to offer producers the possibility to develop different projects at one time.

#### 4.3.2.2 European support programmes

The regulatory environment in the European Union consists of several instruments and support mechanisms in order to fulfil a range of goals, among which to encourage the production and distribution of European works.

***MEDIA Programme***

The MEDIA Programme entered into force in January 2001. With a budget of 350 Million Euro[124], the "MEDIA PLUS-Development, Distribution, Promotion and Pilot projects" programme is central to the public aid mechanisms employed by the European Union. The "MEDIA TRAINING" programme accounts for 50 Million Euro[125].

The Media Plus programme (both parts) is a continuation of the programmes Media I (1991-1995) and Media II (1996-2000), and runs for a period of five years (2001-2005).

The largest part of the funds is allocated to the distribution of cinematographic works and audio-visual programmes[126] (at least 57,5 percent), followed by the development of production projects. This way, the European Commission complement the national support mechanisms that are almost exclusively focused on production.

[122] COM(2001) 534 final
[123] Compiled by Andersen based on EAO, statistical yearbook 2001
[124] Source : OJ L 336 of 30 December 2000 and OJ L 13/34 of 17 January 2001
[125] Source : OJ L 26/1 of 27 January 2001
[126] The distribution includes the distribution and broadcasting of audio-visual works (fiction, documentary, animation, interactive programmes) and of European films in movie theatres, on video, on digital disc and on television. It also provides support to a networks of cinemas presenting a common strategy for the promotion and marketing of European films.

### *Eurimages*[127]

Eurimages is the Council of Europe's fund for the co-production, distribution and exhibition of European cinematography works. It aims to promote the European film industry by encouraging the production and distribution of films and fostering co-operation between professionals.

Currently, the Eurimages fund is composed of 27 Member States. All Member States of the EU and the EEA are members, except Liechtenstein and the UK. Other members are mainly central-European countries.

The overall budget of the fund amounts to about 20 Million Euro in 2001[128], 90 percent coming from Member State contributions, the remainder from a reimbursement of the loans provided. Support is provided through loans that need to be reimbursed when revenues start to be generated.

### *"i2i-Audio-visual" programme*

The EIB Group is the financing institution of the European Union, and as such it shapes its activities according to the developments of the Community's policies. It operates at market conditions and it applies strict banking practices. In the context of the "Innovation 2000 Initiative"[129], the European Investment Bank Group (EIB Group) offers the European film and audio-visual industry a range of financial products enabling it to take up the cultural and technological challenges it faces in a globalised economy
The EIB Group's "Audio-visual i2i" will bring together substantial financial resources: estimates based on some forty operations currently being appraised or finalised suggest that the EIB Group's venture capital and loans at the outset could amount to 500 million Euro over the next few years[130].

[127] http://culture.coe.fr/Eurimages/
[128] Source: European Commission, 2001 figure
[129] EIB programme to support investments promoting the information society, research and development, innovation and competitiveness as well as human capital. (source: www.eib.org/pub/i2i)
[130] www.eib.org/pub/i2i/audiovis.htm

# 5 Disruptive technology factors

## 5.1 Disruptive factors

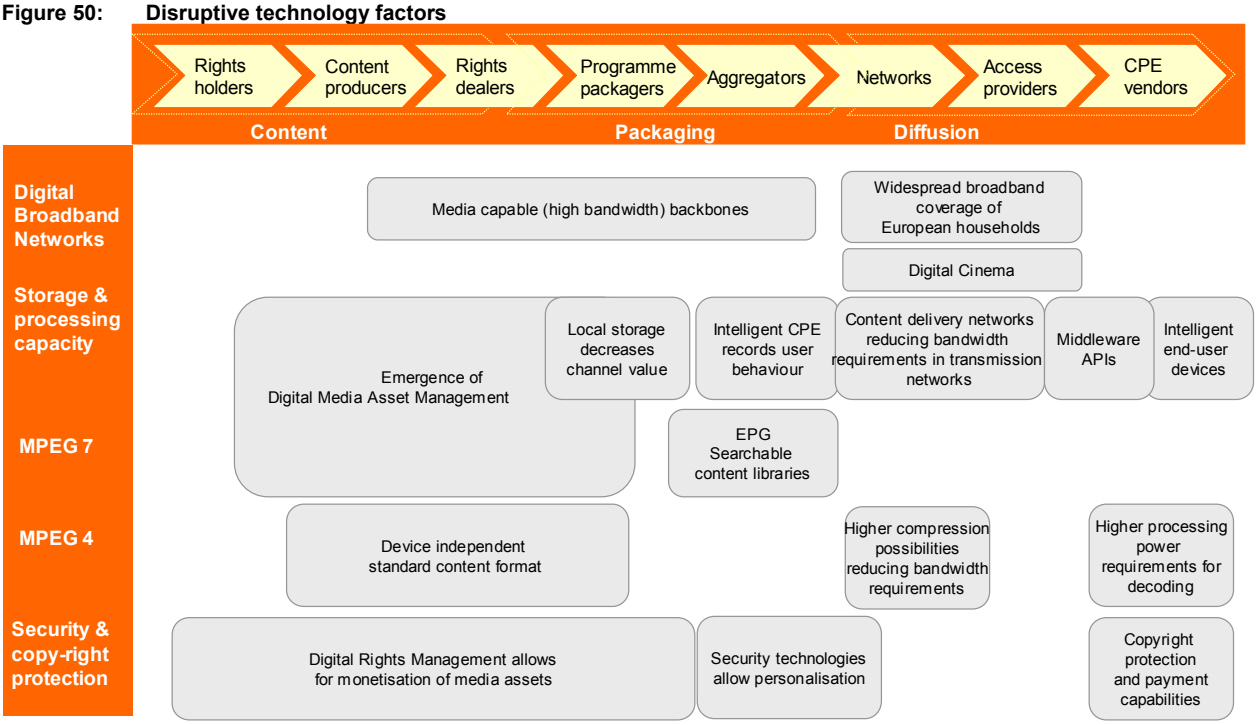
New digital technologies are transforming the way the industry works and are opening up new opportunities. However, digitisation across the value chain occurs at different speeds. The fastest moving areas are in consumer equipment and distribution technology. Both the devices and the networks that serve those devices have seen an increasing move towards new digital technologies (digital cable, digital satellite, digital terrestrial transmission, set-top boxes, multimedia PC's, etc.).

Because of the huge transformations and investments needed in the production and the provisioning platform, the digitisation of content creation and publishing is ongoing, but at a slower rate. The technology to digitise this part of the chain exists is available. The MPEG standards, the digital audio and video equipment and content management / archiving systems, form the basis used to digitalise this part of the chain.
In this study, five main disruptive technologies that have the potential to reshape the media industry have been identified:

- The emergence of digital broadband networks;
- The continuous drop in prices of storage and processing capacity;
- New content (compression) formats (MPEG4);
- New content description formats (MPEG7);
- The emergence of new security and copyright protection technologies.

The figure below shows the impact of the five main disruptive factors on the roles in the value chain. In the remainder of this chapter, each of the five factors will be developed in more detail before a global conclusion is reached on the possible impacts of these factors on the actors in the market.

**Figure 50: Disruptive technology factors**




## 5.2 Digital Broadband Networks

Digital broadband networks allow the transport of media content and new media-rich applications between the actors in the value chain and to the end customer.

### 5.2.1 Digital transmission technologies

The widespread coverage of digital broadband distribution technologies by 2010 will allow an increasing number of services, some new, to be delivered to almost any household in Europe. Up until now, there were basically three different media distribution platforms in Europe: terrestrial, cable and satellite. All three platforms have an opportunity to upgrade to the digital world. However, new platforms have emerged in the form of broadband IP networks (especially xDSL) and 3rd generation mobile networks. Three conventional ways of distribution will be discussed and then in the next section, the market space the new competition wants to create for them will be elaborated upon.

The table below shows the characteristics of the three main forms of digital media distribution.

**Table 23: Digital transmission alternatives**

| | Satellite | Cable | Terrestrial |
|---|---|---|---|
| Standard | DVB-S | DVB-C | DVB-T |
| Capacity | Current transponders to be upgraded to digital | Current cable to be upgraded to digital | New frequencies to be found and co-ordinated |
| Capacity gain versus analogue (in TV channels) | Capacity increase of x4 .. x6 | Capacity increase of x8 .. x10 | Capacity increase of x4 |
| Bandwidth characteristics | High downstream Limited/no Upstream | Very high downstream Medium Upstream | Medium downstream No upstream |
| Return path | Different network (often PSTN dialup) | Cable modem on same network | Different network (often PSTN dialup) |
| Coverage | Pan-European | Fragmented across Europe (see chapter 2) | Good for regional/national coverage |
| Complexity of transition to digital | Easiest, but need to replace all set-top boxes | Long upgrade process with high infrastructure costs | Very cost-effective way to deliver regional broadcast. Often reuses analogue antenna infrastructure |
| Who? | Astra/SES Eutelsat | Cable companies (Callahan, NTL, UPC, Telewest, …) | Terrestrial operators and public broadcasters operating their own network. |

The deployment of digital service platforms strongly depends on domestic market conditions, however, we can make the following general conclusions based on the segmentation of the markets we developed in Chapter 2:

- Some of the larger countries like the UK and France, due to their size and their relative weak analogue offer, are the first to implement new digital platforms because their market size makes it financially attractive, regardless of the high level of competition (e.g. in the UK up to three platforms compete with one another);
- The countries with a predominantly terrestrial reception are planning to develop the digital platforms as a means of bringing more channels to the market. These markets are fast followers of the larger markets;

- For the other countries not included in the above categories, the situation strongly depends on the characteristics of the domestic market. However, digital terrestrial transmission is often developed by the public service broadcaster, or under pressure from the government, while in contrast, digital cable and satellite are mainly initiatives of highly commercial platform operators.

It is safe to conclude that all European countries are developing digital platforms, and often have more than one platform competing for the domestic market. This means that by 2010, it is expected that digital services, carrying more channels and new applications, will be technically available to the majority of households.

### 5.2.2 New distribution technologies

As mentioned in the previous section, two new technologies are entering the arena of digital media distribution: xDSL and 3rd generation mobile networks. Currently, neither technology does yet fully qualify as a broadband media network. However, they have the potential to develop into one, or to occupy a niche market in media distribution.

ADSL services that deliver broadband IP services have a high growth rate in Europe, although they are mainly linked to broadband Internet services (512Kbps to 2 Mbps). However, most telecommunications companies offering this service already started experiments with video-on-demand applications or with interactive television applications over ADSL. Even if these trials prove successful, DSL operators must face two other problems:

- *Connectivity of the users*: not every home in Europe can be serviced by DSL over the current copper wires (due to a maximum distance needed between the home and the last PoP of the telecom operator, the inadequate quality of the copper wires, and at times, due to outdated copper wires);
- *Scalability of DSL* in the local loop: due to crossover and interference of the copper pairs used for DSL, an operator can only use up to 15 percent of their existing copper pairs to deliver DSL services.

xDSL poses a potential threat to digital TV operators using the platforms mentioned above and promises even higher capacity with its successor VDSL (possible rollouts from 2005 onwards). In particular, cable providers should be aware of the popularity of xDSL services as these may replace cable provision unless the providers supply the return path. For satellite and terrestrial providers, xDSL might provide complementary services like the return path that they are currently missing.

As new digital mobile technology emerges and creates new bandwidth, these channels become more capable of carrying media. In this area, the key technology for Europe is UMTS, which promises to deliver capabilities of up to 2 Mbps. However, recent and more realistic estimates show an initial capacity of 40 Kbps and a growth to 384 Kbps by 2006. As a point of reference, a standard quality video (72

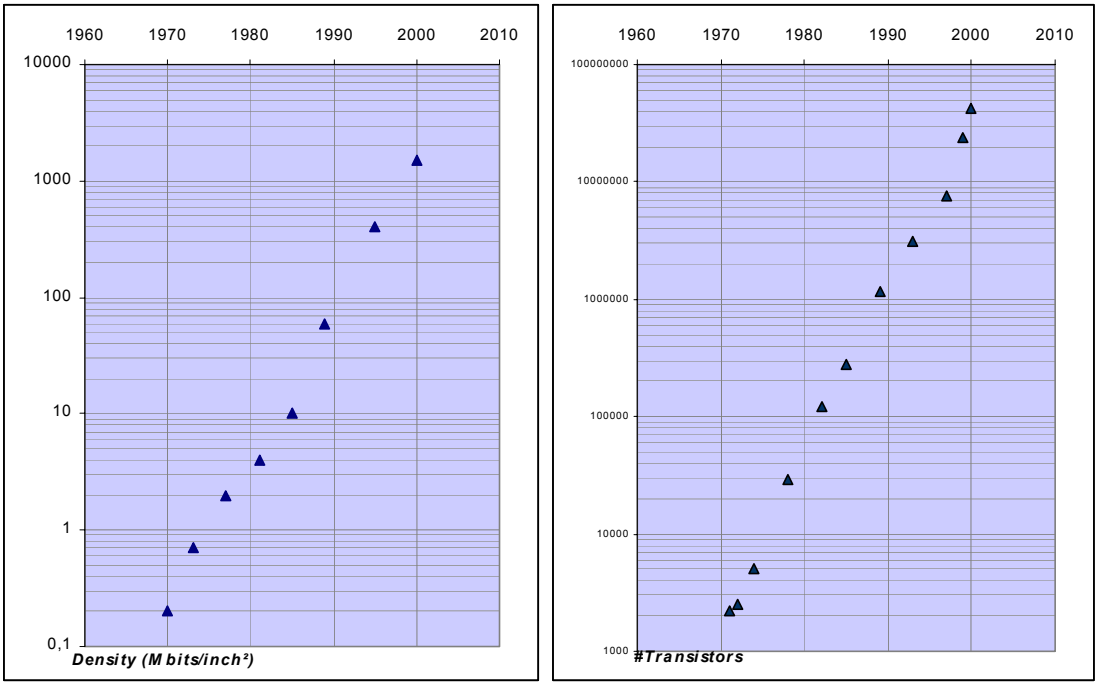
dpi, 8 bits per pixel, MPEG compression ratio of 30 and 40 frames per second) on a 3x3 inch screen requires up to 250 Kbps. This means that true media delivery on mobile networks will remain minor or non-existent in the coming years. Improvements can only be expected in the latter half of this decade.

Clearly, neither of the two challenging technologies will play a dominant role in the next few years, although they might provide some specific solutions for certain markets or capitalise on complementary attributes they have with the more traditional forms of digital broadcasting.

## 5.3 Decreasing price of digital storage and processing capacity

Both digital storage capacity and processing power have seen strong price decreases and extremely rapid capacity advances since inception. Figure below demonstrates these advances.

**Figure 51: Continuing capacity growth of digital storage and processing capacity**[131]




However, given the excessive demands of digital rich media in terms of storage capacity and processing power (for compression/decompression), only recently have common computing platforms become media capable. This evolution has four main impacts on the audio-visual services value chain:

- Decreasing storage costs allow for large digital on-line media archives and media asset management systems;
- Network and edge-storage (caching, etc.) and content delivery networks enhance the capability of existing networks to carry audio-visual content;

[131] Source density: Th Innovators Dilemma, Christensen 2000; Source number of transistors: www.intel.com

- End-user devices with local media storage allow consumers to become independent of broadcasters' schedules and focus on the individual programs instead of the channel;
- End-user devices with local intelligence offer the opportunity to monitor consumption, personalise content, and interact with other devices (home networking).

The first two impacts offer further support of other trends: the development of media asset management systems and the development of higher bandwidth networks. The last two impacts, the changes in the consumer equipment from being a dumb terminal that translates analogous waves into sounds or pictures (radio and television) to intelligent devices (PC, set-top box, mobile PDA, etc.), will have a significant impact on the media market. Two main features of the impact will be:

- The emergence of a plethora of media devices that interconnect with each other (set-top boxes, media-capable PC's, portable media screens, mobile media devices, etc.). The development of these new devices will also allow media to be consumed in a much more diverse context than today. People will not necessarily need to be at home to watch television or listen to the radio. People will be able to consume media in numerous places, in different contexts and at different times than today.
- The increased intelligence of these new devices will also encourage the development of new types of media services, including personalised services, interactive services, location dependent services, etc.

## 5.4 Content description and compression technologies

### 5.4.1 Content description technologies

More and more audio-visual information is available in digital form in various places around the world. People seem eager to use this information. However, before the information can be used, it must be located. The increasing availability of potentially interesting material makes this search harder. The question of finding content is not restricted to database retrieval applications. In other areas, "information overload" is also problematic. For instance, there is an increasing number of (digital) broadcast channels available, and this makes it harder to select the broadcast channel (radio or TV) that is potentially interesting.

In October 1996, MPEG (Moving Picture Experts Group) endeavoured to address the urgent problems caused by the lack of standardisation among generally recognised descriptions for audio-visual content, which extend the limited capabilities of proprietary solutions in identifying content that exists today. The new member of the MPEG family is called "Multimedia Content Description Interface", or in short MPEG-7. It will standardise:

- A set of description schemes and descriptors;
- A language to specify description schemes, i.e. a Description Definition Language (DDL);

- A scheme for coding the description.

Having such a standard allows one to describe, along multiple dimensions, not only the attributes of a piece of content: the authors, the actors, the scenes, the location of the shot, but also the details about its production process, the rights holders, the costs of different rights, etc. Being able to store all this information along with the piece of content makes it possible to manage the content in a better way (media asset management) and to develop new services around the content (e.g. EPG, VoD, sport events summaries, etc.).

Digital media asset management is defined as 'a series of processes and technologies aimed at digitising, cataloguing, multipurposing, and delivering media content'. Effective media asset management systems involve a number of component technologies and activities. These building blocks include sub-processes and systems focused on such areas as archive, library and storage systems; digitising systems, production and authoring systems; rights licensing, sales and distribution, cataloguing, indexing, and search and retrieval.
Much of the discussion about the deployment of digital content technologies has focused on two main value propositions:

- A reduction in production and archiving costs;
- The ability to create new revenue models, particularly on-line by launching new services based on the description of the content: media search engines, EPG's, etc.

### 5.4.2 Content compression technologies

The MPEG-4 standard provides a set of standard technologies to satisfy the needs of authors, service providers and end users alike:

- For authors, MPEG-4 enables the production of content that has far greater reusability, has greater flexibility than is possible today with individual technologies such as digital television, animated graphics, World Wide Web (WWW) pages and their extensions. Also, it is now possible to better manage and protect content owner rights. This assumes digital editing and postproduction technologies are used by the content producers, which will mean an additional capital expense for them.
- For network service providers MPEG-4 offers bigger compression rates of audio-visual content so lower bandwidths are required. Thus, multimedia is brought to new networks, including those employing a relatively low bit rate, and mobile ones.
- For end users, MPEG-4 brings higher levels of interaction with content, within the limits set by the author.

However, to be able to support MPEG4, the end-user equipment will need to have higher levels of processing power than what was previously required.

## 5.5 Security, Encryption and copyright protection

### 5.5.1 Conditional Access Systems

Conditional Access Systems (CASs) are necessary to prevent unauthorised access to broadcast services by subscribers. These services are protected by digital encryption. Legitimate subscribers can gain access to encrypted services by means of decryption keys (known as “control words”), which are transmitted together with the services and allow decryption.

CASs are the key to managing pay-TV and other subscription-related broadcast services. Technologically, there are two forms of this system: Coarse Grain CAS and Fine Grain CAS:

- Coarse Grain CAS cover the MPEG-2 transport stream and applies to services at the elementary-stream level, which represents the smallest data stream identifiable in a transport stream. The traditional CASs are considered to be this type of systems;
- Fine Grain CAS is used as a way of controlling access to services within any IP network. Conditional Access systems (CASs) extend the capabilities of service providers and offer IP-based Pay-TV or Data Subscription services while ensuring that the content is protected during transmission. Fine Grain CAS is applicable in environments where a large number of broadcast services are destined to a large audience.

CAS can be used in conjunction with smart cards. A unique smart card gives access only to the legitimate user. This ensures secure storage of keys and makes the authentication process “portable”. The smart card processes the ECMs (Entitlement Control Messages) and EMMs (Entitlement Management Messages) it receives from the CAS system. An EMM contains information on the identity of the service to be received and is used for transferring entitlements to smart cards, where they are stored. The ECM packages the decryption keys (control words) and transfers them to the receiver. If the smart card holds a corresponding entitlement, it reveals the decryption key.

### 5.5.2 Digital Rights Management Systems

As traditional distribution mechanisms give way to the digital transmission networks, the music and entertainment industry became increasingly concerned about the potential misuse of intellectual property. Today, Digital Rights Management (DRM) safeguards the revenues (also in form of royalties) and the intellectual property rights (copyrights) of the industry.

DRM keeps track of content owner's rights so that any request for content is accompanied by information on copyright ownership and the cost of the sale. A key characteristic of DRM is the persistent protection of this information, which means the protection follows the information throughout its use.[132]

DRM can control the type of access granted to the user of the information, protecting the information from being copied, printed or redistributed without permission. Content is typically coded or encrypted to block access by unauthorised persons. When content is accessed, DRM software conducts an identity check, makes arrangements for payment, decrypts the content, and issues a key or password to be used for future access. For example, a buyer might be able to use a piece of content only on the particular machine (PC, set-top box, etc.) that downloaded it, or re-use might be limited to three viewings before the file self-destructs.

According to estimates, by 2003, 80 percent of all on-line books and music content will be encrypted with DRM software and 50 percent of all commercial content 2004.[133]

There are two core technologies enabling the DRM systems: digital watermarking and encryption.

#### 5.5.2.1 Digital Watermarking

Digital watermarking is a technique where a highly discreet digital code is embedded in either digital content - for example video or audio – or even in printed materials, such as magazine pages, financial documents or identity cards. This technology has been developed to protect content from being distributed electronically.
There are two types of watermarking technologies. The selection of which technology to use depends on where it needs to be implemented in the content delivery value chain. These are the passive (soft) and active (hard) watermarking.

***Passive watermarking***

This technology is generally added to the content in the final stages of the content production. The common technology is layered into the image, which disrupts the image's aesthetic quality. Today, this technology is a part of most commercial graphics tools.
Degrading an image into low-resolution, providing only thumbnail views and protecting image store through restricted access are the other available soft watermarking methods that enable the content owner to control the use of proprietary digital content.

***Active watermarking***

This technology can embed visually undetectable watermarks into an image containing meta-data. These watermarks are invisible to the user, but can be

132 Gartner, Digital Rights Management: Protecting Intellectual Property (2000)
133 Gartner, DRM: the secret sauce for e-book and music publishing

interpreted by a detector chip in digital recorders or detection software. Once watermarked, the video is forever coded, whether it is pressed to DVD or transmitted through a satellite.
The biggest challenge of this technology is its dependence on secondary hardware, which jeopardises its wide acceptance. Whereas some products available in the market need a Web camera (to transmit image to a site for decryption), some others need separate hardware, for example, the hardware called CAT needed to read Forbes magazine.
This technology is more complex and technically immature compared to passive watermarking. Some experts predict the copyright chips will be introduced in the near future and that manufacturers will embed them in PC's.

#### 5.5.2.2 Encryption

Encryption is the ability to protect content by using an electronic digital code and a key scheme to control access. The users can access to the content only by using decryption software.

There are various encryption mechanisms to control digital content such as timed-out degradation of previewed and rented digital content, permitted number of uses or copies, distribution across a predefined set of users or devices, and restrictions on printing, saving and cut-and-paste rights.
A common example is the system used for DVDs called Content Scrambling System (CSS). Every DVD disk has about 400 keys on it in order to make the disc readable to the different DVD players on the market. The DVD players, in turn, have the 400 keys that are licensed and encrypted in their hardware or software playback systems. If a company wants to incorporate CSS into a player or another device, it has to sign the CSS license.[134] (In spite of these safeguards, the CSS encryption standard was hacked in 1999 using the software called DeCSS that allows decryption of a CSS encrypted movie.)

Another example is authenticating digital signature in combination with encryption that is used to protect DVDs. The signature is added to each original disk and cannot be copied. The authentication software then reads the signature, decrypts the program and plays it normally.

The encryption systems should be flexible enough to answer the needs of more complex security requirements, evolving business models and industry security standards of the future.
The major product vendors in this category are Liquid Audio, a2b, IBM's Cryptolopes and Sony's OpenMG.

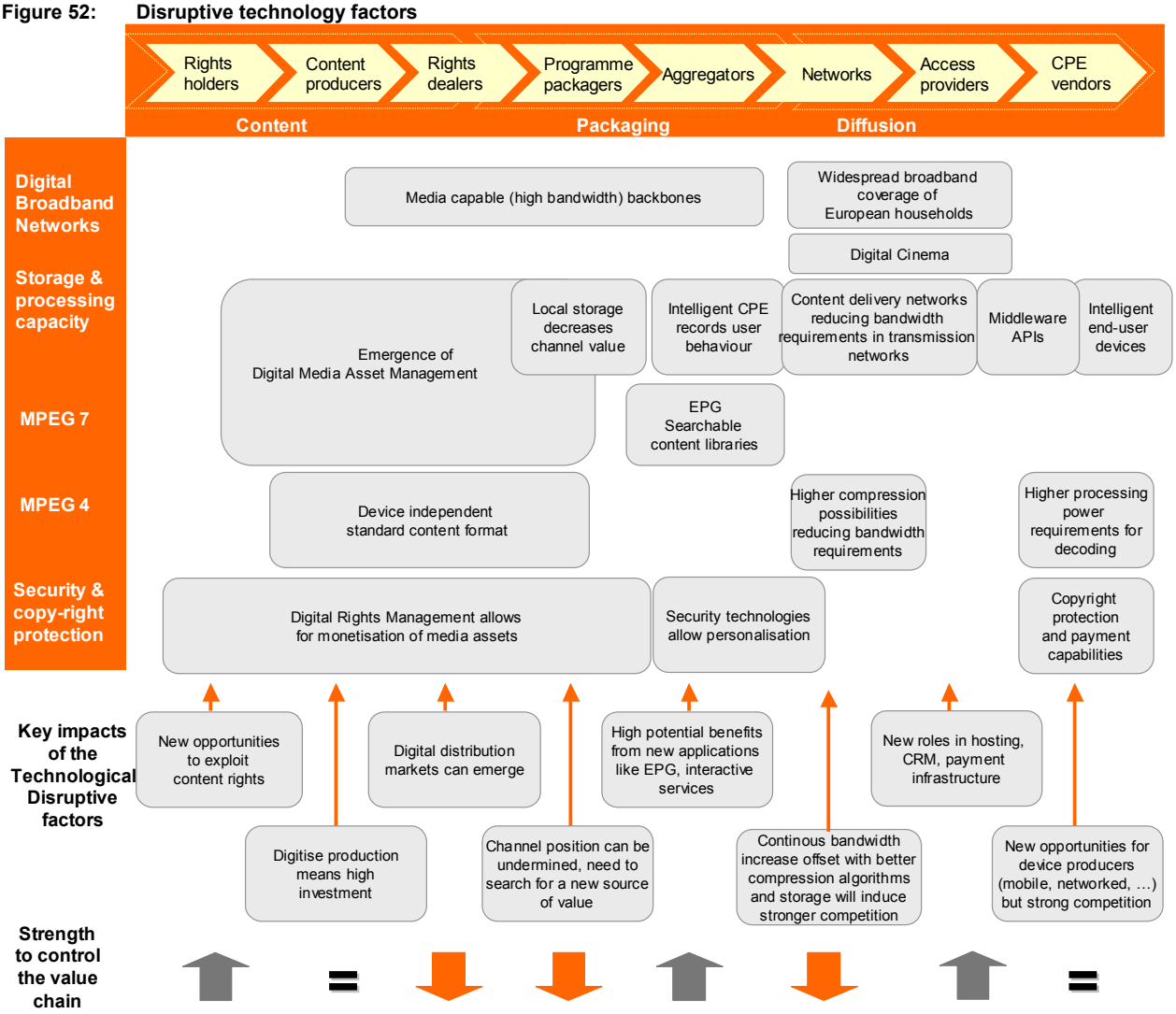
Conditional access systems and digital rights management systems are important because they allow a unique identification of the users and of the content usage. By introducing these systems, the audio-visual industry can personalise and profit from its content.

134 www.dvd-copy.com

## 5.6 Conclusions

The figure below gives an overview of the impact the disruptive technology factors have on the different roles in the value chain and draws some high-level conclusions for each actor. In the remainder of this section, we will briefly discuss the changes the industry will go through.

**Figure 52: Disruptive technology factors**




*Rights holders* : by exploiting the new digital production, security and copyright protection technologies throughout the chain, rights owners will be able to grant and profit from rights safely across multiple platforms and applications. This will clearly increase the revenue opportunities and the power of the rights holders.

*Content producers*: are impacted by every single disruptive factor discussed. They will need to invest in digital production, asset management, rights management and the development of meta-data. The large investments needed to achieve this favour the few large content producers in Europe, but weaken the position of most of the small producers even more. This weakening is somewhat mitigated by the possibility of developing for a greater number of platforms, which as a result, may increase demand.

*Rights dealers* will gradually migrate to include digital markets where content producers, rights owners, channels and aggregators exchange their goods. However, this would require a high adoption rate of media asset management, digital rights management and the MPEG standards to be able to interchange the media products efficiently.

*Programme Packagers*: In a fully digital value chain where content is always accompanied by its meta-data[135], new services like EPG's and PVR's can seriously undermine the traditional activity of a programme packager. These new applications allow the consumer to focus on the programs he would like to view. Moving from a channel focus to a program focus undermines the main source of revenue for most broadcasters: advertising. Broadcasters will need to develop new and innovative services around programs (interaction linked to broadcast stream, etc.) to maintain their current position.

*Aggregators* : seem to be the big winners from the new technologies as they will be able to develop new applications on the interactive platform, tap into new revenue streams and use the CRM information the associated networks will provide them with. New services like TV portals, EPG's, Interactive games, Interactive information applications, etc. open up a plethora of new revenue opportunities.

*Networks:* the continuous increase in bandwidth for existing networks and the continuous improvements of compression algorithms are mutually reinforcing forces that will drive the broadband network market to higher levels of competition.

*Access providers*: access providers will develop into platform providers, implementing and operating interactive application hosting platforms, customer management systems and billing systems.

*CPE*: The development of new media devices will lead to increased demand, but accompanied by strong international competition.

[135] Meta-data is the description or definition of the content of the audio-visual work itself (type of content, summary of the content, genre, duration, etc.)

# 6 Definition of the Scenarios

## 6.1 Introduction

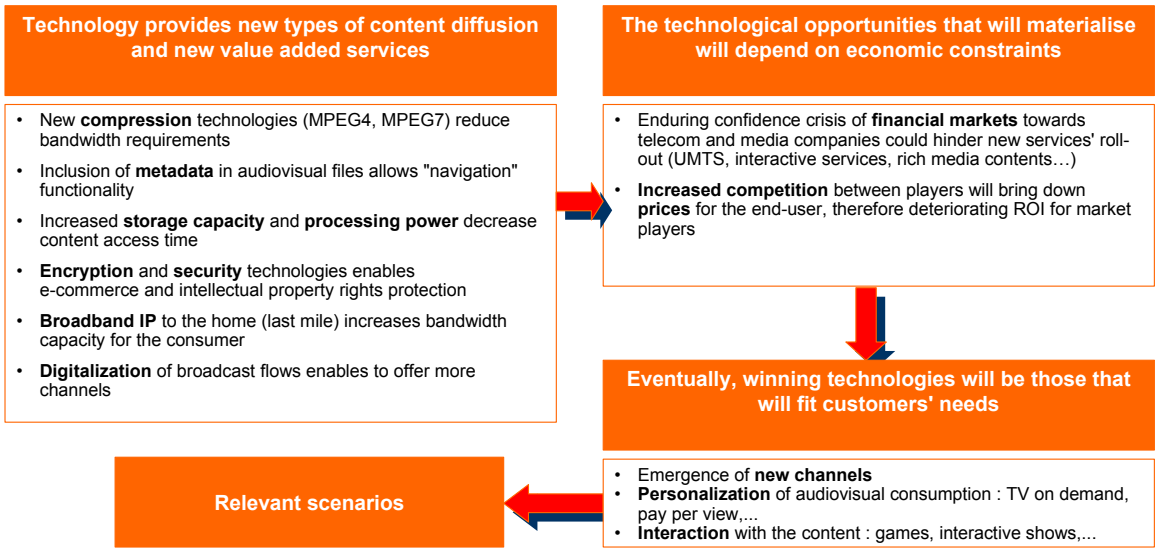
It is difficult to make solid predictions about the audio-visual industry's future because of the complexity and dynamics of this industry. Therefore, various scenarios have been considered, using systems dynamics and a business modeling approach. The process for developing the scenarios is summarised in the following five steps:

- Identification of the focal issue or decision;
- Identification of key forces in the environment;
- Ranking of these forces by importance and uncertainty;
- Selecting a scenario logic;
- Detailing the different scenarios.

The scenarios and business models have been analysed at the European level. However, in view of the different development stages in each European country (see conclusion table in chapter 3), the scenarios and models have been interpreted for each country, taking into account its specific characteristics.

The overall scenario approach is summarised in the figure below.

**Figure 53: Scenario approach**




### 6.1.1 Identification of the focal issue or decision

As discussed above, the objectives of the current Television without Frontiers Directive are, amongst others, to guarantee freedom of expression of pluralism, cultural and linguistic diversity, the protection of minors and consumer protection.

User control and choice is therefore central in determining the need for regulation. A European regulatory framework also needs to take into account initiatives to strengthen the audio-visual sector across the common market.

User control and choice is mainly determined by the number of access channels (e.g. satellite, cable, DTT, xDSL, etc.), the competitiveness within each access channel segment and the distribution method (free-to-air broadcasting, pay-TV broadcasting, on-demand, etc.).

The industry modeling and scenario development of this study will therefore focus on following elements and questions:

- How will the industry structure (the relationships between each of the roles in the value chain) be impacted in each of the scenarios?
- How will the role of each industry stakeholder evolve? In each of the scenarios, special care will be given to understanding the impact of the scenarios on the three main stakeholders:
    - The *programme packagers*
    - The *content producers*
    - The *access providers*
- Which distribution mechanisms will be deployed and what will be the competitive nature in the access provisioning industry segment?
- How many television channels will be sustainable and how will the delivery of content change (from schedule-based viewing to programme-based viewing)?

These questions will be answered in each scenario using the models developed.

### 6.1.2 Identification of key forces in the environment

A number of key forces that can have an impact on stakeholders in the audio-visual industry have been identified in the Delphi-study, the first public workshop (held on May 30, 2001), the second public workshop (held on December 10, 2001) and the industry analysis presented in the previous chapters.

The table below provides an overview of the key forces that have been identified throughout the report (particularly in Chapters 3 and Appendix I). The table focuses on the key forces observed around content producers, programme packagers and access providers. The following columns are included in the table:

- The first column “Key forces” provides an overview of all the key forces that have been identified in the industry and describes how the key force is expected to change or why it remains stable;
- The second column “Impacts” describes the consequences of the expected key forces changes on the key stakeholders;
- The third column “Imp.” gives Andersen’s estimate on the importance of the key force change for the industry;
- The last column “Unc.” gives Andersen’s estimate on the uncertainty of the key force change.

**Table 24: Key forces identified in the Media environment**

| Key forces | Impacts | Imp. | Unc. |
|---|---|---|---|
| ***Content Producers*** | | | |
| **Digitisation of the industry:**<br>• Analysis of the Delphi study confirms that digitisation leads to a decrease in costs (both operating costs and capital expenditure). Assuming that the actors invest according to a normal investment cycle, the digital technology leads to a larger decrease in costs than if they would invest in renewing their equipment using analogue technologies;<br>• The digitisation process requires highly skilled personnel;<br>• Analysis of the Delphi study also indicates that content producers expect that digitisation will lead to a higher revenue potential. | Digitisation leads to:<br>• Lower barriers to entry in this industry segment;<br>• Potential for higher industry fragmentation;<br>• Increased average profitability. | High | Low |
| **Unchanged (or lowered) barriers to entry:**<br>• Barriers to entry are and will remain relatively low (or will even be lowered in view of the digitisation process – see above). | The unchanged (or lowered) barriers to entry lead to a continuous increase in the number of players, despite the consolidation of top-end players. | Med. | Low |
| **Industry segment consolidation:**<br>• Creation of pan-European groups with stronger market power and new revenue sharing models. | Market consolidation will lead to a small number of top-end companies that have high bargaining power. These companies will be best positioned to benefit from the paradigm shifts (see Scenarios 2 and 3). | Low | Low |
| **New audio-visual formats:**<br>• Increased importance of interactive programming. | New formats will lead to:<br>• New entrants (e.g. from games industry) who will start to compete with traditional audio-visual players;<br>• New entrants who have direct relations with access providers (e.g. EPG). | High | Low |

| Key forces | Impacts | Imp. | Unc. |
|---|---|---|---|
| ***Content Producers (continued)*** | | | |
| **Shift in existing audio-visual formats:**<br>• The Delphi study indicates that the increase in the selling price of stock programmes compared to flow programmes results in a concentration of stock programmes during peak-hours while flow-programmes are used to fill non-peak-time. | In view of a better risk-reward profile, content producers will focus on flow programmes. This leads to decreased cultural diversity. | High | Low |
| **Decreasing content transaction cost**<br>• New technologies enable the creation of content market places. This decreases the content transaction cost;<br>• Importance of content market place increases in view of the increased number of channels and access providers and in view of the creation of new business models (on-demand). | Decreasing content transaction costs lead to:<br>• A shift in content distribution from being a B2B business towards being a B2C business;<br>• New players that can become virtual aggregators or channels;<br>• Dis-intermediation of the broadcasting role. | High | Low |
| **Increasing costs for premium content:**<br>• According to the Delphi study, most stakeholders expect a further increase in content rights costs;<br>• Increase will be different depending on the maturity of the geographical market;<br>• Live programmes will become increasingly important in some scenarios. | Increasing costs for premium content will lead to:<br>• Free-to-air broadcasters will find it increasingly difficult to compete for premium content with pay-TV operators;<br>• Industry will tend to vertical integration (between rights holders, content producers and other value chain stakeholders). | High | Med. |

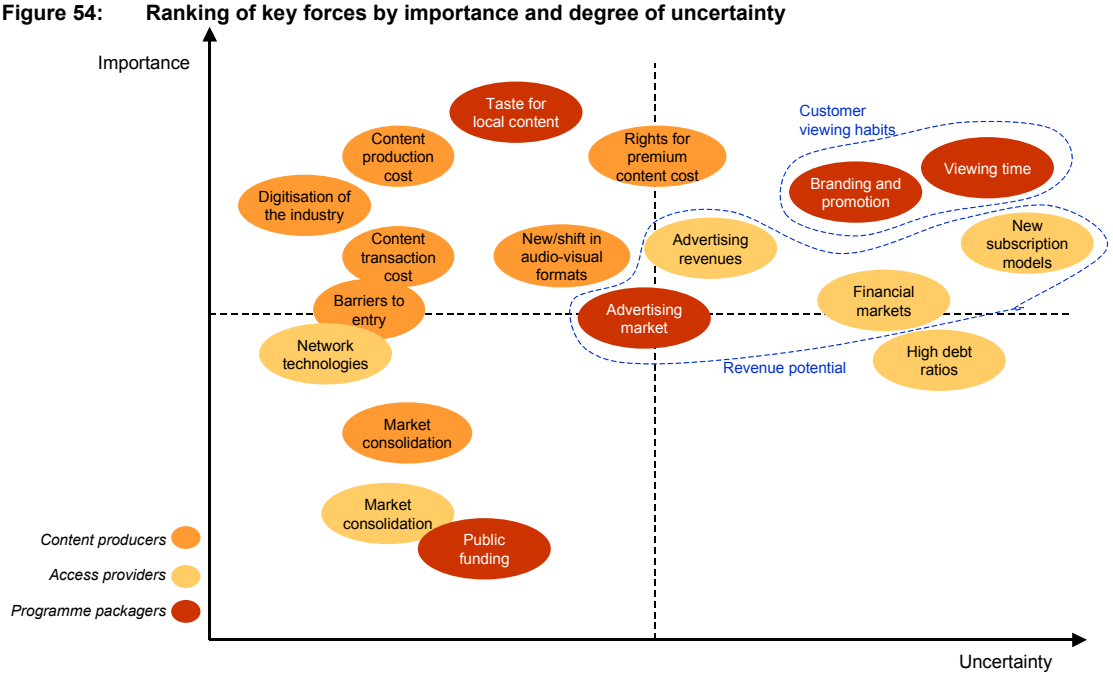
| Key forces | Impacts | Imp. | Unc. |
|---|---|---|---|
| ***Programme packagers*** | | | |
| **Decreasing TV-viewing time:**<br>• Globally viewing time (time spent in front of TV-set) has remained unchanged;<br>• According to Delphi study, most industry stakeholders expect a decrease in TV viewing time while other media time will increase. | Market stakeholders are uncertain on the next killer application that will drive traffic, but they expect an increased competitiveness between applications. | High | High |
| **Continued taste for local content:**<br>• Local content remains one of the main enticements for watching television;<br>• Increased need for quality local content. | Taste for local content supports the local content industry but doesn't support circulation of European works around Europe. | High | Low |
| **Advertising market:**<br>• Growing advertising market until last quarter of 2000, but decreasing since then;<br>• In the long term, advertising market closely linked to the GDP evolution for long-term evolution. Short-term movements may be important. | Possibility to continue to grow at same pace is uncertain. | Med. | Med. |
| **Public funding:**<br>• Overall, public funding remains unchanged (assumption of the model) | In extreme scenarios, public service broadcasters could be comparatively advantaged (in case of low economic growth) or comparatively disadvantaged (in case of high economic growth). | Low | Low |
| **Branding and promotion:**<br>• Evolution from schedule based viewing to programme based viewing decreases opportunity for cross-promotion (programme packagers advertising on their channel for their own programmes). | Other advertising and branding techniques, which are more specific to the programmes, need to be used. This will require additional financial means. | High | High |

| Key forces | Impacts | Imp. | Unc. |
|---|---|---|---|
| ***Access providers*** | | | |
| **Evolution of network technologies:**<br>• An increasing number of networks become media capable. This will lead to an increased number of channels that have a technical penetration of more than 70% (see satellite, cable, DTT and xDSL deployments). | The increasing number of network technologies will lead to:<br>• Increased customer choice and control;<br>• Increased competition between access providers;<br>• Increased competition between programme packagers for audience and advertising. | Med. | Low |
| **Negative Financial markets and High debt ratios:**<br>• Decreased willingness to invest in TMC industry in view of adjusted growth potential and current (bad) condition of companies. | This will lead to:<br>• Delay in the development of infrastructure;<br>• Reduced number of services and content launches; focus on proven business models;<br>• Pressure on set-top box subsidy model and therefore delayed penetration of digital TV. | Med. | High |
| **New subscription and usage based revenue models:**<br>• Increased importance of customer-paid business model;<br>• Impact depends on current richness of analogue offer;<br>• Willingness to pay is different in each European country. | Access providers could become an increasing source of revenue for content producers. | High | High |
| **Advertising revenue:**<br>• Access providers will facilitate new advertising developments (personal and technical) and will seek commissions;<br>• Access providers (or aggregators) will manage EPG, which will become one of the only mass audience places to insert advertising. | • Advertising revenues will be diverted (partly) to access providers;<br>• It is still uncertain if this relates to existing marketing budgets or to new budgets. | High | Med. |
| **Market consolidation:**<br>• Large pan-European groups are acquiring cable infrastructure throughout Europe. These groups start to develop European strategies;<br>• Other industry segments (satellite, DTT, etc.) remain geographically focused. | Access to distribution channels will become increasingly difficult for small, regional content producers or programme packagers. | Low | Low |

### 6.1.3 Ranking of these forces by importance and uncertainty

All the key forces for the audio-visual industry identified above have been ranked according to the importance and uncertainty of their potential impacts. The figure below represents this classification.

**Figure 54: Ranking of key forces by importance and degree of uncertainty**




The main forces (both in terms of importance and degree of uncertainty) relate to the customer viewing habits (essentially TV-programme viewing time) and the revenue potential (advertising related revenues and new consumer paid revenues).

### 6.1.4 Selecting a scenario logic

The key forces with the highest importance and highest uncertainty should be used as the basis for the scenarios. Key forces that are important and relatively certain will be further analysed (based in forecasted figures) while forces that have been recognised as less important and uncertain will be discarded.

In the context of this study, they key forces whose changes are important and uncertain relate to customer viewing habits and revenue potential. Both elements are introduced as the axes along which our scenarios will be developed. Based on this, three scenarios can be developed:

- The “business-as-usual” scenario: Trends in the audio-visual market that have been observed between 1995 and 2000 can be extrapolated. There is no revolutionary change in viewing habits and revenue potential will only evolve according to the advertising market evolution. The main variables in this scenario relate to economic growth;
- The “interactivity” scenario entails a paradigm shift since it relates to the change of “lean-back” viewing to “lean-forward” viewing. Consumers still spend

the same amount of time in front of the TV set, but they will be involved in other interactive activities;
- The "personalisation" scenario relates to a true paradigm shift as channel viewing becomes less important and is replaced by programme viewing. This revolutionary change in viewing habit is caused by the introduction of new technologies/applications such as video-on-demand, personal video recorders and electronic programme guides.

These three scenarios will be analysed in two different economic environments (a real growth environment with a GDP growth of 2,5% and an economic slowdown environment with a negative GDP growth of –1%). Although the study will analyse six different combinations of scenarios and economic environments, some combinations of scenarios and economic environments are more likely than others. It is most likely that a positive economic environment will lead to the development of "interactivity" or "personalisation" while a negative economic environment will lead to a "business as usual" situation.

From the point of view of consumer behaviour, it is expected that consumers will embrace the new services very differently. Some will fully embrace the new services and radically change their behaviour; others will have access to new services but only partly make use of them. Finally, a third category of consumers will not subscribe or not have access to these new services. In general, it is expected that "personalisation" will not lead to a changing television viewing behaviour while "interactivity" will lead to a decreased television viewing time.

***"Business as usual" Scenario***

The period between 1995 and 2000 was characterised by the appearance of pay TV operators, the maturity of free commercial broadcasters, the growth of pay-TV and the emergence of the Internet. These elements led to an increasing advertising market and increasing cost for premium content.

In the "Business-As-Usual" Scenario, these trends are extrapolated. This scenario focuses on the development of the audio-visual market in globally unchanged conditions:

- Viewing habits remain unchanged (TV viewing time remains stable and is based on a schedule);
- Revenue models remain unchanged;
- The industry structure remains unchanged (including both the interaction between value chain stakeholders and the role of each of the value chain stakeholders).

The main assumptions of this scenario relate to the economic evolution:

- The evolution of the advertising market is in the long term highly correlated with the evolution of the Gross Domestic Product. Disturbing factors such as the evolution of stock markets and the level of maturity of advertising markets only

play a role in short term evolutions. Gross Domestic Product will be one of the main variables;
- Subscriptions are an increasingly important revenue stream. This scenario will make assumptions about the evolution of entertainment spending and TV-subscription revenues.

***"Interactivity" Scenario***

The main assumption of the "Interactivity" Scenario is a paradigm shift from "lean-back" TV-viewing to a "lean-forward" activity. This paradigm shift is supported by various technology enablers.

As explained in Chapter 8, two different concepts will diverge. The first concept is that TV viewing time is defined as the time spent by a consumer who actually watches a TV programme that has been scheduled by a broadcaster. The second concept relates to the time spent in front of the TV set that includes TV viewing time as well as all other activities the consumer may do on the TV set, such as interactive activities (gaming, e-mails, chat, banking, etc.).

Interactivity is a very broad concept. In the context of this study, interactivity covers following dimensions:

***Interactivity linked to the broadcast stream***

The different levels of interactivity may include:

- Users have ad-hoc interaction with the broadcaster content:
  - Multiple camera angles;
  - Voting;
  - Play along games.
- The users demand more content related to the broadcast stream:
  - Enhanced television.
- Users participate in events related to the broadcast stream:
  - On-line games;
  - Programme-related chats.

It is expected that interactivity, when linked to the broadcast stream, will not cause a decrease in the TV viewing time.

***Interactivity outside the broadcast stream***

The different levels of interactivity may include:

- Users ask for their content in non-linear ways and leave the broadcast stream:
  - Walled gardens[136];
  - Access to the Internet;
  - T-commerce[137].
- The audience creates its own content
  - E-mail;
  - E-cards;
  - IMS.

In all these cases, the TV viewing time is expected to decrease, while time spent in front of the TV set will remain stable or will increase. The broadcasters will not benefit from the new advertising models and the platforms will be the main beneficiaries.

The main issues of this scenario relate to the following:

- How will TV-viewing time change? TV-viewing time is defined as the time spent consuming audio-visual content. It is therefore not related to the time spent in front of a television set;
- The change in TV-viewing time may have a direct impact on the advertising revenue for broadcasters;
- Which part of "below-the-line" advertising budgets will be transferred to the iTV industry?

[136] Walled garden is a concept that refers to a "wall" around content. The users can access only a set of content providers on a specific platform. The content is specially repurposed for this platform. A "walled garden" can also include television commerce applications.
[137] T-Commerce is defined as television commerce

***"Personalisation" Scenario***

The main assumption of the "personalisation" Scenario is that there will be a paradigm shift from schedule based viewing habits towards programme-based viewing habits. This paradigm shift is supported by several technology enablers.

The personalisation of television may be achieved under two different technical ways. On one hand the "classical" video on demand services (VoD) involve a massive central video server, remote from the user, that streams movies and other content over a unique link to the home.

On the other hand, the "local" video on demand services involve the use of a PVR. A PVR (personal video recorder), sometimes also called HMS (home media server), is a device that allows the consumer to record programmes on a hard-drive. Through the integration of a content management system and intelligent searches, it is possible to create a personalised TV experience.

The paradigm shift from schedule based viewing to programme based viewing implies that the majority of programmes will be entirely recorded (locally or centrally). This will reduce the time that consumers watch simultaneous TV at the time it is broadcast. The consumer will access the content on demand, effectively creating its own channel.

The main issues of this scenario relate to the following:

- What will happen with the current broadcasting model that is based on the notion of channel (schedule) and prime time?
- Will audience be fragmented[138], or will it be consolidated around some key brands?
- How will the advertising market react to the possible fragmentation of the audience?

The characteristics of a PVR from a customer point of view are similar to those of existing video-on-demand systems. Where the PVR puts the processing power and storage capacity in the end-user device, VoD systems locate it on the network side. This difference in technology philosophy is not a matter of concern for users and is therefore not considered in the scenario.

### 6.1.5 Scenario analysis framework

The purpose of this study is to provide scenarios for the likely development of European audio-visual services up to 2010, the prevailing business models and the associated changes in consumer behaviour.

In order to define the future state of the industry, Andersen has worked out possible scenarios that address the following questions:

[138] The current audiences of a channel will no longer watch one single channel, as the channel offer increases and more thematic content is brought to the market. This will impact the programme packagers as their advertising revenue is linked to their audience share.

- How will the economic viability of the sector and its operators evolve in the future?
- How will consumer choice and control evolve in the future? The consumer choice and control dimension has been retained as a quantitative and identifiable variable in order to estimate consumers' welfare in terms of audio-visual offering and more generally as an effective dimension to synthesise the achievement of general interest objectives such as cultural diversity and pluralism.

In order to address the first question, Andersen has modelled the main revenue streams of the industry. In particular, the three main revenue sources (public funding, advertising and subscriptions) but also the main transit points of these revenues (access providers, programme packagers and content producers). One of the main outcomes of this study is the quantification of these different revenue streams in each of the scenarios under different economic environments.

In order to address the second question, Andersen has estimated the number of channels (Public Service, free commercial, pay TV channels) that are likely to exist in 2010. The number of channels has been chosen as a quantitative and identifiable variable for consumer choice and control, hence as a quantitative and identifiable variable in order to estimate consumers' welfare in terms of audio-visual offering and more generally as an effective dimension to synthesise the achievement of general interest objectives such as cultural diversity and pluralism. Other qualitative measures, such as the amount and the diversity of content, could also be taken into account.

In each of the scenarios and under the two economic environments, the two questions mentioned above will be answered. This will lead to general conclusions on the industry structure, to the identification of opportunities and risks for the audio-visual industry and to hypotheses for regulatory recommendations.

## 6.2 Trends not included in the scenario's

Obviously, other trends are also stimulated by the technology disruptive factors. They are not further investigated in the scenarios, as they are expected to have only a marginal impact on the industry as a whole (marginal impacts on intra-segment relationships). Two of these new services are described here.

### 6.2.1 Digital cinema

The cinema industry has undergone some changes between 1995 and 2000, which were mainly the following:

- The creation of multiplexes providing large parking facilities, improved services and new technologies that offered high quality;
- The development of on-line ticketing saving customers the trouble of standing in line or falling victim to sell-out crowds;

- The spread of subscription cards.

The next significant innovation in the movie's distribution will be the conversion to digital cinema. The benefits for the public are very limited as they mostly relate to higher picture and sound quality, which is currently not a specific expectation of audiences.

The main benefits of this new technology innovation will be for the movie distributors and cinema exhibitors. The movie distributors' benefits are:

- Faster and more cost-effective distribution of films through satellite or broadband systems, replacing the expensive physical film reels;
- Better measurement of when and how often films have been shown, as well as the number of people who have attended the shows, allowing for reversed billing; (theatres bill themselves based on audiences)
- Possibility to integrate piracy protection systems.

The exhibition industry's main benefit is an increased flexibility in scheduling and a possibility of better targeting for advertising inserts.
However, using the current business model, the exhibition industry pays for the technological investment even though they stand to profit the least. The problems for the movie theatre owners are the following:

- They need to buy new projectors. There is no real willingness to do so since they already have projectors based on a well established technology (35mm) that has been around for 80 years;
- Before exhibitors will want to change their technology, a constant stream of titles has to be available digitally, which is not yet the case;
- If they decide to buy electronic projection systems, they would need to choose which technology, both storage technology and delivery type (satellite, broadband lines or DVD-ROMs) will be used, since no standard exists yet.

For the above reasons, the development of digital cinema is therefore not expected to rapidly occur. Some US initiatives may yet accelerate the process: Technicolor Digital Cinema is proposing to provide, install and maintain the first 1000 digital cinema systems in the USA, together with the distribution network. In return for the free hardware, Technicolor Digital Cinema will take a cut on ticket sale and a premium from the distributor to be offset against the savings of shipping physical movie reels.

However, as long as no viable business model for the already financially strained exhibition industry emerges, a real take-up of digital cinema is unlikely. Such a business model might include higher advertising revenues and/or sharing of benefits with the distribution industry.

Overall one can say that this technology will have an impact within the exhibition market (intra-segment impact), but is not a real disruptive cost factor for the whole audio-visual industry. There will be no media shift across the value chain, nor will any new role be created.

### 6.2.2 Digital radio broadcasting

Radio has evolved in the last few years as extra services have been added. These services are mainly related to extra information, automatic warnings for news or traffic information, etc. Some countries have also experimented with digital radio (DAB). Andersen does not expect that this technology will dramatically change the radio industry, as it does not really provide extra value to customers yet (extra quality is regarded as a minor benefit). Other companies are setting-up digital radio services through satellite.
The only potential impact for customers may be the development of in-car content, or telematics. However, customers are still unaware of these technologies and do not express any need for them.

The further development of digital radio will depend on the ability of the industry to bring down the price of the receivers (currently still at about 185 Euro):

- DAB is expected to reach a penetration level of 10% in the UK by 2005
- In Germany, approximately 65% of the population and area are covered.
- In France, only the 20 National stations have chosen to adopt it.
- DAB Digital Radio in Spain began with pilot stations in 1998 and today is a mix of public and commercial broadcasting, with 18 stations transmitting digitally.
- Italy has been broadcasting DAB Digital Radio since 1995. Coverage is about 30% of population today and is set to rise to 60% by 2004.
- In Belgium, the public broadcasters have been testing it for the last 4 years.
- In Sweden, DAB services began in 1995 and now cover around 85% of the population.

The impact on the key drivers of the audio-visual industry is low, it has only an intra-segment impact:

- There will be less or no frequencies restrictions any more,
- Therefore the market will be more competitive and more fragmented.

If digital radio is to break through, it will require the development of other services, such as telematics, in-car entertainment applications or B2B data connections. Customer needs in terms of radio services are globally fulfilled now with FM and RDS/TMC technologies.

# 7 “Business as Usual” scenario

## 7.1 Introduction

As already mentioned in chapter 6, the main assumption of the “Business as Usual” scenario is the extrapolation of the current audio-visual context to the future.

- The period between 1995 and 2000 was characterised by the maturity of free commercial broadcasters. These programme packagers, together with Public Service Broadcasters, attract the lion’s share of the audience.
- A second trend observed during this period was the growth of digital platforms and pay TV operators being brought to the market, providing more content.
- The introduction of the Internet is the third trend characterising the period between 1995 and 2000. As detailed in chapter 4, the increased penetration of the Internet has not proven to have a strong impact on television viewing time yet, but this impact is expected to become more important in the future with the generalisation of the Internet.
- These elements, together with a favourable economic climate, contributed to a strong increase in the advertising market.
- Finally, a trend of vertical and horizontal integration has emerged during this period, mainly among content producers and access providers.

The main hypotheses of the “Business as Usual” scenario are that there will not be any revolutionary change, either in consumer viewing habits or in service offerings of key industry stakeholders. All the economic and market trends identified between 1995 and 2000 are expected to continue.

In this chapter, the factors that enable and/or impede this scenario will be discussed as well as the impact of the scenario on the role of industry players and the flow of revenues.

## 7.2 Definition of the scenario

### 7.2.1 Main assumptions

The “Business as Usual” scenario focuses on the development of the audio-visual market in globally unchanged conditions:

- Viewing habits remain unchanged: TV viewing time remains stable, and based on the programme packagers’ schedule. Overall consumer behaviour evolves slowly;
- Revenue models of industry stakeholders remain unchanged: the relative size of programme expenditures of the programme packagers will remain at the same level and their revenues will be based on public funding, advertising and subscriptions;

- The industry structure remains unchanged: the interactions between the players of the value chain as well as their role remain globally unchanged. No new type of player is expected to appear on the market in this scenario.

The main assumptions of the “Business as Usual” scenario relate to changes in the general economic environment. Two possible evolutions are analysed: one of economic slowdown (variation of -1 percent in GDP per year) and one of economic growth (variation of +2,5 percent in GDP per year).

The evolution of the advertising market is highly correlated with the evolution of the gross domestic product (GDP) in the long term. This will be the sole driver of the advertising market in the scenario forecasts.

Subscription revenues are an increasingly important revenue stream, since pay-TV operators are in a mature stage in most countries. In this scenario, assumptions will be made about the evolution of entertainment spending and television subscription revenues, to take into account the level of maturity of each European market.

The technology evolution will have a limited impact on the media industry:

- Further digitisation of broadband networks will increase costs for access providers and networks but will provide new business opportunities as it will allow for the transmission of more channels;
- Digitisation of the content production industry (content compression – MPEG4 - and content description – MPEG7 - techniques) will drive down costs for content producers and programme packagers.

### 7.2.2 Changing consumer behaviour

The “Business as Usual” is a scenario based on the continuation of trends observed in the past (1995-2000). From a consumer behaviour point of view, this means that no revolutionary changes are to be expected. The audience per type of content, TV viewing time or access technology chosen will remain the same.

European consumers will still have a strong preference for content produced by European producers and commissioned or acquired by programme packagers (i.e. domestic content).

The time dedicated to television viewing is also expected to remain stable in Europe in the “Business as Usual” scenario. This time will still be essentially devoted to passive or “lean-back” TV viewing time, based on programme packagers’ schedules.

Consumers are expected to select their preferred access platform based on (see also model assumptions):

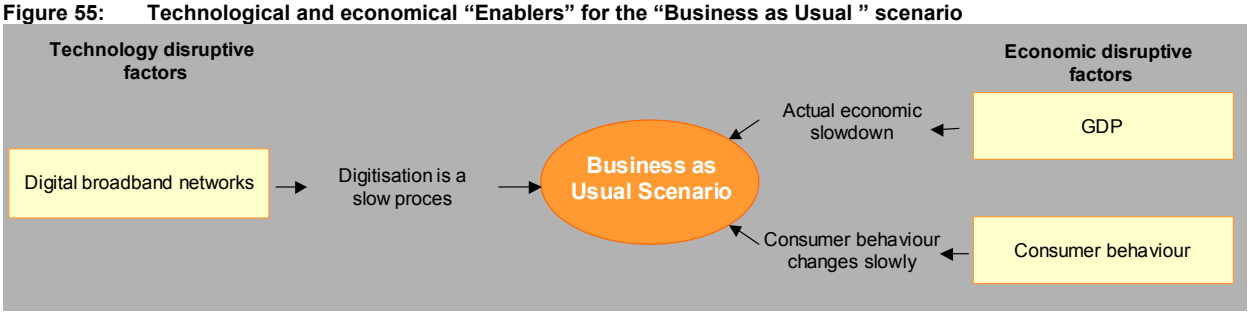
- The availability of premium channels;
- The availability of local channels;
- The technical quality of the technology for television usage.

### 7.2.3 Enablers of the scenario

The likelihood of the “Business as Usual” scenario needs to be considered, based on enablers and barriers in the European audio-visual industry. The hypotheses listed below and in the next section may or may not occur in the future, depending on economic and technological factors.

Factors that are enabling the development of the “Business as Usual” scenario are at the same time factors that will delay or block the development of the “Personalisation” and “Interactivity” scenario. Several technology disruptive factors, an economic growth and a changing consumer behaviour is needed for these scenarios to develop.

**Figure 55: Technological and economical “Enablers” for the “Business as Usual ” scenario**




The main enabler for the scenario “Business as Usual” is the economic climate. As discussed above, a continuation of the current negative economic environment will slow down and delay various industry technological investments. The negative economic climate will also have a negative impact on consumers TV spending.

Consumer behaviour is not expected to change easily as television is a mature technology in most European countries. Consumers will still favour local content, are expected to spend the same time watching television and will continue to do this in a “lean-back” way.

Another enabler for this scenario is the industry’s resistance to change that can be found in many aspects as described below. Public Service Broadcasters and free commercial broadcasters are not expected to change their current business models since these have proved to be successful in the past. This resistance to change will enable the continuation of today’s situation in many aspects: revenue model, cost model, type of offer, etc.

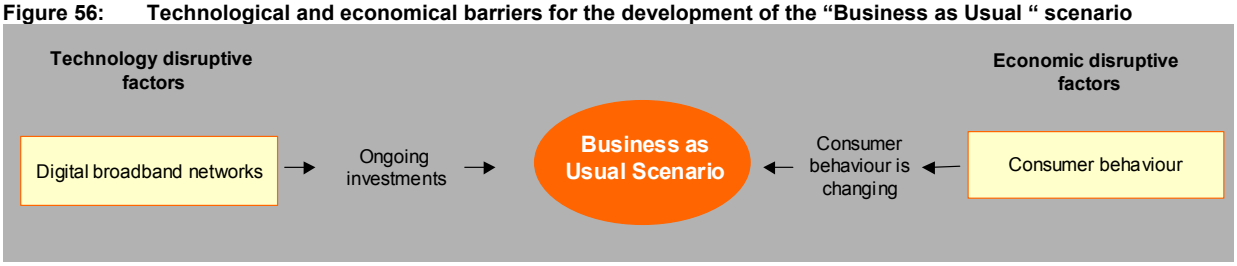
51 percent of the respondents of the Delphi Study believed TV viewing time will not significantly change and 71 percent of respondents indicate that consumers will still prefer local content.

Another element of resistance to change is the development of the industry’s technology. Digitisation is a slow process both for the industry to roll out a digital infrastructure and for the consumer in terms of acceptance. The interviewees of the Delphi study indicated 2010 to 2015 as the time by which the industry will be fully digitised.

As long as the whole media value chain and all processes across industry actors are not fully digitised, the advantages of the technology are not really noticeable. The industry has decided to delay their roll out until more operators of the value chain are digitised in order to be able to fully leverage on their investments. This is one of the arguments of industry players explaining the slow digitisation process.

### 7.2.4 Barriers for the development of the scenario

**Figure 56: Technological and economical barriers for the development of the "Business as Usual " scenario**




Despite all enablers for the "Business as Usual" scenario, described above, the industry expects some major changes in the European media landscape in the years to come. These changes will lead to the development of the industry towards the "Personalisation" or "Interactivity" scenario.

Some networks and access providers have already invested heavily in new technologies, such as broadband digital networks and/or a return channel in order to offer new media services, such as Internet access, (n)VoD, etc. Players will want to amortise their investments, especially if it allows them to increase their average revenue per customer.

Large content producers are already starting to produce the first interactive content. This "interactivity" up to now has been based on SMS or Internet communications, but content producers have re-organised some of their programmes formats to take into account a future direct interactivity with the viewer. For example, time left before the candidate answer in numerous TV games in order to let the viewer play along. This fact is a good indicator of the willingness and readiness of content producers to evolve towards a more interactive TV landscape.

The two types of investments described above can drive the consumers to adopt these new services more quickly, evolving to a "Personalisation" or "Interactivity" scenario. Therefore, these two types of investments are considered a barrier for the development of the "Business as Usual" scenario.

Customer Premises Equipment (CPE) vendors and related software and application vendors are moving to the entertainment market as the current PC market stagnates. There has been a strong growth in the sales of game consoles and game cartridges in the last couple of years and game console vendors foresee continuous growth for the future. Their latest technologic developments, allowing the consumer to access the Internet from the game console, can also reinforce the early uptake of the PVR and/or interactive services.

Finally, in some European countries, such as the UK, consumer behaviour and TV spending have already started changing in response to the launch of digital TV products.

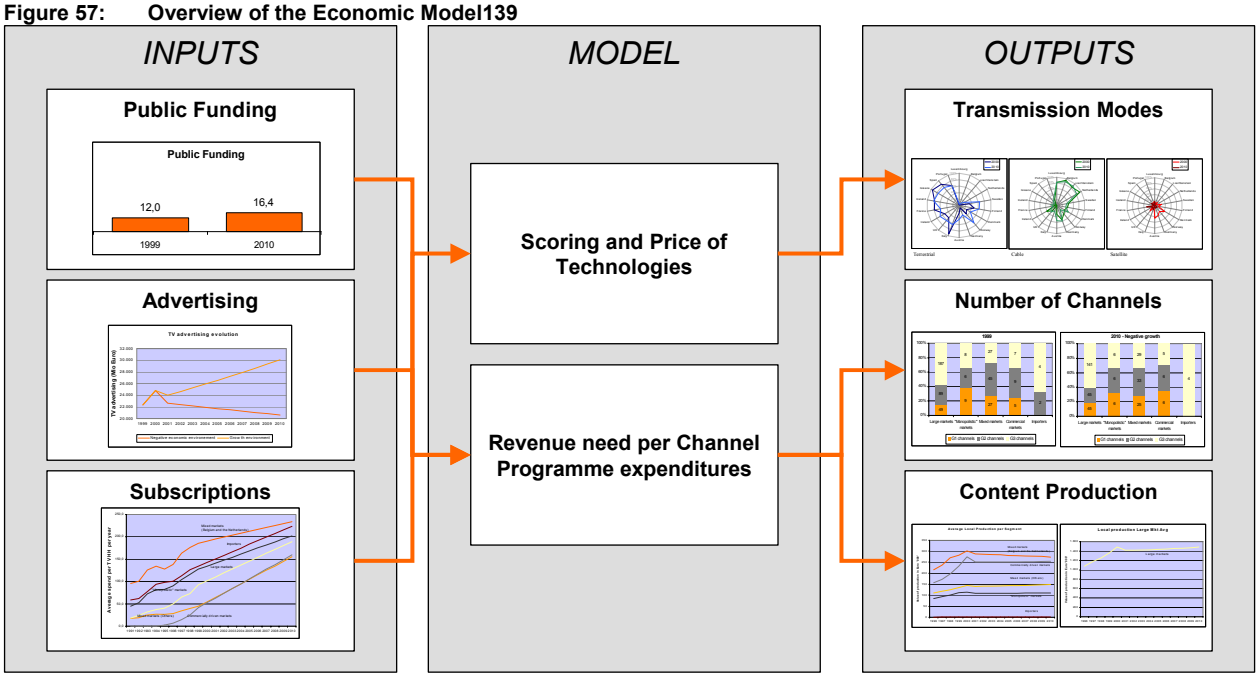
## 7.3 Market forecasts

### 7.3.1 Modelling description

An economic model has been built to forecast the level of consumer control and choice in the future European media landscape. The main inputs of the model consist of the revenues for the audio-visual industry, i.e. public funding, advertising and subscriptions. The outputs of the model consist of an assessment of:

- Which access technologies will be available for consumers in 2010?
- How many channels will be available for viewers in 2010?
- What is the level of the European audio-visual content production?

**Figure 57: Overview of the Economic Model139**




The model takes into account observed trends since 1995 and some new hypotheses, which include:

- Scenarios that are based on technological assumptions and assumptions relating to consumer habits
- Scenarios that are based on a positive economic environment (GDP growth of 2,5 % per year) or a negative economic environment (GDP decrease of –1% per year).

[139] Andersen.

### 7.3.2 Industry revenues

The key inputs of the model are the different revenue sources for the audio-visual industry: public funding, subscriptions and advertising revenues. These revenue sources have been forecast up to 2010.

#### 7.3.2.1 Public Funding

Public funding is the main revenue source for Public Service Broadcasters. The forecast of the future growth of this revenue source has been based on historical data.

According to the Terms of Reference of this study, the scenarios have been developed based on economic and technological hypothesis, and in an unchanged legal context. In consequence, public funding has been assumed, by hypothesis, stable over time and independent of the scenarios, or to the economic environment.

The table below provides an overview of the evolution of public funding in the 18 countries studied over the past years. The average yearly growth rate in the EEA countries between 1996 and 1999 amounted to 6,1 percent. Spain[140] is the only country that experiences a negative growth of the funding, while Denmark, Portugal and the UK have the highest growth rate of the public funding.

**Table 25: Public funding evolution in EEA Member States[141]**

| | Public funding in 1999 (Mio Euro) | Average yearly growth rate 1996/1999 | Public funding in 2010 (mio Euro) | Growth rate 2010/1999 | Average yearly growth rate 1999/2010 |
|---|---|---|---|---|---|
| Austria | 352 | 0,4% | 369 | 5% | 0,4% |
| Belgium | 337 | 1,6% | 401 | 19% | 1,6% |
| Denmark | 56 | 27,3% | 95 | 71% | 5,0% |
| Finland | 268 | 0,1% | 270 | 1% | 0,1% |
| France | 957 | 1,0% | 1.071 | 12% | 1,0% |
| Germany | 3.457 | 6,4% | 4.502 | 30% | 2,4% |
| Greece | 216 | 6,7% | 369 | 71% | 5,0% |
| Iceland | 14 | 5,3% | 23 | 62% | 4,5% |
| Ireland | 82 | 5,6% | 108 | 31% | 2,5% |
| Italy | 1.307 | 0,2% | 1.344 | 3% | 0,2% |
| Liechtenstein | 0 | | 0 | | |
| Luxembourg | 0 | | 0 | | |
| Netherlands | 566 | 5,7% | 562 | -1% | -0,1% |
| Norway | 362 | 7,7% | 620 | 71% | 5,0% |
| Portugal | 104 | 11,9% | 178 | 71% | 5,0% |
| Spain | 75 | -19,4% | 102 | 36% | 2,9% |
| Sweden | 387 | 1,1% | 436 | 12% | 1,1% |
| UK | 3.472 | 13,3% | 5.938 | 71% | 5,0% |
| **Total EEA** | **12.012** | **6,1%** | **16.388** | **36%** | **2,9%** |

[140] TVE, the public service broadcaster benefits from government-secured loans.
[141] EAO, Statistical Yearbook 2001; Andersen calculations.

The average yearly growth rate of public funding has been calculated for each country over the last four years (1995 – 1999). This rate has been applied for the public funding growth up to 2010, with a cap of 5 percent.

#### 7.3.2.2 Advertising

Advertising is the main revenue source for the European audio-visual industry. As explained in chapter 4, the global advertising market (all media) is predominantly correlated with the GDP evolution.

The economic environment is the main driver of the global advertising expenditures in each country. A negative economic environment will negatively impact the growth rate of the advertising market, while in an economic growth environment, advertising will increase. TV advertising is linked to the global advertising market and therefore also depends on the economic environment.

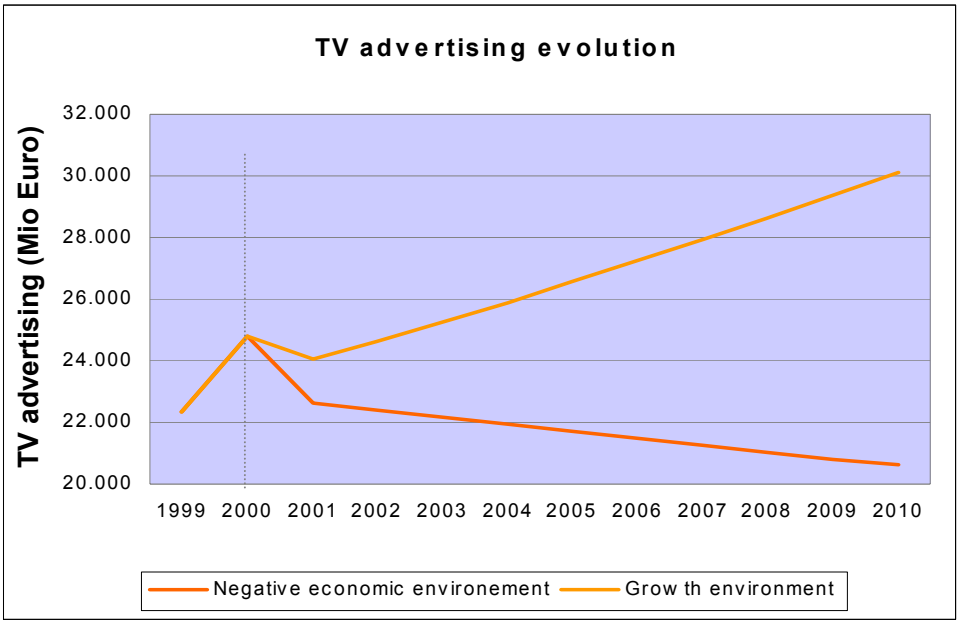
In the table below, the growth rate of TV advertising is shown for the 18 countries in both economic environments. The average yearly growth rate in the EEA between 1999 and 2010 is forecast to be –0,7 percent in a negative economic environment while in a growth environment it is expected to be 2,7 percent.

**Table 26: Evolution of TV advertising expenditures from 1999 to 2010**[142][143]

| | | Negative Economic Environment | | | Growth Environment | | |
|---|---|---|---|---|---|---|---|
| | TV advertising in 1999 (Mio Euro) | TV advertising in 2010 (mio Euro) | Growth rate 2010/1999 | Average yearly growth rate 1999/2010 | TV advertising in 2010 (mio Euro) | Growth rate 2010/1999 | Average yearly growth rate 1999/2010 |
| Austria | 425 | 362 | -15% | -1,5% | 622 | 46% | 3,5% |
| Belgium | 691 | 605 | -12% | -1,2% | 1.129 | 63% | 4,6% |
| Denmark | 241 | 246 | 2% | 0,2% | 300 | 24% | 2,0% |
| Finland | 205 | 196 | -4% | -0,4% | 255 | 24% | 2,0% |
| France | 2.684 | 2.495 | -7% | -0,7% | 3.500 | 30% | 2,4% |
| Germany | 4.317 | 3.947 | -9% | -0,8% | 5.913 | 37% | 2,9% |
| Greece | 613 | 636 | 4% | 0,3% | 817 | 33% | 2,6% |
| Iceland | 6 | 5 | -15% | -1,4% | 12 | 108% | 6,9% |
| Ireland | 173 | 163 | -6% | -0,5% | 218 | 26% | 2,1% |
| Italy | 3.680 | 3.366 | -9% | -0,8% | 5.051 | 37% | 2,9% |
| Liechtenstein | 0 | 0 | | | 0 | | |
| Luxembourg | 8 | 5 | | | 17 | | |
| Netherlands | 604 | 575 | -5% | -0,4% | 728 | 21% | 1,7% |
| Norway | 469 | 433 | -7% | -0,7% | 654 | 40% | 3,1% |
| Portugal | 836 | 719 | -14% | -1,4% | 1.091 | 30% | 2,4% |
| Spain | 2.100 | 1.932 | -8% | -0,8% | 2.952 | 41% | 3,1% |
| Sweden | 361 | 330 | -9% | -0,8% | 515 | 43% | 3,3% |
| UK | 4.924 | 4.588 | -7% | -0,6% | 6.320 | 28% | 2,3% |
| **Total EEA** | **22.336** | **20.603** | **-8%** | **-0,7%** | **30.094** | **35%** | **2,7%** |

[142] ZenithMedia, archives; Andersen estimations.
[143] Luxembourg and Liechtenstein figures have been estimated.

**Figure 58: Evolution of TV advertising from 1999 to 2010**[144]




### 7.3.2.3 Subscriptions

The third revenue source for the audio-visual industry is the amount of money that television households spend each year on subscriptions for receiving programmes from programme packagers, called TV spending.

The forecasts of TV spending have been based on historical data[145] and on the maturity level of each market segment (see chapter 4 for the segmentation). TV spending can be expressed as a percentage of the total disposable income of households. This percentage varies according to the country and ranges from 0,3 percent to 2 percent of disposable income in 1999.

As can be seen from the table below, households spent on average 0,9 percent of their disposable income on TV subscriptions in 1999. TV expenditure is expected to increase with 2,4 percent per year in a negative economic environment, and, with 6,1 percent per year in a growth environment by 2010.

[144] ZenithMedia, archives of subscriptions per TV household; Andersen estimations.
[145] ZenithMedia, "TV in Europe to 2010", 2001

**Table 27: Evolution of subscriptions from 1999 to 2010**[146]

| | | | Negative Economic Environment | | | Growth Environment | | |
|---|---|---|---|---|---|---|---|---|
| | Subscriptions in 1999 (mio Euro) | % of disposable income in 1999 | Subscriptions in 2010 (mio Euro) | Growth rate 2010/1999 | Average yearly growth rate 2010/1999 | Subscriptions in 2010 (mio Euro) | Growth rate 2010/1999 | Average yearly growth rate 2010/1999 |
| Austria | 480 | 1,0% | 474 | -1% | -0,1% | 695 | 45% | 3,4% |
| Belgium | 913 | 1,6% | 721 | -21% | -2,1% | 1.057 | 16% | 1,3% |
| Denmark | 417 | 1,1% | 467 | 12% | 1,0% | 684 | 64% | 4,6% |
| Finland | 202 | 0,6% | 315 | 56% | 4,1% | 462 | 129% | 7,8% |
| France | 3.637 | 1,1% | 4.250 | 17% | 1,4% | 6.229 | 71% | 5,0% |
| Germany | 4.261 | 0,7% | 5.861 | 38% | 2,9% | 8.589 | 102% | 6,6% |
| Greece | 125 | 0,3% | 428 | 242% | 11,8% | 627 | 402% | 15,8% |
| Iceland | 4 | 0,3% | 20 | 458% | 16,9% | 29 | 717% | 21,0% |
| Ireland | 297 | 2,0% | 185 | -38% | -4,2% | 271 | -9% | -0,8% |
| Italy | 943 | 0,4% | 2.324 | 147% | 8,6% | 3.406 | 261% | 12,4% |
| Liechtenstein | 1 | 0,4% | 3 | 307% | 13,6% | 4 | 496% | 17,6% |
| Luxembourg | 15 | 0,4% | 28 | 92% | 6,1% | 41 | 181% | 9,8% |
| Netherlands | 1.549 | 1,5% | 1.363 | -12% | -1,2% | 1.997 | 29% | 2,3% |
| Norway | 208 | 0,8% | 224 | 8% | 0,7% | 329 | 58% | 4,2% |
| Portugal | 195 | 0,6% | 512 | 163% | 9,2% | 751 | 286% | 13,1% |
| Spain | 936 | 0,7% | 1.561 | 67% | 4,8% | 2.287 | 144% | 8,5% |
| Sweden | 534 | 0,6% | 652 | 22% | 1,8% | 956 | 79% | 5,4% |
| UK | 3.469 | 0,9% | 4.330 | 25% | 2,0% | 6.345 | 83% | 5,6% |
| **Total EEA** | **18.184** | **0,9%** | **23.718** | **30%** | **2,4%** | **34.759** | **91%** | **6,1%** |

The growth rates of TV spending per TV household in each market segment have been corrected to take into account the level of maturity of the audio-visual market in each country:

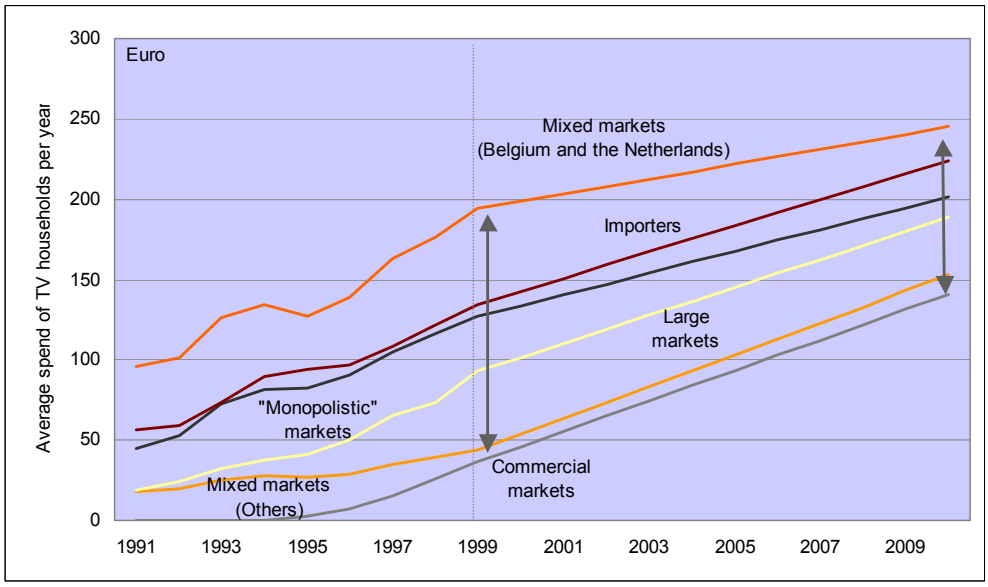
- The Netherlands and Belgium are close to maturity: almost every household can access audio-visual content through two or more distribution channels. Both countries show a very high level of subscription as percentage of disposable income;
- The Nordic countries (other mixed markets) have a culture less focused on television and therefore TV spending per household is on average lower. However, new access technologies are growing fast (e.g. digital satellite);
- Commercial markets (Portugal and Spain) had a lag in terms of audio-visual industry maturity but their average TV spending is expected to catch up rapidly with the European average, partly thanks to the strong TV culture of these countries;
- "Monopolistic" and Importers markets have had parallel evolution in between the above categories. This is mainly due to their above average disposable income per household;
- The audio-visual industry maturity in the Large markets has evolved between 1991 and 1999, thanks to the development of new access technologies and of pay TV channels (especially in UK and in France), even if they have not caught up the level of Belgium and The Netherlands yet.

As can be seen from the figure below, the average expenditure of television households in the different market segments will tend to converge. Between 1999 and 2010, the gap between the Mixed markets (Belgium and the Netherlands) and the Commercial markets will become smaller. On the one hand, the markets that already have a significant level of TV expenditure will grow at a lower pace. The Commercial markets on the other hand are less developed and will face a boom in their TV expenditure in order to catch up with the other markets. The Mixed markets (except Belgium and the Netherlands) already started

[146] ZenithMedia, "TV in Europe to 2010", 2001; Andersen estimations.

to close the gap as they become multi-channel and therefore the average TV spending is expected to grow in the future.

**Figure 59: Average expenditure of Television Households from 1991 to 2010**[147]




### 7.3.3 Other assumptions

Several other assumptions have been taken into account in order to construct the model. The following costs were calculated on the basis of the assumptions described below:

- Costs of the access to platforms;
- Cost for programme packages.

***Costs of the access to platforms***

The model that was developed delivers the penetration rates of analogue and digital transmission modes in 2010. In order to forecast these penetration rates, assumptions have been made on the cost element for consumers to access platforms and on the infrastructure costs incurred by access providers.

The model provides an indication of the penetration rates of analogue transmissions in 2010. If the remaining analogue penetration is too low, it can be expected that local governments will take actions to facilitate a total transition to digital mode of transmission.

The different elements of the costs to access a platform are:

- Subscription fee: this amount includes the cost incurred to get access to the channels the access providers propose. Only the subscription fees for a basic package have been taken into account;

[147] Compiled by Andersen based on ZenithMedia (1991-1999) and Andersen forecasts, figures in case of an economic growth environment

- Set-up fee: this fee includes the cost incurred to physically install a connection from the network to the end-customer (e.g. to the set-top box);
- Equipment cost: this cost consists of either the equipment rental cost that is paid each month, or the cost resulting from buying the equipment necessary to receive the basic package of channels.

The equipment costs incurred by access providers are assumed to decrease over time, depending on the level of maturity of the technology. DTT equipment costs are expected to decrease rapidly since the industry has not reached a mass production level yet. Digital cable and digital satellite equipment costs are expected to have a slower decrease since the industry is mature and most of the equipment is already written off.

***Cost for programme packagers***

Assumptions were also made for the revenues and costs for content producers. Content producers' revenues are influenced by the programme expenditures of programme packagers. In order to determine the revenues of content producers, assumptions had to be made on the level of programme expenditure: programme expenditure has been estimated as a percentage of the programme packager's revenue, depending on its generation. In addition, a split was made between the programme packager's own production, domestic acquisition or commissioning and international acquisition. Only the two first categories are considered as revenues for the domestic production industry.

As can be seen from the table below, Public Service Broadcasters allocate most of their revenues to programme expenditure, especially on own production, domestic acquisition and commissioning. This will positively impact the revenues of local content producers.

Free commercial broadcasters tend to commission or acquire more compared to Public Service Broadcasters. Once they mature, they tend to increase the percentage of own productions.

Pay TV channels, on the other hand, spend only between 22 and 41 percent of their revenues on programme expenditure and acquire a large amount of international content. This does not stimulate local content producers' revenues to the same extent as the Public Service channels.

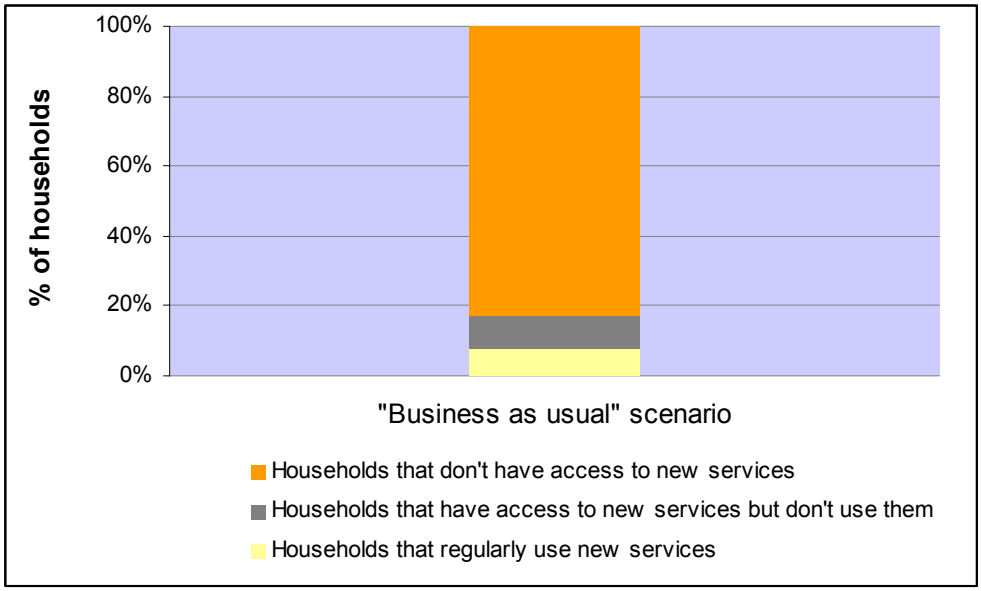
**Table 28: Size and Allocation of programme expenditures for European programme packagers**[148]

| | Percentage of revenues dedicated to programme expenditures | Split of programme expenditures | | |
|---|---|---|---|---|
| | | Own production | Domestic acquisition or commissioning | International acquisition |
| Public Service Broadcasters | 60% | | | |
| | *of which* | *50%* | *40%* | *10%* |
| Free Commercial Broadcasters | 50% | | | |
| | *of which* | *15%* | *55%* | *30%* |
| Pay TV operators | 22% - 41% | | | |
| | *of which* | *5%* | *15%* | *80%* |

Overall, the percentage of programme expenditure is considered fixed over time, except for the percentage of pay TV operators. As the number of pay TV channels increases, the competition between them increases too. Pay TV operators need to raise the quality of their programming to attract the audiences and this often means that they turn more to original content production. Consequently, the expenditures on programmes of pay TV operators will increase and are expected to evolve from 22 percent in 1999 to 41 percent in 2010.

The figure below provides an overview of the expected behaviour of consumers in case of a negative growth environment. In the Business as usual scenario, the majority of the households does not have access to new services.

**Figure 60: Insight on how audience behaviour could change in the Business as usual scenario**




[148] Delphi study, Andersen research and calculations, 2001

## 7.4 Strategic Implications of the "Business as Usual" Scenario

### 7.4.1 Impact on the financial strength of industry stakeholders

The "Business as Usual" scenario will not profoundly change the existing revenue flows of the audio-visual industry. However, while the growth rate of public funding is assumed to remain unchanged, other revenue flows will be affected:

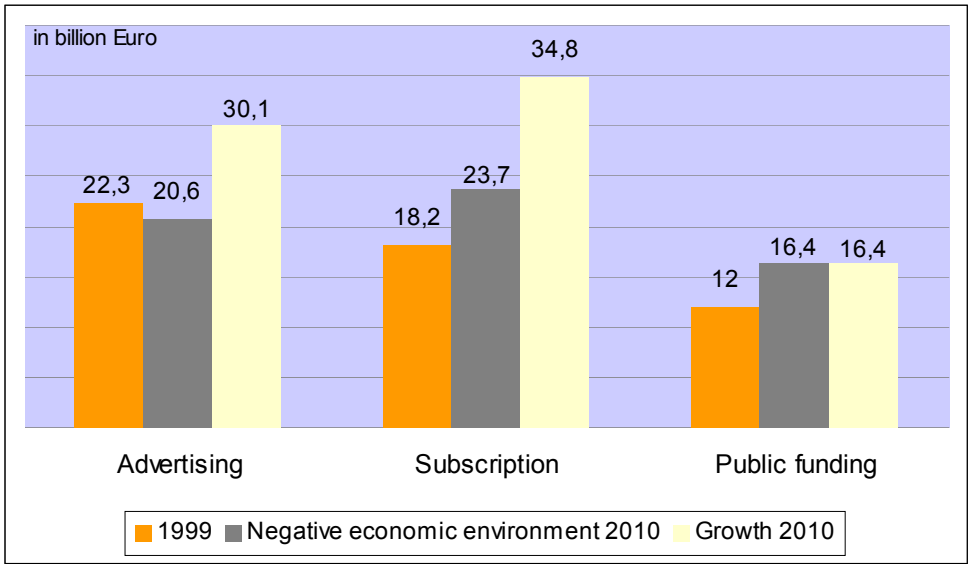
- The economic environment will influence the growth rate of advertising revenues;
- Subscription revenues are expected to increase due to the development of currently less mature markets.

As discussed in chapter 4, the advertising market is highly correlated to the economic environment. In the case of a growth environment, the advertising revenues will increase from 22,3 billion Euro to 30,1 billion Euro (see the figure below). On the other hand, a negative economic environment, advertising revenues flowing to television are estimated to decrease by 9 percent. They will fall from 22,3 billion Euro in 1999 to 20,6 billion Euro in 2010.

As discussed in section 7.3.2.3, some market segments reach a significant level of TV spending, while other countries are lagging behind. However, the average TV spending of the different market segments is expected to converge by 2010.

Given the assumption of no regulatory change, the volume of public funding will be independent of the economic environment.

**Figure 61: Overview of impact on revenue flows in a growth and negative economic environment**



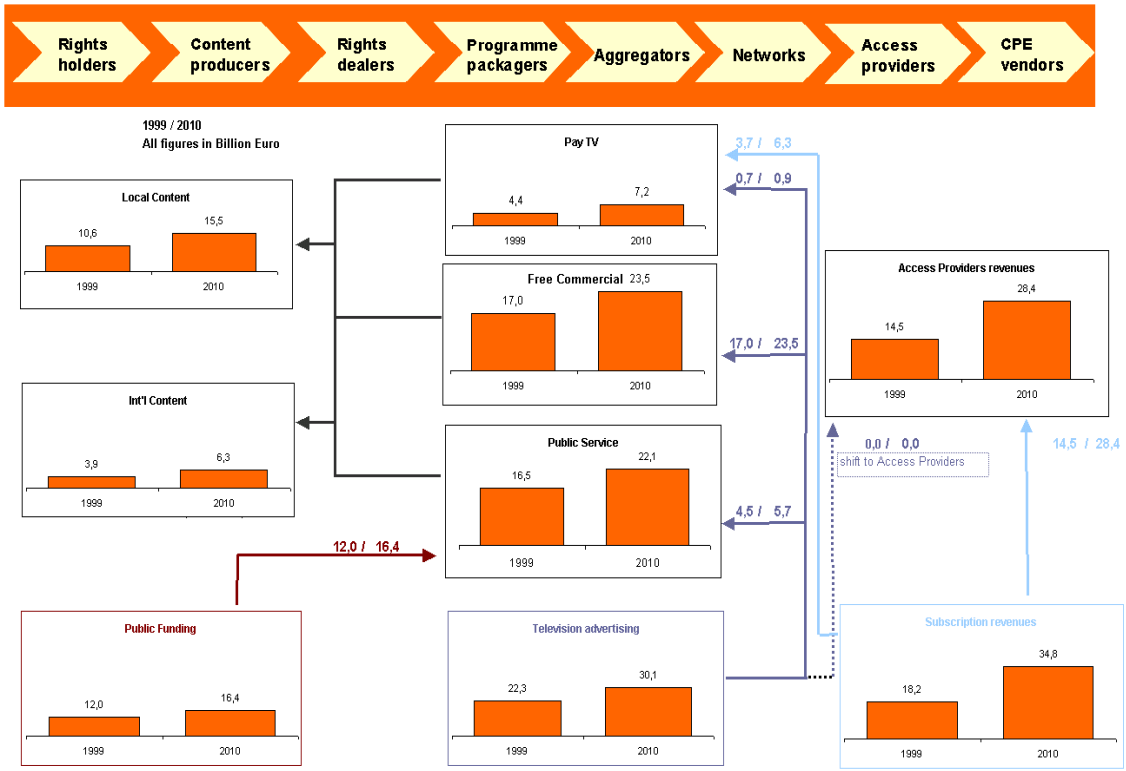

The three revenue flows of the audio-visual industry will be distributed among the different types of industry players. The figures above provide an overview of the repartition of the advertising, subscription and public funding revenues among the different industry players in both economic environments.

### 7.4.1.1 Revenue flows in a growth environment

In a growth environment, the overall amount subscribers will spend is expected to increase strongly by 2010 (+6,1 percent average yearly growth rate). This increase has fuelled the development of pay TV channels in markets segments that were not yet mature. And conversely, the development of pay TV channels has in return fuelled the increase of TV spending.

Subscription fees flow to access providers and pay TV operators, who will almost double their revenues from this source.

**Figure 62: Impact of a growth environment on the value flows**[149] [150]




### 7.4.1.2 Revenue flows in a negative economic environment

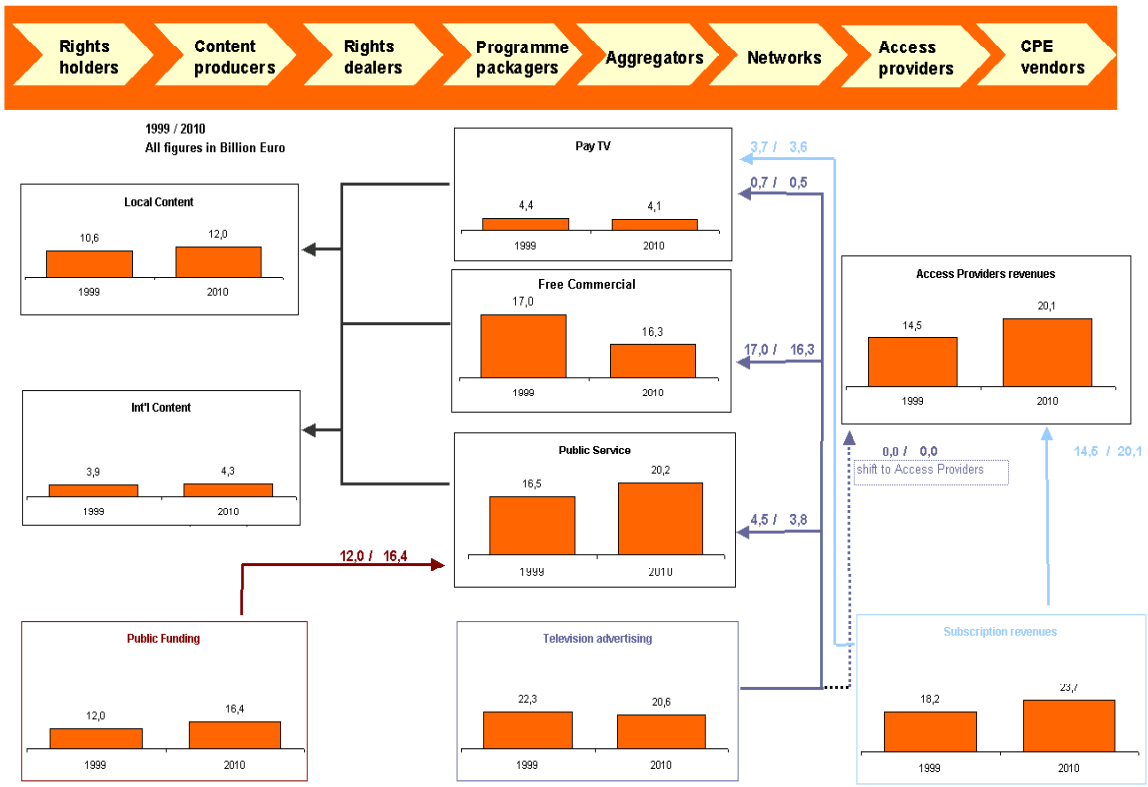
In a negative economic environment, advertising revenues will decrease. Free commercial broadcasters are most impacted as their main revenue source is advertising. Some Public Service Broadcasters and pay TV operators will suffer less from the declining advertising market.

Subscription revenues will increase, but their growth is more moderate in this negative economic environment (plus 2,4 percent versus 6,1 percent in a growth environment),

[149] Note that local context is considered to be European context
[150] Figures relating to local and international context do not include own productions

Subscription revenues flow to access providers and pay TV operators, but pay TV operators' revenues are expected to grow less than access providers' revenues. This can be explained by the fact that pay-TV channels, as a discretionary expense, would be one of the first expenses to be cut by consumers in an economic slow down.

**Figure 63: Impact of a negative economic environment on the value flows**



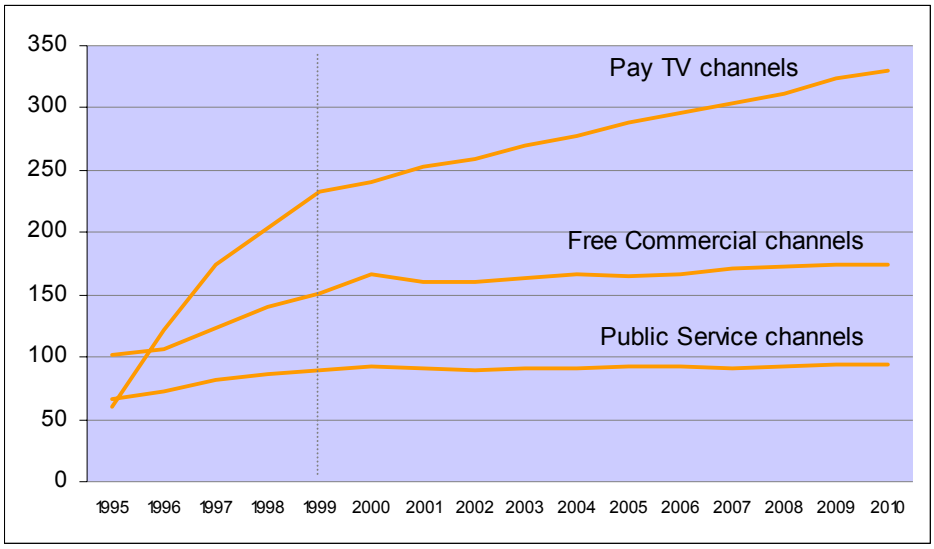

## 7.4.2 Impact on consumer choice and control

In order to gain insight into the impact of the "Business as Usual" scenario on consumer choice and control, the number of channels and the distribution modes of the different countries have been studied, both in a negative economic environment and a growth environment.

### 7.4.2.1 Impact on consumer choice in a growth environment

The changes in the revenue streams indicated in the previous section will impact consumer choice. In an economic growth environment, pay TV channels will globally increase because of the development of less mature markets, while the number of Public Service and free commercial channels stagnates.

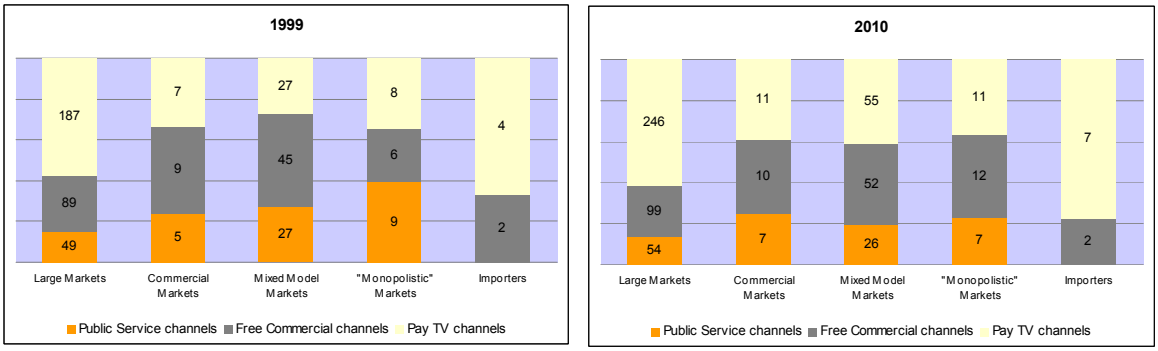
**Figure 64: Evolution of the number of channels in a growth scenario**




Some market segments reveal differences in the evolution of number of channels:

- Some Large countries will experience a large growth of the number of pay TV channels (e.g. Italy +59 percent and Germany +84 percent), while more mature Large markets will have a more moderate growth (UK +27 percent and France +4 percent);
- "Commercial", "Mixed" and "Importers" markets will all see strong increases in their number of pay TV channels (more than 50% between 1999 and 2010);
- "Monopolistic" markets may even expect a boom in their number of free commercial channels, as these markets will open up to competition.

**Figure 65: Distribution of the number of channels in 1999 versus 2010 in a growth environment**



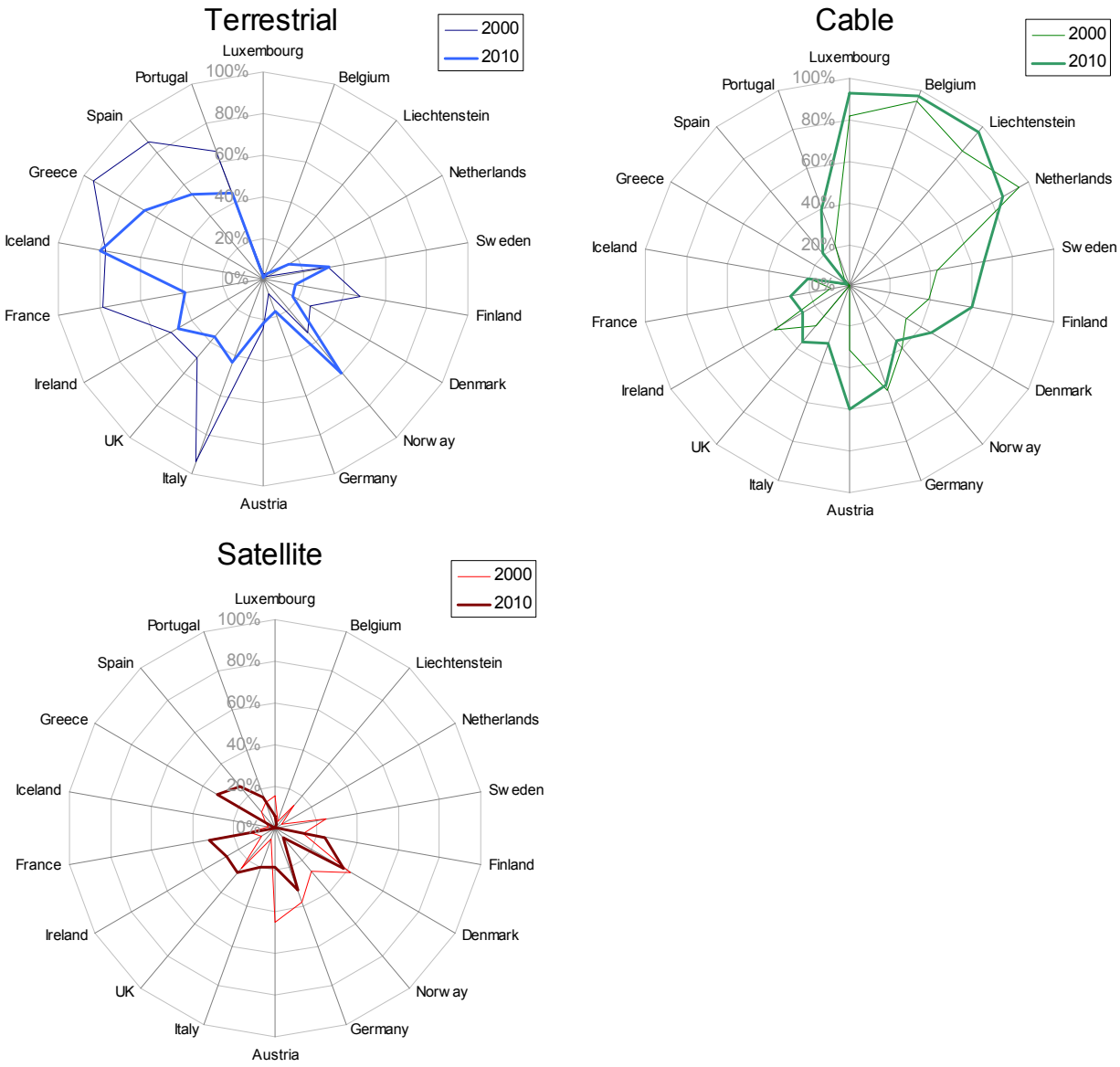

Another trend in the growth scenario is that cable and satellite gain market share compared to the terrestrial network, as the offer of content is larger on these platforms and as TV spending of households increases in a growth environment.

This is observed in most of the European countries, unless specific DTT deployment plans exist that can help to maintain the current terrestrial penetration rate or when physical barriers exist that limit the cable penetration.

Therefore, consumers will have the possibility to make a choice between two or more multi-channel platforms. The figures below indicate the actual (2000) and forecasted

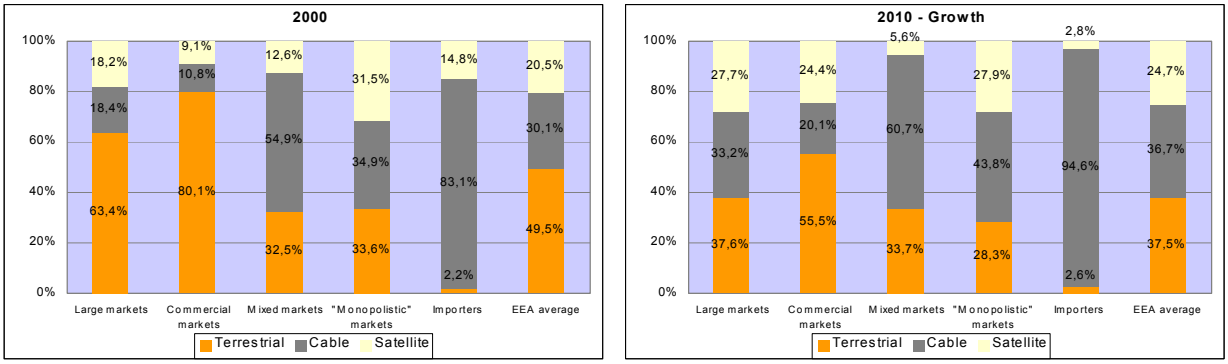
(2010) penetration of the three main access technologies in all EEA countries. The penetration is given in percentage of television households that actually subscribes (or activates their access) to the platform[151].

**Figure 66: Evolution of the transmission modes in a growth environment**




[151] For some platforms, the access can be free (e.g. analog terrestrial) or by means of buying a set-top box (DTT, satellite). The fact of activating the access does not necessarily mean the payment of a periodical subscription fee.

**Figure 67: Estimated penetration of transmission modes in percentage TV HH in a growth environment**




Overall, the growth environment will favour the development of the audio-visual industry in two main areas:

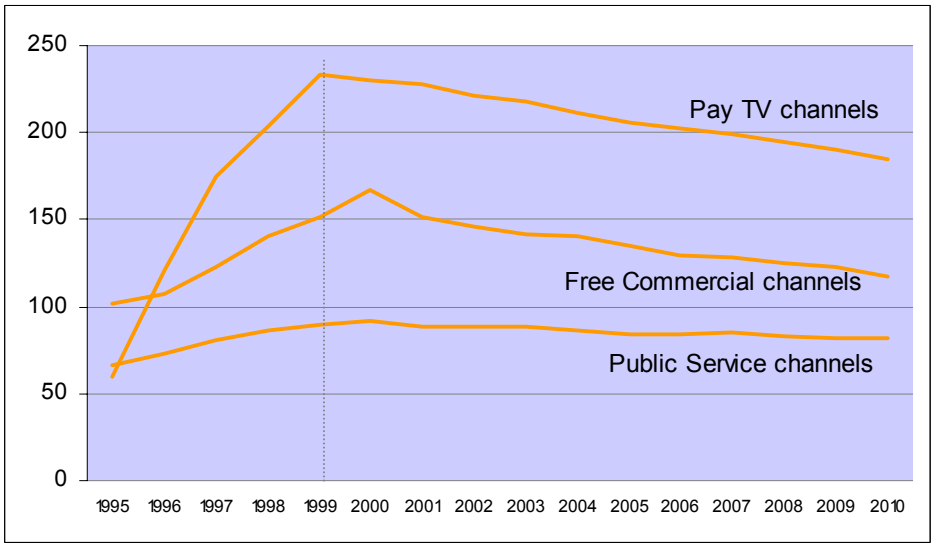
- Development of access technologies giving households the possibility to subscribe to a multi-channel platform by choosing one of the available transmission modes;
- Further development of pay TV operators, that reveals a progressive change in the consumers' behaviour towards television.

These two factors will make the audio-visual content supply evolve progressively towards more personalisation and/or more interactivity.

### 7.4.2.2 Impact on consumer choice in a negative economic environment

In a negative economic scenario, one can expect a consolidation of the programme packagers industry. The main reason for this is the pressure on the financials of all types of programme packagers that leads to an industry consolidation, i.e. a decrease in the number of channels. It can be expected that the emerging consolidation trend for programme packagers (e.g. RTL) will continue, driven by the search for economies of scale (e.g. in purchasing of rights or in commissioning of content).

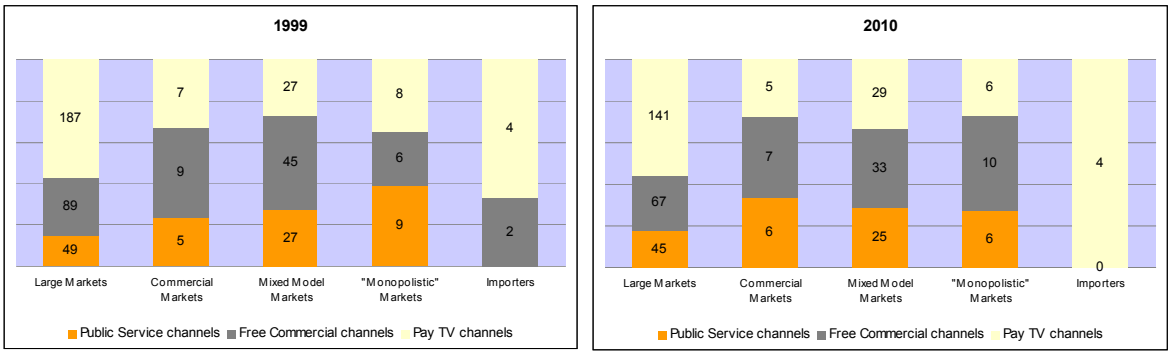
**Figure 68: Evolution of the number of channels in a negative economic environment**



In case of a negative economic environment, the major differences concerning the number of channels are the following:

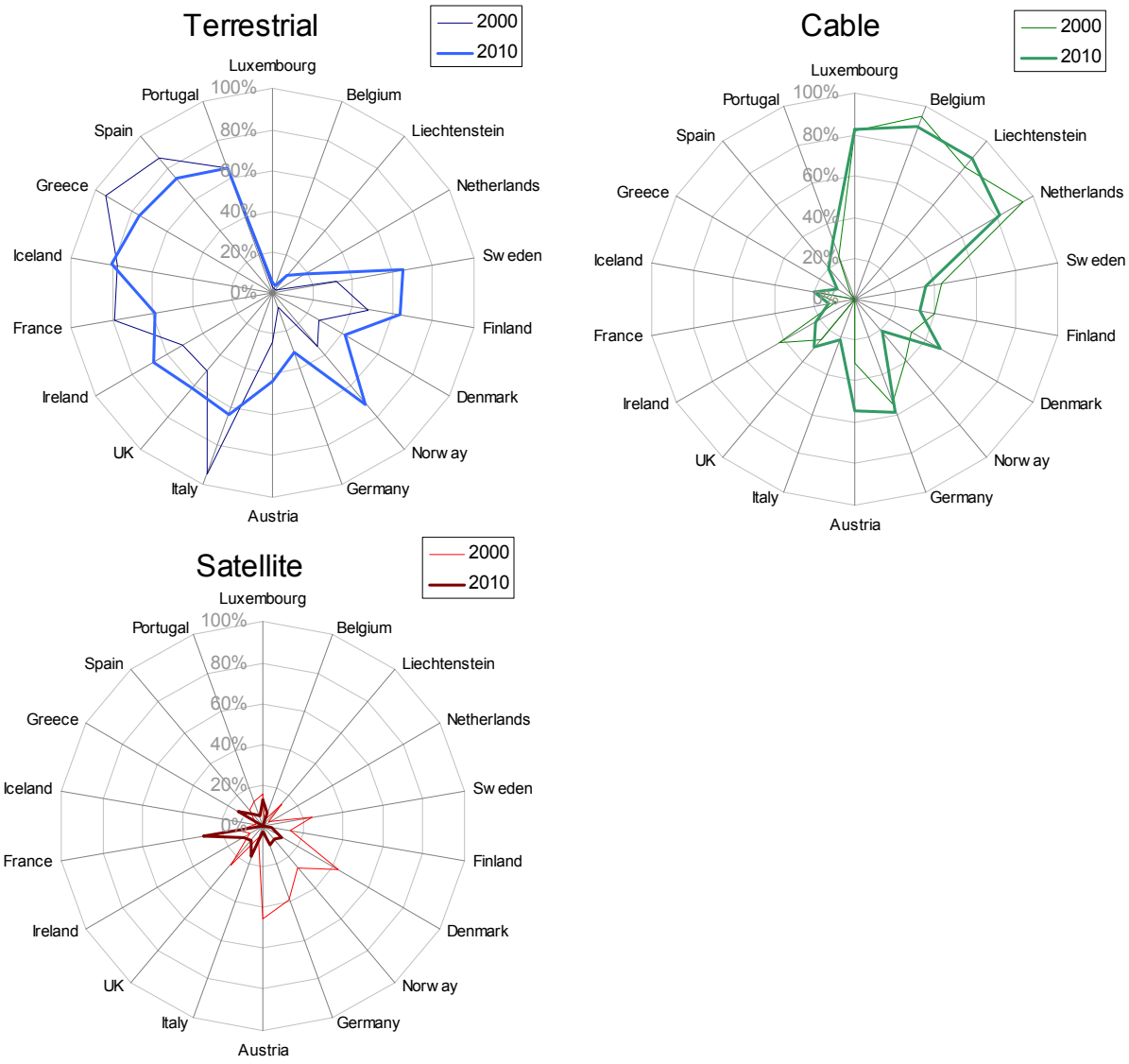
- Large markets that are closer to maturity in 2000 (France, Spain and the UK) experience the largest decrease in the number of channels, especially among free commercial and pay TV channels, while Germany will keep about the same number of channels;
- “Mixed” and “Importer” markets will face a stronger decrease in the number of free commercial channels than in the pay TV channels;
- In the “Monopolistic” markets, a negative economic environment will not lead to a decrease in the number of free commercial channels, as the television advertising market still has to be developed.

**Figure 69: Distribution of the number of channels in 1999 versus 2010 in a negative economic environment**



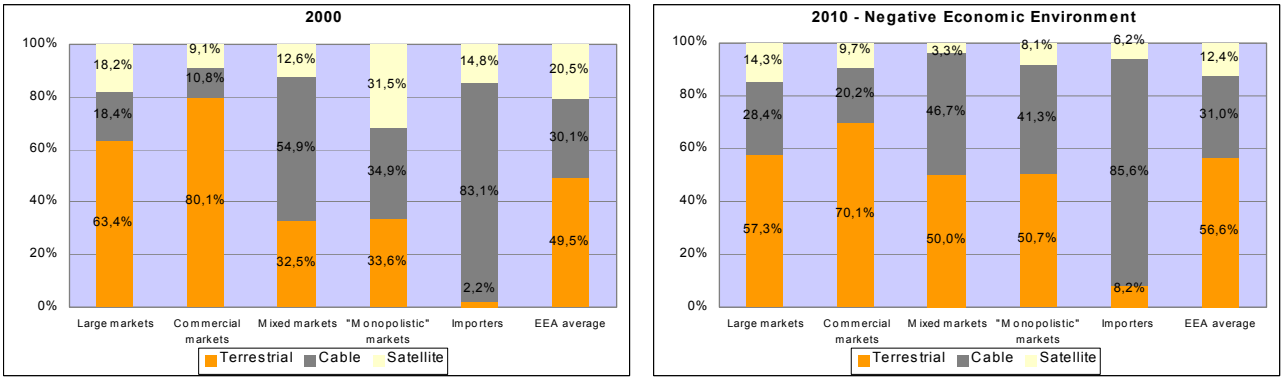

As for access to content, the negative economic environment will restrict the ability of access providers to invest in new digital platforms. Users will stick longer to their current platforms’ choice or will even choose the free platform, i.e. the terrestrial one, for the reception of audio-visual content. As can be seen from the figure below, the satellite mode tends to lose market share as it is often combined with pay-TV packages. The pay-TV packages are indeed one of the first expenses to be cut off by households in case of a negative economic environment.

**Figure 70: Evolution of the transmission modes in a negative economic environment**




The trend outlined here suggests that the consumer choice and control tends to decrease in a negative economic environment, as no new technology offer emerges in the different markets and as the number of channels decreases.

**Figure 71: Estimated penetration of transmission modes in percentage TV households in a negative economic environment**



The main conclusion from the above figure is that no revolutionary change occurs in the distribution of transmission modes in Europe in a negative economic environment. The penetration of the terrestrial mode of transmission is expected to decrease less than in an economic growth scenario, and its penetration share among all distribution channels will even increase on European average. This is due to the fact that consumers will tend to decrease their TV spending, by cutting off first pay-TV channels, which are transmitted through cable or satellite. They may therefore turn back to "free" platforms.

## 7.5 Conclusion

The business as usual scenario is the extrapolation to the future of the audio-visual trends observed between 1995 and 2000. The probability that this scenario will fully materialise in the long run is linked to the persistence of a negative economic environment (-1% GDP decrease yearly).

Andersen estimates that the "Business as Usual" scenario is probably the most credible in the short term (up to 2005 at the latest). On the other hand, the European audio-visual industry will not continue to avoid the strong technology developments already ongoing and the TV landscape will evolve by 2010.

The "Business as Usual" scenario will impact the audio-visual industry in three ways:

- On the consumer side, consumer choice and control will tend to increase in an economic growth environment, while on the opposite it will tend to decrease in a negative economic environment;
- On the programme packagers' side, free commercial broadcasters will be the most impacted in the case of a negative economic environment, while their growth will be moderate in the case of an economic growth;
- But in general, diffusion will be mostly affected, notably in the large markets, by the negative economic environment in view of the heavy past investments and commitments.

The table below provides an overview of the key impacts of this scenario on the stakeholders and analyses possible differences per market model (as introduced in Chapter 2).

**Table 29: Key impacts on the stakeholders per market model[152]**

| | Content | Packaging | Diffusion |
|---|---|---|---|
| **Key impacts** | The market power of the content producers remains low, especially in view of the legal barriers to entry. In case of economic growth, the bargaining power will somewhat increase as the demand will significantly increase. This scenario provides no indication for an increased profitability compared to the current studies. | The number of first and second generation channels remains fairly stable and is not very dependent on the economic scenario | Economic growth will foster technology and stimulate a rapid deployment of digital and access provisioning platforms. The speed deployment will depend on the economic Horizontal mergers are likely to take place and will be stimulated in case of an economic Andersen expects that current infrastructure probably be repriced through a cycle of bankruptcies and take-overs. Because of the high investments needed in fixed (the network), Andersen does not expect DTT to widely deployed by private |
| | = | = | ↓ |
| **Large Markets** | - | - | - - |
| **Commercial Markets** | - | - | + |
| **Mixed Model Markets** | = | + | + |
| **Monopolistic Markets** | = | = | = |
| **Importers** | N.A. | = | = |

If the European economy does not grow during the next 5 years, it is expected that most industry operators will delay their digitisation investments and that the traditional advertising market will significantly shrink. The important pressure on the financials of all types of programme packagers and the decrease of revenue potential could directly impact the financial viability of a number of free commercial and pay-TV channels. This would lead to an industry consolidation and a decreasing number of pay TV channels, especially in the large markets.

A negative economic environment will also tend to restrict the willingness of consumers to spend on new digital platforms. Consumers could prefer to remain with their current choices. Therefore satellite is expected to lose market share as it is often combined with pay-TV packages. As a conclusion, one of the key variables studied in this report, "customer choice and control", is not expected to increase in the negative economic environment.

Should the European economic environment recover and return to a sustained economic growth for a period longer than 5 years, the industry would be likely to evolve towards either the "interactivity" or the "personalisation" scenarios or a combination of both. Overall, the key trends that have prevailed between 1995 and 2000 are expected to continue:

- Digital platforms will continue to grow, in terms of number of platforms and of revenues;
- The current focus on providing more content to the consumer through the creation of more channels is likely to continue. In case of a positive economic environment, the growth of pay-TV channels should continue steadily, especially in smaller

[152] Assumption that the business as usual scenario is mostly associated with a low economic growth

European countries, where their penetration rate was still limited, while a stagnation of the number of free-to-air commercial channels is expected;

- Despite the continuous growth of pay-TVs, public services and commercial free channels are expected to continue to attract mass-audiences;
- The advertising market, after a slow-down in 2001 and 2002, should recover and pursue its growth. Public service and commercial free channels are expected to continue to attract the largest part of the advertising budgets;
- Integration amongst content producers and access providers is expected to continue.

Almost all households will have the opportunity to access platforms providing them with a large number of channels. Terrestrial network operators are expected to lose market share in favour of cable and satellite operators.

The number and remit of public service programme packagers will remain substantially unchanged in both economic environments.

The business as usual scenario is not expected to significantly impact the relative market strength of the operators described in the value chain. Overall, they will all benefit from a positive economic environment that will increase their revenue sources (advertising and subscriptions) and will allow them to develop new added-value services. In case of a negative economic environment, access providers are expected to suffer most since they would have to delay technology investments and put their model at risk.

# 8 Interactivity Scenario

## 8.1 Introduction

As discussed in Chapter 6, the main assumption of the “Interactivity” scenario is that the television screen will be used to access more and new entertainment services.

These new uses of television will fragment the time spent in front of the television set over the different interactive services and the traditional TV viewing. This implies a paradigm shift from a “lean-back”, passive, TV-viewing to a “lean-forward”, active usage of the television set.

These changes in consumer behaviour pose a real threat for the programme packagers. As advertising revenues are linked to audience shares, a fragmentation of this audience will put the business model of these industry actors under pressure.

Interactivity opens up new perspectives for advertisers, giving them the opportunity to reach their audience in a new creative way.

The launch of interactive services from the television set is enabled through certain technological developments:

- The development of intelligent end-user equipment;
- The digitisation of broadband networks, allowing the transmission of complex, enhanced, content and a return path;
- The development of asset management solutions, making content portable to a diversity of platforms;
- The increased storage and processing capacities.

In this chapter, the interactive service offering is discussed as well as the factors that enable and/ or impede the existence and development of this offer. The UK will be used as an example throughout this chapter, as they are at the forefront of iTV services.

The “Interactivity” scenario will not only profoundly impact consumer behaviour and the service offering, but also the role of industry actors and the flow of revenues. Key strategic issues will be identified and through the use of an economic model, a vision on the industry structure in 2010 will be obtained.

## 8.2 Definition of the scenario

### 8.2.1 Definition of Interactivity

iTV can be defined as digital television, enabling two-way communication between the consumer and the service provider.

Whereas television has traditionally been a one-to-many broadcast medium, interactive television will allow the user to tailor the content to some extent. This requires the service provider to deliver content to a set-top box via cable, satellite or terrestrial networks. They also need to install some return channel, a way for the consumer to communicate with the service provider. This return channel could be a regular telephone line, a digital subscriber line (xDSL) or a cable TV line.

**Figure 72: Evolution of interactive digital TV services**[153]

*Evolution of interactive digital TV services*

| Start | 1972 | 1992 | 1998-1999 | Emerging |
|---|---|---|---|---|
| **Phase** | Analogue broadcasting | Analogue / digital broadcasting with local interactivity | Digital broadcasting with return channel | Digital broadcasting with broadband return channel |
| **Technological capabilities** | VBI (Vertical Blanking Interval) insertion of data "carrousel" | Data transport stream for specific services in "carrousel" mode<br><br>((analogue) sat, cable) | "Carrousel" services with PSTN on-demand return channel<br><br>(sat + PSTN, terr. + PSTN) | Broastcast services enablement with on-demand broadband applications<br>(DSL, cable, sat + DSL, terr. + DSL) |
| **Examples of applications** | • Teletext<br>• Teletext subtitles | • Information services<br>• Enhanced TV (synchronised broadcsting stream)<br>• Basic games<br>• EPG<br>• Weather guide<br>• Horoscopes<br>• Call-center retail | • Pay-per-use services (nVoD, games,etc.)<br>• Shopping services<br>• Email<br>• Voting<br>• Betting | • True VoD<br>• Interaction with broadcasting stream (audience participation)<br>• Multiplayer games |

The first interactive services were simple information services such as a weather guide, horoscopes, basic games, EPG, call-centre retail etc., but the “interactivity” remained limited. Ordering something, for example, required viewers to call a number displayed on the television screen.

Driven by the service providers’ and platform operators’ desire to include transactional services, the next evolution of iTV services was the addition of the return channel, enabling the end-consumer to dial up and send back data to the platform operator.
The set-top box was equipped with a modem, connected to the phone line. Because the broadcast bandwidth was limited, the amount of content that service providers could put in their services was restricted or services had long waiting times for end-consumers.

[153] Source: Andersen

Most of the platforms used the telephone line for the return channel, which is ill suited for some services due to the time needed to establish a connection and the constraints on bandwidth.

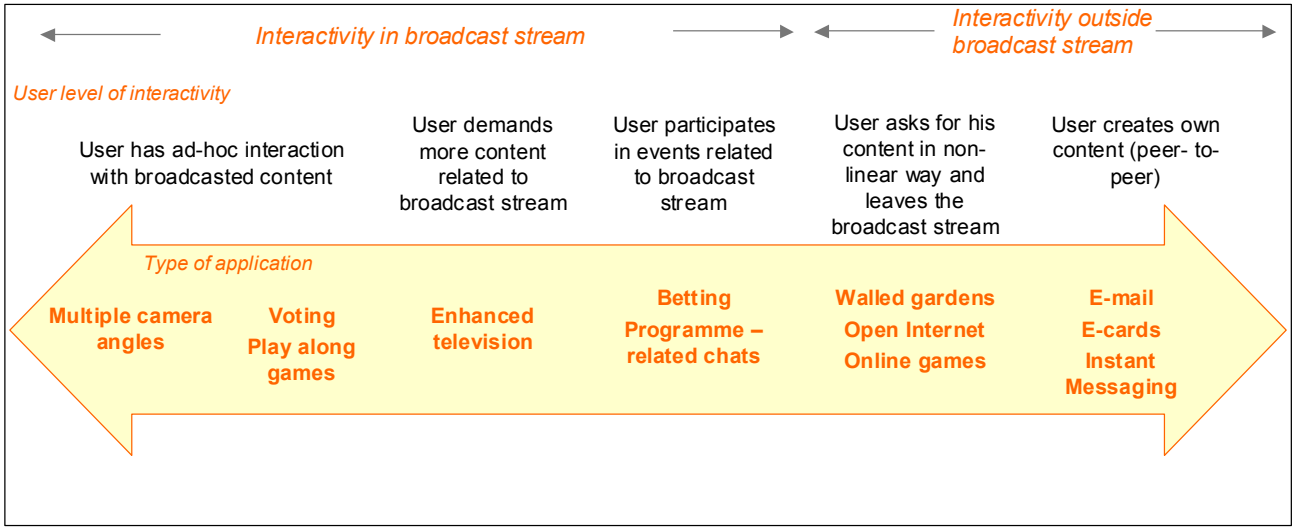
The final stage in the development of interactive services is the combination of digital broadcasting and a broadband return channel. This innovation creates huge potential for new services as the broadband return channel offers large bandwidth (a digital subscriber line or a cable TV line). Examples are true VoD, multiplayer games, etc.

### 8.2.2 Overview of the new interactive services

For the purpose of defining interactive services in this report, a distinction between two types of interactive services is made (figure below). On the one hand, there are the interactive services that are linked to the broadcast stream, called *"embedded interactive services"*. Examples are multiple camera angles, voting, play along games, enhanced television, programme-related chats, gaming (betting), etc.

On the other hand, there are interactive services outside the broadcast stream, called *"interactive applications"*. Examples of services in this category are multiplayer games, Internet access, "walled garden", VoD, e-mail, instant messaging, etc.

**Figure 73: Overview of interactive services**




- *"Multiple camera angles"* is one of the "embedded interactive services" allowing viewers to choose their preferred camera standpoint, for example during a sports game.
- *"Voting"* is a service where viewers can give their opinion on a certain topic by choosing one of the proposed answers to a question.
- *"Play along games"* are generally introduced in game shows. Some time is left before the answer is given on television in order to let the viewers at home play along.

In the three examples described above, the user has an ad-hoc interaction with the content broadcast.

Another type of “embedded interactive services”, allowing the user to demand more content related to the broadcast stream, is *“enhanced television”.* For example, when a travel programme on Australia is on, viewers can push a button, asking for more information on Australia (weather conditions, hotel information, fauna and flora, etc.).

“Betting” and “programme-related chats” are examples of “embedded interactive services” whereby the user participates in the events related to the broadcast stream. *“Betting”* allows the viewer to bet on certain events, such as horse races, football matches, etc. Activities that give viewers the opportunity to provide their opinion on a certain topic and discuss with others are *“programme-related chats”.*

*“Interactive applications”* consist of two different kinds of services. On the one hand, there are applications where the user asks for or “pulls” content in a non-linear way, leaving the broadcast stream, such as multiplayer games, “walled garden”, Internet access, VoD, etc. On the other hand, there are applications where the users create their own content, such as e-mail, e-cards, instant messaging, etc.

*“Multiplayer games”* allow multiple viewers to play (team) games and compete with one another.

*“Walled garden”* is a concept that refers to a “wall” around content. The users can access only a set of content providers on a specific platform. The content provided is specially repurposed for this platform. A “walled garden” can also include television commerce applications. These are the services that allow consumers to shop interactively (be it for clothes, food, videos, CD’s, books, furniture, etc.).

*“Video-on-demand”* is a service whereby consumers can choose any programme from a “content library” and view it at any time they want.

A whole range of other informational or transactional services (“pull” content) are available to consumers:

- *“Banking”*: access your bank account, check the statement of your account, move money, quote for a personal loan, find out all about financial services, etc.
- *“Travel and tickets”:* get information on the price of holidays and flights, see pictures of hotels, book a vacation on-line, buy on-line tickets for concerts, etc.
- *“Home services”:* register for gas and electricity supply, view your detailed bill, ask questions on your bill, etc.
- *“Other services”:* look up a phone number, find a restaurant, search job offers, check the programme of the nearest cinema, look at the real estate offer or add your offer of a property, etc.

The second type of “interactive applications”, interactive communication services, allows users to communicate with each other (peer-to-peer). Consumers can send a text message to a mobile phone, read e-mails, write e-mails, send an electronic card to a friend, etc.

### 8.2.3 Changing consumer behaviour

The multitude of interactive services available to consumers brings the potential to fundamentally change the viewing habits of consumers and the way they use their television set today.

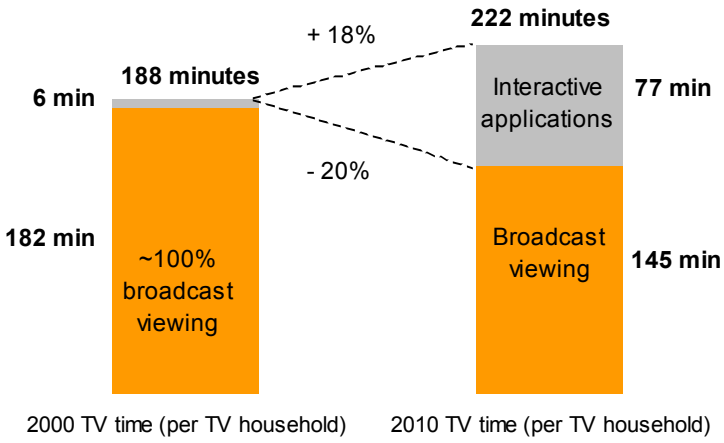
Consumers will no longer watch television in a passive "lean-back" way. "Interactivity" will stimulate viewers to shift towards a "lean-forward" viewing, in which the consumer is more actively involved.

The possibility to access new services through the television set will fragment the time of consumers between watching television and using interactive services.

Consequently, TV viewing time is expected to decrease, while the total time spent in front of the television will increase. The attractiveness and new possibilities interactive services introduce will increase the time consumers spend on these new services.

For the purpose of this scenario, a distinction is made between TV viewing time and TV time. "*TV viewing time"* is the time that consumers spend on watching a TV programme, while "*TV time"* is the total time spent in front of the TV set. TV time thus includes the TV viewing time as well as the time spent on other television services (e.g. games, e-mail, chat, etc.).

**Figure 74: Interactive TV use today versus in 2010**[154]




Andersen expects that the traditional TV viewing time will decrease with 20 percent between 2000 and 2010, while consumers will increase their total TV time with 18 percent.

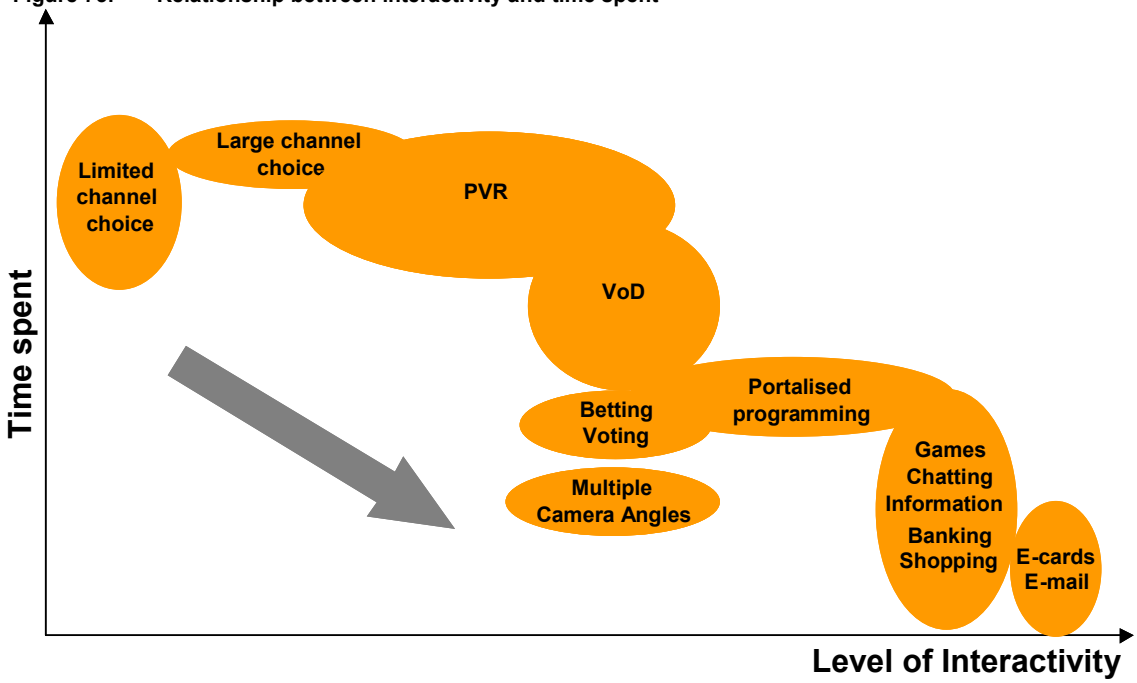
In terms of time, as the figure above shows, this implies that the average European consumer will spend an extra 36 minutes in front of the television set by 2010. This means that the decrease in TV viewing time together with the increase of the total TV time spend will create 77 minutes to spend on interactive applications.

154 Source: Andersen estimates. Current online use relates only to broadband (2001 data)

Whereas the television always had a “social” function, bringing together people around the TV set, interactivity also implies a shift towards an individual, personal use of the television. On the other hand, the “social” function of the television is already impacted by the trend towards households today owning multiple TV sets and the increase in the number of single households.

As interactive services allow viewers to actively “pull” content or even create content, they demand more concentration and effort of the viewer than the “lean-back” use of television. Research done by Datamonitor shows the existence of a relationship between the time spent on an interactive service and the degree of interactivity (see figure below).

**Figure 75: Relationship between interactivity and time spent**[155]




The current on-line behaviour of consumers might serve as an indication to gain insight into the time spent on interactive television applications and the type of services that will be successful in the future.

A comparison is made between the time narrowband Internet users spend on-line to the time of broadband users. The transition from narrowband to broadband Internet allows users to download content quicker and to have access to new types of content on-line, such as streaming video, etc.

This is comparable to the shift in the television industry, where digital broadcasting with a PSTN return channel will move towards digital broadcasting with a broadband return channel.

The below figure shows that users who switched from narrowband to broadband Internet increased their time spent on-line by 27 percent. Community and communication activities, such as e-mail, chatting and instant messaging are the services that represent

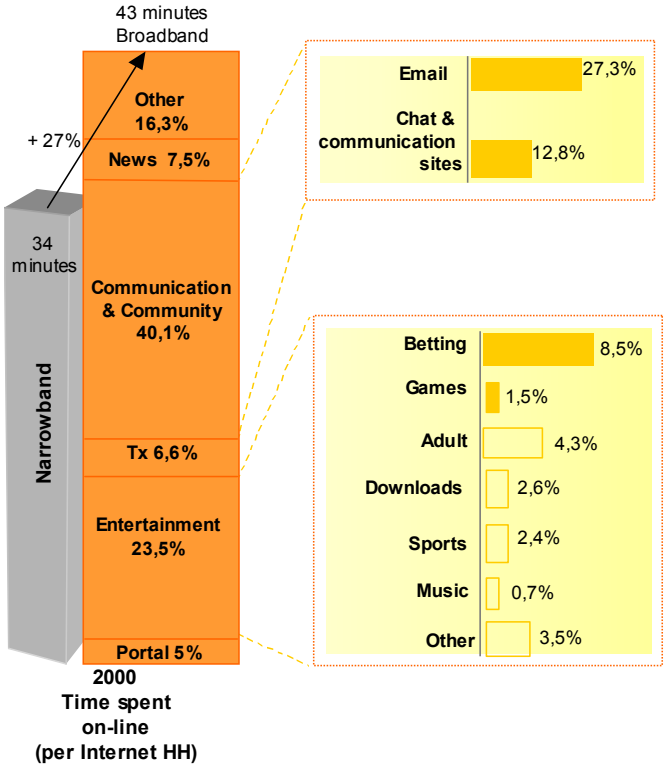
[155] Compiled by Andersen based on Datamonitor, “Is the channel dead”, 2001, p.10

the largest amount of time spent on-line (40 percent of time). However, first results indicate that this phenomenon is less important on iTV platforms (see figure below).

Entertainment, such as games and betting are the second most important sites visited (users spend 23,5 percent of their time on-line on this category), while news and information services ranked third. The importance of entertainment, news and information services is also present on iTV platforms.
Research in the UK[156] showed that "first-mover" users of interactive services are in favour of "entertainment" services, such as games, but they are reluctant to services relating to "work" type activities.

During the interviews of the Delphi study, industry experts confirm that games, e-mail and information services will become the success stories of the "interactive" future.

**Figure 76: Broadband use in 2000[157]**




## 8.3 Market forecasts

### 8.3.1 Market forecasts

In order to quantify the impact of the interactivity on the media industry, an assumption about this technology's penetration of television households has to be made.

[156] Source: Counterpoint Research, prepared for Oftel:, "Digital Television – Consumers' Use and Perceptions", August 2001.
[157] Compiled by Andersen based on Mc Kinsey, "What do broadband consumers want", 2001

The average iTV penetration in Europe amounts to 5 percent of the television households today (see table below), but mainly France and the UK are at the forefront of the uptake. The UK doubled its number of interactive households in one year, from 3 million households at the end of 1999 to 6 million at the end of 2000[158]. The country represents 88 percent of the current European iTV homes.
By 2010, iTV penetration in Europe is expected to increase to 74 percent in 2010. Several developments can contribute to the take-up of these services, while others might impede them:

- Investments: platform operators have to incur high investment costs in order to be able to offer iTV services;
- Risk: the high platform investments have to be offset against the potential revenues. Interactive services have not been proven in terms of generated revenues;
- The consumer willingness to pay: the price consumers are willing to pay for iTV services will depend on their perception of additional functionalities iTV services bring;
- The type of iTV services: some services prove to be successful and are valued by consumers, while other services have less potential to generate audience;
- Equipment provision: the uptake of iTV services will be faster if set-top boxes are provided to consumers for free (or on a rental basis).

As the scenario logic used in this study is based upon exploring the most extreme scenarios, the assumption will be made that all of the above barriers can be overcome. In addition, for market penetration of the interactive services, this study will use the data from the table below as the basis for modeling the impact of the “Interactivity” on the media industry.

**Table 30: Estimated iTV penetration, EU average[159]**

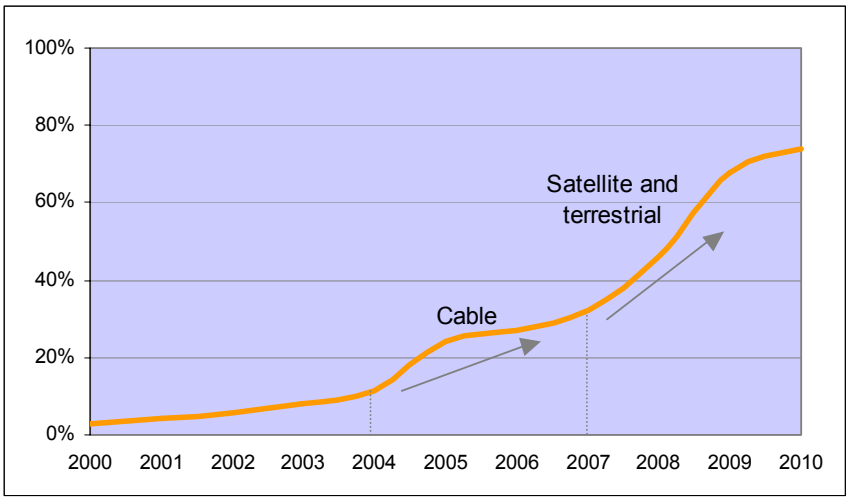
| Millions, households | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
| Total interactive end-user devices | 6,8 | 9,0 | 12,4 | 17,7 | 37,2 | 41,9 | 49,6 | 71,3 | 105,4 | 114,7 |
| Year on year growth units | 2,2 | 2,2 | 3,4 | 5,3 | 19,5 | 4,7 | 7,8 | 21,7 | 34,1 | 9,3 |
| Year on year growth percentage penetration | 1% | 1% | 2% | 3% | 13% | 3% | 5% | 14% | 22% | 6% |
| **% households** | **5%** | **6%** | **8%** | **24%** | **26%** | **27%** | **32%** | **46%** | **68%** | **74%** |

As can be seen from the figure above, there are two accelerations in the uptake of iTV services. The first acceleration, starting in 2004, will be driven by the cable platforms. These platforms will quickly transit to interactive services, as their technology is inherently better suited to offer interactive services.

[158] Source: Forrester, “Unleashing interactive TV”, 2001
[159] Source: Andersen

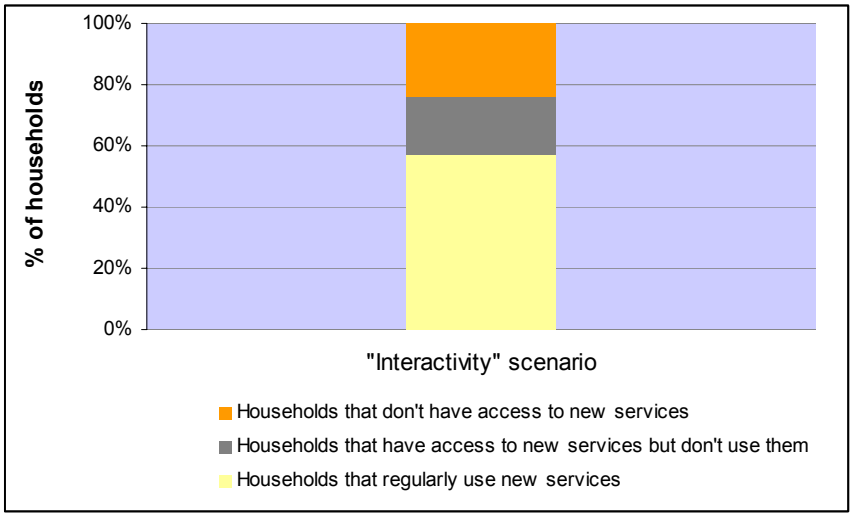
The development of interactive services on satellite and digital terrestrial platforms, which is expected to start from 2007 onwards, will contribute to the second acceleration in iTV. These transmission modes will be developed later as they depend on the evolution of broadband platforms (e.g. xDSL) in order to offer a return path (needed to have true interactive media capabilities) or on evolutions and price decrease of new technologies (two-way satellite).

**Figure 77: Evolution of iTV penetration, EU average160**




The Figure below provides an overview of the likely expected behaviour of consumers in case of a negative growth environment. In the “interactivity” scenario, the majority of the households have access to new services and regularly use them.

**Figure 78: Insight on how audience behaviour could change in the “interactivity” scenario**




### 8.3.2 Enablers of the scenario

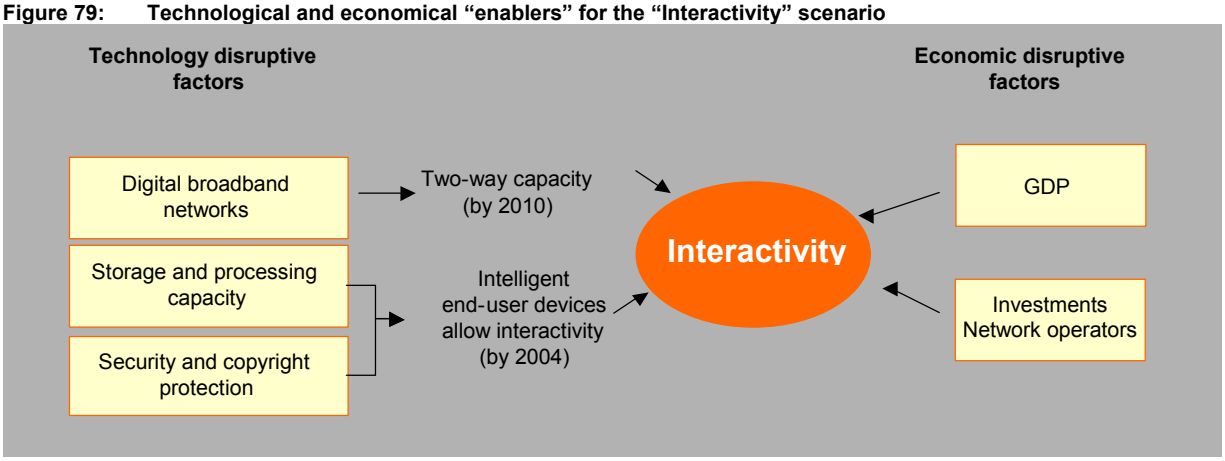
The “Interactivity” scenario is based on a series of hypotheses of disruptive factors. Several economical, technological or sociological factors need to be considered since

[160] Source: Andersen

they may enable or prevent the move towards interactivity. The likelihood of the "Interactivity" scenario can be determined in the short, medium and long term, based on these enablers and barriers.

The main hypothesis of the "Interactivity" scenario is the shift toward the use of the television screen to access new entertainment services, fragmenting the TV time over the different television's uses or on the evolution and price-decrease of new technologies (two-way satellite).

**Figure 79: Technological and economical "enablers" for the "Interactivity" scenario**




The main enablers for the interactivity are technological innovations. The digital broadband networks that enable the two-way capacity or return channel, combined with the availability of intelligent end-user devices, are essential elements for providing interactive services. Andersen expects this two-way capacity to be in place by 2010, while the intelligent end-user devices are expected to be widely spread by 2004.

Furthermore, the key media stakeholders will also contribute to the development of interactive applications as they could benefit from it. Access providers will be the key points of contact to the consumers. They will stimulate the use of non-broadcast content, such as on-line magazines, games and "walled garden".
The industry will stand to gain from the revenue streams created through this diversification of services.

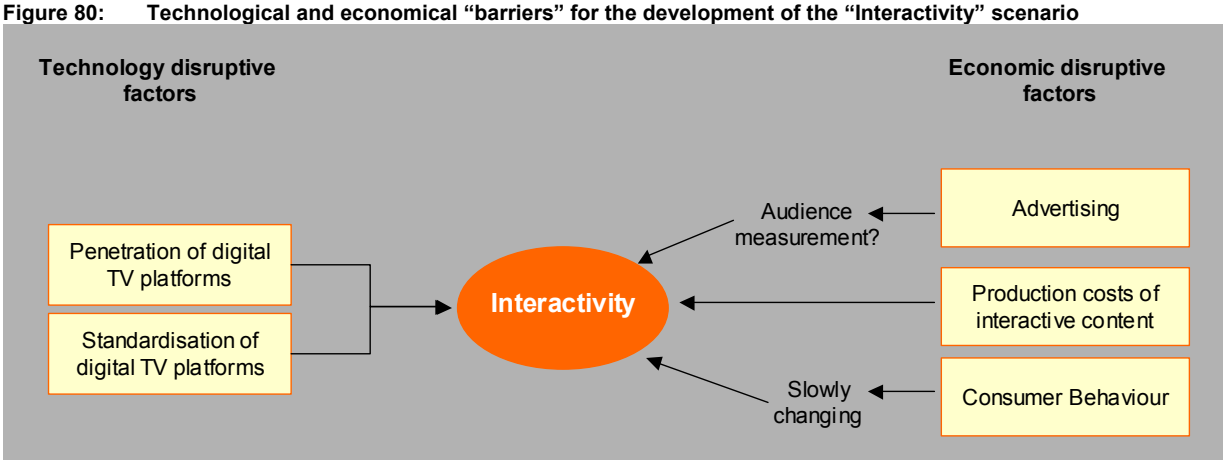
The development of the "Interactivity" scenario provides programme packagers the opportunity to attract consumers, thus maximising their audience share. Programme packagers are expected to offer interactive functionalities inside their programmes ("embedded interactive services").

Finally, advertisers will push for more active audiences, as a way for them to enhance one-to-one communication with the viewers. The TV interactivity will offer them new opportunities for "below-the-line"[161] advertising.

[161] below-the-line advertising is one category of advertising. It covers the following elements: presence in points of sale, direct marketing, loyalty cards, events sponsorships and internet activities

### 8.3.3 Barriers for the development of the scenario

**Figure 80: Technological and economical "barriers" for the development of the "Interactivity" scenario**




The penetration and the standardisation of the digital TV platforms are the main technological barriers for the development of the "Interactivity" scenario. An "Interactive" scenario cannot be envisaged without the deployment of digital TV. The current economic situation has already driven the slowdown of digitisation plans in European countries (e.g. the UK has postponed its planned analogue switch-off).

As the prevailing model of watching TV today is still passive "lean-back" viewing, the uptake of the interactive services will depend on how fast this current consumer behaviour will change. In first-mover countries, like the UK, the change of consumer behaviour is indeed slower than expected. In research conducted by Oftel, users indicate that the use of interactive services is sometimes a selfish, inappropriate use of the television set in multi-person households[162].

Another barrier on the economic side is the production cost of interactive content. On average, it is estimated that an interactive programme would cost about two times as much as a non-interactive version[163]. As the potential revenues from interactive services have not been proven yet, these actors will be reluctant to direct part of their investments in new interactive content.

Finally, the conservative allocation of advertising budgets can be considered a barrier. Advertisers only invest in a medium when it is proved to have a validated way of measuring the audience. The interactive technology is expected to deliver a measurement system that is more effective as the current one and has the possibility to gather personal customer data. Once this technology is in place, the barrier will be overcome.

[162] Counterpoint Research, prepared for Oftel, "Digital Television – Consumers' Use and Perceptions", August 2001
[163] Andersen research

## 8.4 Strategic implications of the "Interactivity" scenario

The introduction of interactive services will impact the audio-visual industry in two ways:

- As the audience share of a channel is the primary measurement by which advertisers allocate their budgets, the decrease in TV viewing time will directly impact the size and distribution of these advertising budgets over the industry;
- As new service providers will enter the market to develop and supply new services, the balance of power in the value chain will shift. In addition, the new services will impact the type of revenues the audio-visual industry attracts.

### 8.4.1 Impact on the financial strength of the industry stakeholders

The impact of the "Interactivity" scenario on the existing revenue flows of the audio-visual industry is twofold.

Firstly, advertising revenues are under pressure as the TV viewing time decreases on the one hand. On the other hand, interactivity will bring new opportunities for advertisers (interactive advertising, targeted advertising, product placement, etc.).

Secondly, the subscription revenues are expected to increase. On the one hand, consumers will be prepared to allocate part of their entertainment spending on interactive services, increasing the revenues of service providers. On the other hand, interactivity offers the audio-visual industry the potential to increase revenues (commissions) from television commerce.

#### 8.4.1.1 Advertising Revenues

The introduction of iTV fragments the time consumers spend in front of their television between TV viewing and interactive services. Andersen expects that the TV viewing time will decrease by 20 percent (see section 8.2.3., Changing Consumer Behaviour)[164]. Consequently, the advertising budgets of programme packagers will be impacted.

Andersen estimates that advertising budgets will decrease by 16 percent as advertisers will continue to advertise on the television because it is still one of the mass audience points, even though TV viewing time decreases.

The "Interactivity" scenario opens a whole new world for advertisers whereby they can be much more creative and efficient in targeting their audience. Several new forms of advertisements will be launched, especially during sports matches and games (see figure section 8.2.3, Interactive TV use today versus in 2010), such as virtual advertising, product placement, personalised advertising, etc.

The interactive technology has the potential to deliver audience measurement systems that are more effective than the current one and it provides the opportunity to gather personal customer data.

[164] Source: Interviews with industry experts (Delphi study)

Interactive content and adverts provide advertisers with several advantages, such as:

- Building an on-line relationship with consumers;
- Getting involved in one-to-one communication;
- Personally target consumers;
- Changing the advertisement messages or language according to the geographical area of the consumers;
- Buying space on the screen of interactive applications in order to be visible during games, information searched, etc.

The potential to rethink television advertising together with reliable audience measurement systems will shift part of the “below-the-line” advertising budgets to the iTV platform.

Interviews with advertising directors and an analysis of the advertising revenues revealed that 33 percent of the total advertising budgets are “below-the-line” budgets (see chapter 4). For the purpose of this scenario, “displays” and abstract advertising have not been considered in the shift as these two parts relate to “physical” advertising. Only part of the budgets of direct marketing actions is taken into account as these budgets can be shifted towards the iTV platform. Therefore, Andersen estimates that the total advertising revenues will increase in volume by 4,1 percent.

The table below summarises the shifts in advertising budgets in an economic growth environment and in a negative economic environment:

- The evolution of the “traditional” television advertising will significantly differ depending on the economic environment. In a growth environment, “traditional” television advertising will increase by 4,4 billion Euro, while in the negative economic environment, “traditional” television advertising will decrease by 4,1 billion Euro;
- In the growth environment, the shift from the “below-the-line” advertising market amounts to 1.009 million Euro, while it amounts to 841 million Euro in the negative economic environment;
- Overall, the total “new” television advertising will increase by 5,4 billion Euro in the growth environment, while it will decrease in a negative economic environment by 3,2 billion Euro.

**Table 31: Shift of advertising revenues to the programme packagers[165]**

| | | Growth Environment | | | Negative economic environment | | |
|---|---|---|---|---|---|---|---|
| | TV Advertising spend in 1999 (in mio €) | Evolution "traditional" television advertising in 2010 (in Mio Euro) | Partial impact of the shift from "below-the-line" advertising market (in Mio Euro) | TV Advertising spend in 2010 (in mio Euro) | Evolution "traditional" television advertising in 2010 (in Mio Euro) | Partial impact of the shift from "below-the-line" advertising market (in Mio Euro) | TV Advertising spend in 2010 (in mio Euro) |
| Austria | 425 | 548 | 21 | 569 | 319 | 15 | 333 |
| Belgium | 691 | 995 | 38 | 1.033 | 532 | 25 | 557 |
| Denmark | 241 | 264 | 10 | 274 | 217 | 10 | 227 |
| Finland | 205 | 225 | 9 | 234 | 173 | 8 | 181 |
| France | 2.684 | 3.083 | 119 | 3.202 | 2.198 | 102 | 2.299 |
| Germany | 4.317 | 5.208 | 202 | 5.410 | 3.476 | 161 | 3.637 |
| Greece | 613 | 720 | 28 | 748 | 560 | 26 | 586 |
| Iceland | 6 | 52 | 0 | 52 | 21 | 0 | 21 |
| Ireland | 173 | 192 | 7 | 199 | 144 | 7 | 150 |
| Italy | 3.680 | 4.449 | 172 | 4.621 | 2.965 | 137 | 3.102 |
| Liechtenstein | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Luxembourg | 8 | 15 | 1 | 16 | 5 | 0 | 5 |
| Netherlands | 604 | 641 | 25 | 666 | 506 | 23 | 529 |
| Norway | 469 | 576 | 22 | 598 | 382 | 18 | 399 |
| Portugal | 836 | 1.136 | 37 | 1.173 | 680 | 29 | 709 |
| Spain | 2.100 | 2.600 | 101 | 2.701 | 1.702 | 79 | 1.781 |
| Sweden | 361 | 454 | 18 | 472 | 290 | 13 | 304 |
| UK | 4.924 | 5.567 | 199 | 5.766 | 4.041 | 187 | 4.228 |
| **Europe** | **22.336** | **26.725** | **1.009** | **27.734** | **18.211** | **841** | **19.049** |

Interactive advertising and digital TV are still in their early stages in most of the European countries. However, in more advanced countries like the UK, there are some positive indications that reveal that interactive ads will increasingly be used in the future.

The advertisers' attitude and vision on iTV[166] was researched in the UK. The main results of the study are summarised below:

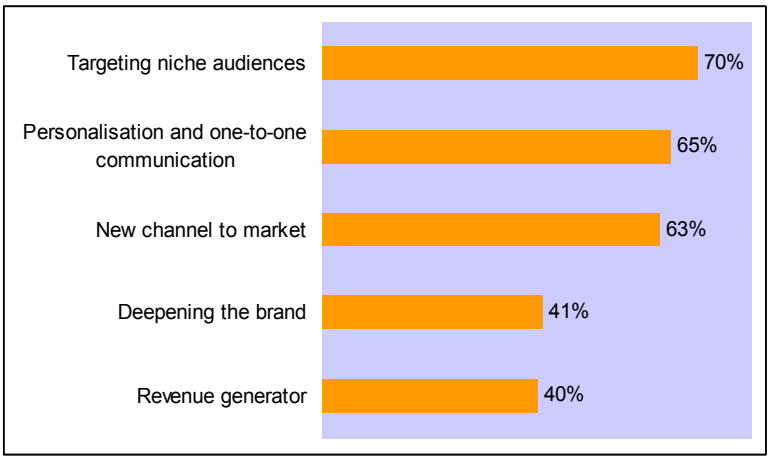
- 78 percent of the interviewees (marketers) use on-line advertising;
- 31 percent find direct marketing the most successful way of advertising;
- 29 percent would allocate totally new advertising budgets to iTV.

Advertisers indicate targeting niche audiences, allowing personalisation and allowing one-to-one communication as the main benefits of iTV advertising. As can be seen from the below figure, all of the benefits score high.

One of the reasons is that advertisers believe that iTV combines all the best elements from different media. It delivers the level of detail found in the press and on the Internet, it has the size as the delivery in the home of the TV and it offers a response mechanism for direct marketing (see section 4.1.4).

[165] Note that the calculated shifts are figures for the total industry whereas the advertising revenues are figures for programme packagers only
[166] BMPtvi, "A media in waiting – A research report based on a survey of marketers' attitude to interactive TV", March 2001

**Figure 81: Benefits of iTV advertising**[167]




### 8.4.1.2 Subscription Revenues & Consumer Transaction Revenues

The “Interactivity” scenario will increase the number of television services consumers can access. In turn for the provisioning of certain interactive services, industry actors can charge consumers either by increasing the existing monthly subscription fee or on a pay-per-use basis.

A second increase in the subscription revenues in the “Interactivity” scenario is due to the substitution of access device for certain entertainment activities. It is expected that consumers will shift part of their current entertainment spending on game consoles, entertainment software, the Internet, etc. towards the iTV platforms. As the number of compelling services offered on iTV increases, consumers will use the television set as a substitute for accessing several services that are available today on game consoles, the Internet, etc.

The industry will also be able to expand their revenue sources via commissions on television commerce. TV commerce will either be accessible as a service as such, providing consumers with “virtual” shopping centres, or will be inserted in the audio-visual programme.

A shopping service whereby goods can be ordered through the use of the television set can be one of the interactive applications available to consumers. But the commerce can also be inserted into the content itself. When watching a programme, consumers will be able to click on the sunglasses of an actor for example and find out how to order them. When consumers actually buy goods or services, the industry can get a percentage of the transaction value.

The table below summarises the evolution of the subscription revenues in a growth environment as well as in a negative economic environment.

[167] BMPtvi, “A media in waiting – A research report based on a survey of marketers’ attitude to interactive TV”, March 2001

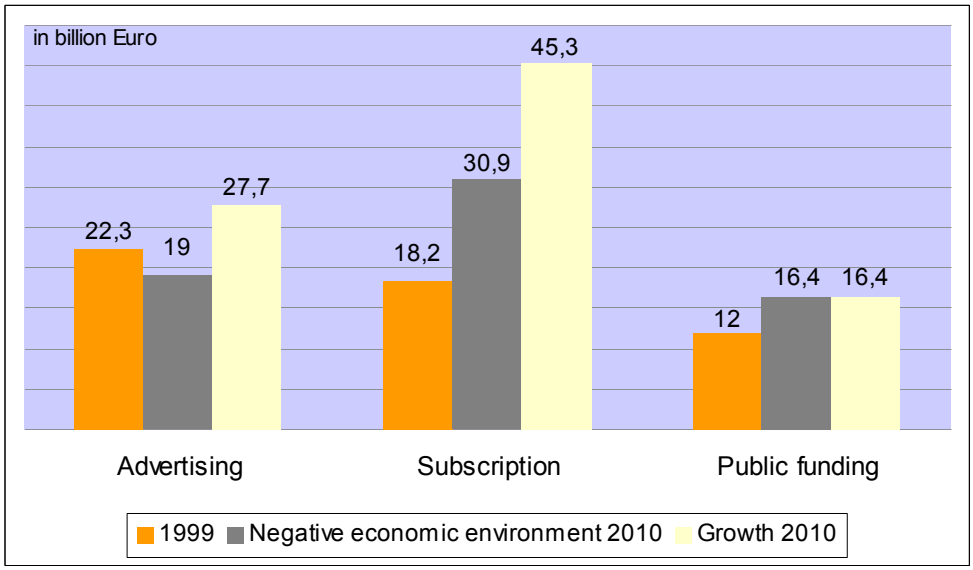
**Table 32: Shift of subscription revenues**

| | Subscription revenues in 1999 (in mio €) | Subscription revenues in 2010 in growth environment (in mio €) | Subscription revenues in 2010 in neg. economic environment (in mio €) |
|---|---|---|---|
| Austria | 480 | 830 | 567 |
| Belgium | 913 | 1351 | 922 |
| Denmark | 417 | 1126 | 768 |
| Finland | 202 | 684 | 467 |
| France | 3.637 | 8104 | 5530 |
| Germany | 4.261 | 10410 | 7704 |
| Greece | 125 | 637 | 435 |
| Iceland | 4 | 36 | 25 |
| Ireland | 297 | 470 | 321 |
| Italy | 943 | 3644 | 2486 |
| Liechtenstein | 1 | 5 | 3 |
| Luxembourg | 15 | 41 | 28 |
| Netherlands | 1.549 | 2347 | 1601 |
| Norway | 208 | 472 | 322 |
| Portugal | 195 | 790 | 539 |
| Spain | 936 | 2803 | 1913 |
| Sweden | 534 | 1383 | 944 |
| UK | 3.469 | 10137 | 6918 |
| **Europe** | **18.184** | **45.271** | **30.925** |

### 8.4.1.3 Overview of Revenue Flows

The figure below provides an overview of the revenue sources in the different economic environments.

**Figure 82: Overview of impact on revenue flows in a growth and a negative economic environment**




As discussed above, the advertising budgets will be influenced by the change in consumer behaviour, new ways of advertising and the increase in the number of available television services.

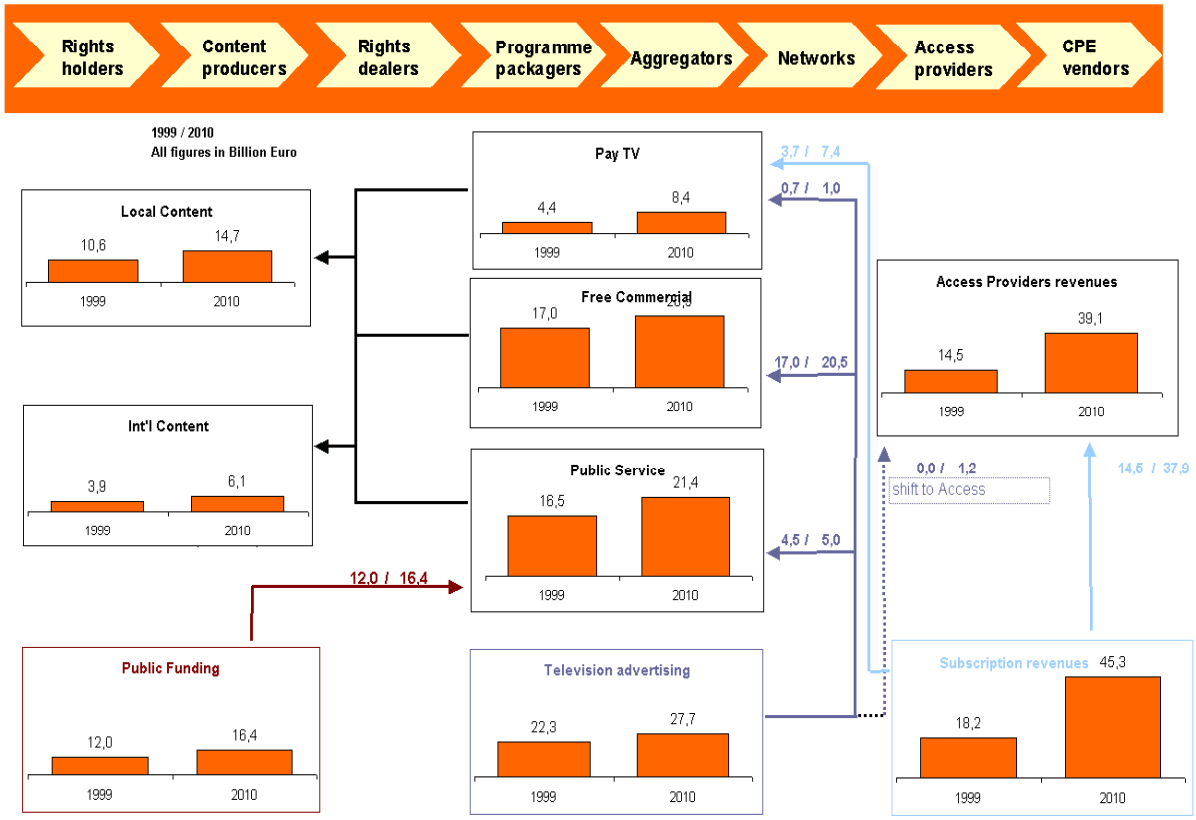
The subscription revenues will increase since industry actors will charge for these new services and consumers will shift part of their spending on game consoles, Internet, etc. to the iTV platform. The audio-visual industry can also tap a new revenue source, being commission on television commerce (this revenue flow is included in the subscription revenues).

The three flows of the audio-visual industry revenue will be distributed among the different types of industry actors. The figure below provides an overview of the repartition of the advertising, subscription and public funding revenues in an economic growth environment.

In both environments, two shifts in the advertising revenue can be noted:

- The decreased TV viewing time has a negative impact on the television advertising market. Andersen expects a decrease of 16 percent in television advertising budgets (this percentage should be applied on a business as usual basis in 2010);
- More accurate audience measurement systems and the possibilities to advertise "interactively" will increase the volume of advertising by 4,1 percent (this percentage should be calculated on a business as usual basis in 2010, also taking into account the above mentioned correction).

**Figure 83: Impact of a growth environment on revenue flows**




As can be seen from the above figure, the television advertising revenues grow and mainly the pay TV operators benefit from the growth in advertising revenues, evolving from 4,4 billion Euro in 1999 to 8,4 billion in 2010. Factors that drive the increase are the

ability of advertisers to target audiences better by means of pay TV channels and the increase in the interactive services that will be offered on these channels.
Pay TV operators attract more advertising revenues in the “Interactivity” scenario as they allow advertisers to use targeted advertising techniques to reach their audience.

While pay TV operators take the lion’s share of the increased advertising budgets, this is to the detriment of other actors. Advertising budgets of free commercial broadcasters develop with a smaller growth rate.

The introduction of interactive services will drive the demand for interactive content, explaining the increase in budgets programme packagers allocate to the production industry.

Subscription revenues will increase from 18,2 billion Euro in 1999 to 45,3 billion Euro in 2010, driven by:

- The shift in consumer spending from game consoles, the Internet, etc. towards the iTV platform;
- The increase in subscription fees in turn for the offer of interactive services;
- The creation of television commerce allowing commission revenues.

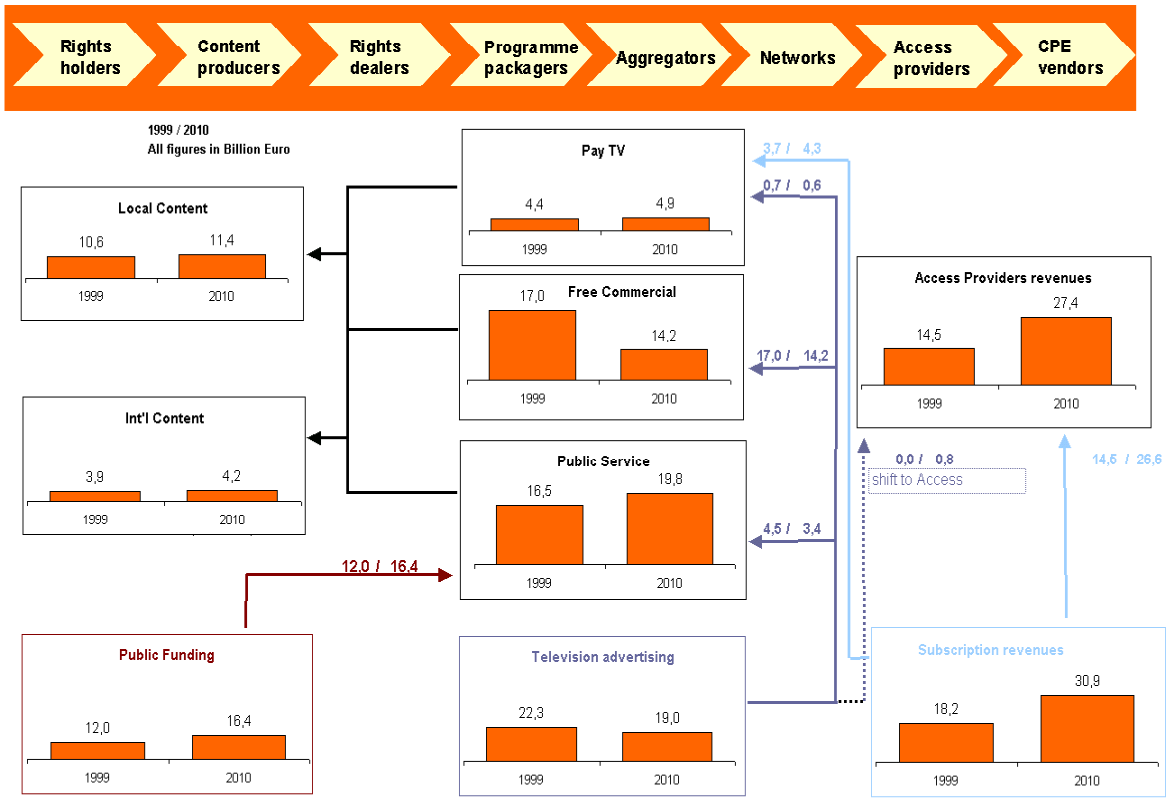
As can be seen from the figure below, subscription revenues will flow to the pay TV operators, access providers and networks. Pay TV operators will double their current subscription revenues by 2010, while they will multiply by a factor 2,5 for access providers and networks.

In a negative economic environment, the advertising revenues will decline from 22,3 billion Euro in 1999 to 19 billion Euro in 2010 as advertising budgets are linked to GDP (see chapter 4).

Public Service Broadcasters and free commercial broadcasters will be most impacted by the decrease in advertising budgets. The budgets of pay TV operators, however will only decrease with 14 percent. Consequently, less revenues are shifted to the production industry.

Subscription revenues however, will not be impacted as much as the other revenue flows of the industry in case of a negative economic environment.

**Figure 84: Impact of a negative economic environment on revenue flows**




## 8.4.2 Impact on consumers choice and service offerings

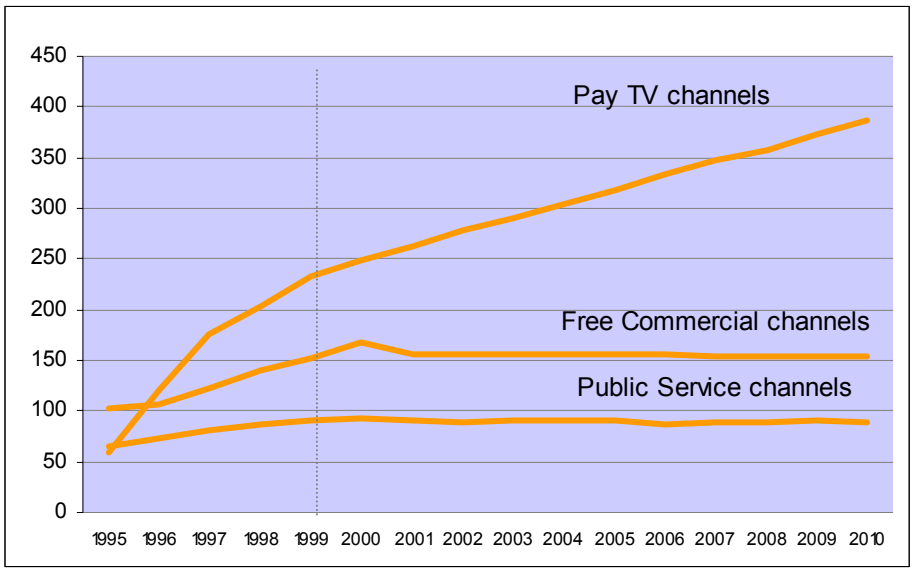
In order to gain insight to the impact of the “Interactivity” scenario on customer choice and control, the number of channels and the distribution modes of the different countries have been studied, both in a negative economic and a growth environment.

### 8.4.2.1 Impact on Consumer Choice in a growth environment

The changes in the revenue streams of the industry indicated in the previous section will necessarily induce changes in the number of channels that can be supported and in the transmission platforms developed.

In a growth environment, the subscription revenues will increase, as consumers will pay an additional subscription or pay-per-use fee to access interactive services. In addition, commission on television commerce will emerge. Advertising revenues are expected to shift to those in the value chain providing the right audience for advertisers. In addition, the decrease in TV viewing time puts the advertising revenues under pressure.

**Figure 85: Evolution of the number of channels in a growth environment**




This leads to an increase in the number of pay TV channels:

- Better audience measurement systems that will be put in place;
- The industry having the ability to gather personal customer data interactively;
- New interactive services attracting a "new" generation of consumers;
- The audience being more segmented, increasing the "cost per thousand"[168], which will stimulate the development of new revenues for pay TV channels.

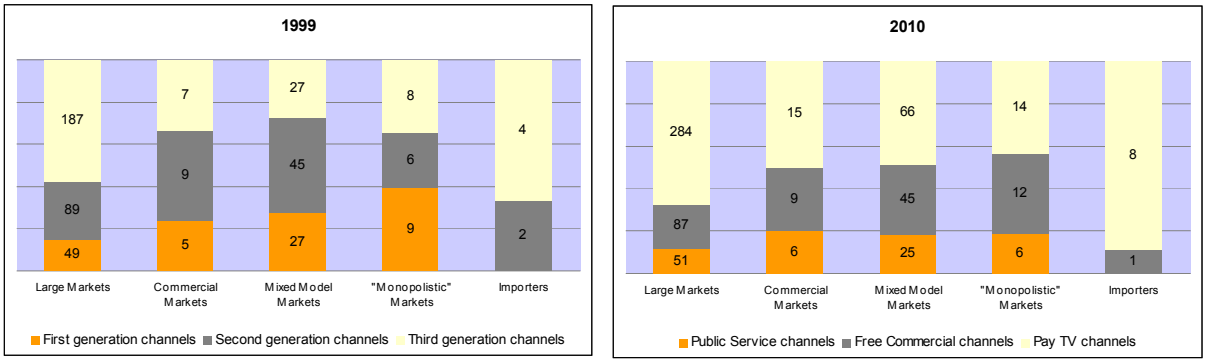
In contrast, the number of free commercial channels will remain stable (see figure above) as part of the advertising revenues will shift towards third and Public Service Broadcasters.

The evolution of channels in the different market segments (as defined in chapter 2) shows an increase in the number of pay TV channels and a status quo of the number of free commercial channels, as can be seen from the below figure:

- The increase in the number of pay TV channels is amplified in the Mixed markets as these markets did not have many channels in 1999. The creation of an additional channel leads to an increase above average;
- Commercial markets also face an amplified increase in the number of pay TV channels. The reason is a strong increase in the number of channels in Portugal, offering great potential as pay-TV is well developed;
- The status quo in the number of free commercial channels is not observed in the "Monopolistic" markets. On the contrary, the number of free commercial channels increases. The trend is caused by the development of channels in Austria. Austria is characterised by the large offer of pay TV channels from neighbouring countries, thereby limiting the development of national pay TV channels. Therefore, more advertising budgets flow to free commercial channels, increasing their number.

[168] Cost per thousand is the cost per thousand contacts delivered through an advertising campaign. It can also be expressed in percentage of the reference population (target).

**Figure 86: Distribution of the number of channels in 1999 versus 2010 in a growth environment**



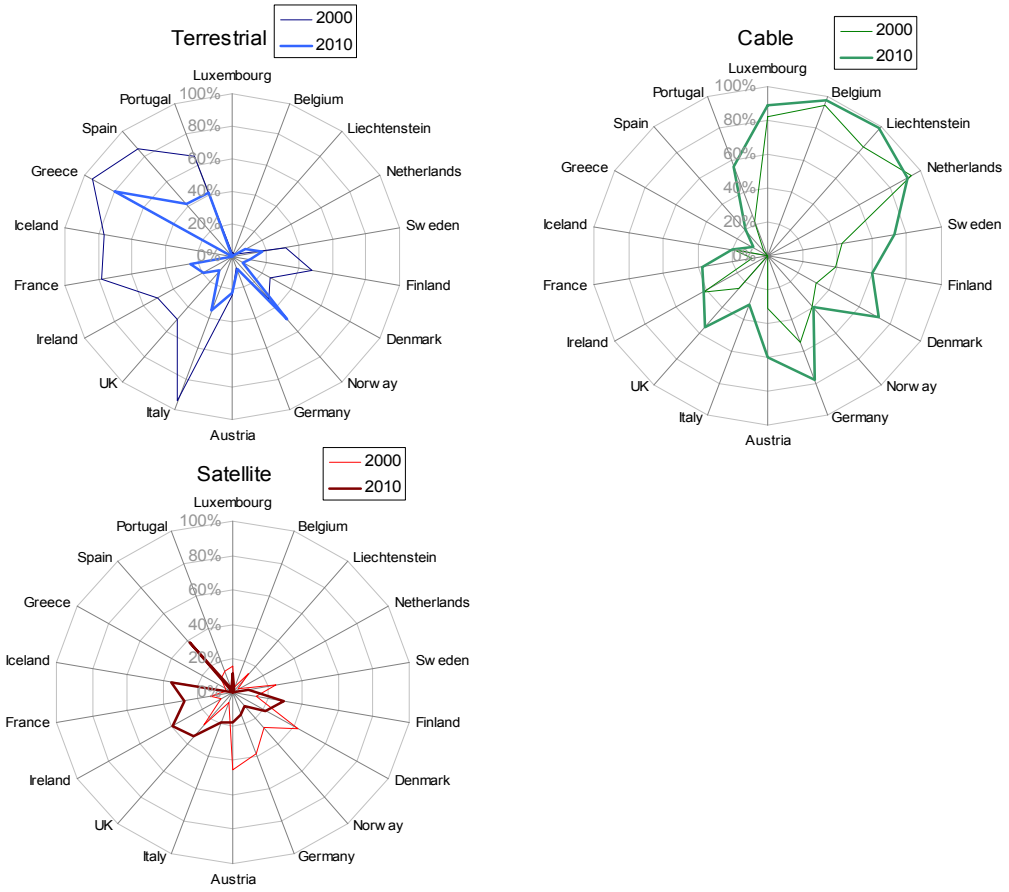

The number of pay TV channels is expected to increase as they will find a feasible revenue model by providing interactive services and combine it with advertising revenues. This will increase consumer choice and control.

Another trend in the growth scenario is the development of cable to its maximum, given that it is the best medium for interactivity in terms of capacity and return channels. Satellite will suffer from the cable growth in certain countries, but will gain market share from the strong reduction of terrestrial networks. Satellite penetration in Europe will grow to almost 40 percent in 2010, whereas it amounted to only 20 percent in 2000.

Therefore, consumers will have the possibility to make a choice between two or more multi-channel platforms. The figures below indicate the actual (2000) and forecasted (2010) penetration of the three main access technologies in all EEA countries. The penetration is given in percentage of television households that actually subscribes (or activates their access) to the platform[169].

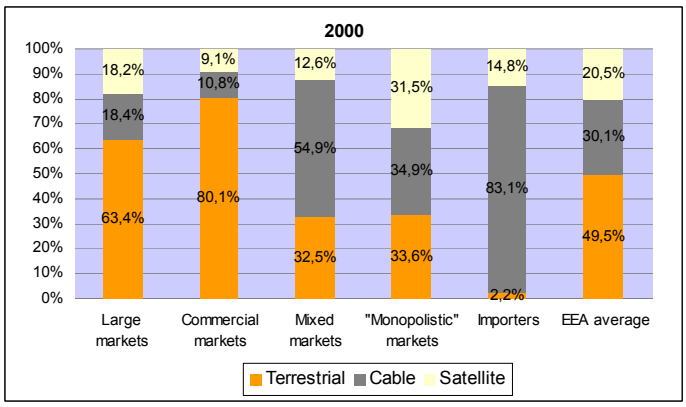
[169] For some platforms, the access can be free (e.g. analog terrestrial) or by means of buying a set-top box (DTT, satellite). The fact of activating the access does not necessarily mean the payment of a periodical subscription fee.

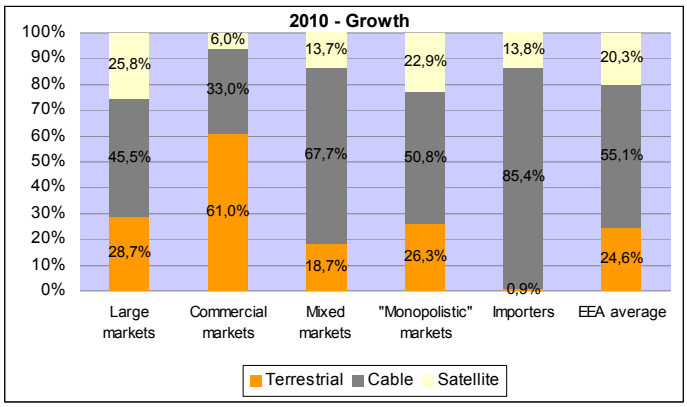
**Figure 87: Evolution of the transmission modes in a growth environment**




The same trends can be found when looking at the different market segments.

**Figure 88: Estimated penetration of transmission modes (in percentage TV households) in a growth environment in 2010**




Overall, the growth environment will significantly increase consumer choice and control, as most households will be able to subscribe to platforms that support multiple channels and interactive services.

#### 8.4.2.2 Impact on consumer choice in a negative economic environment

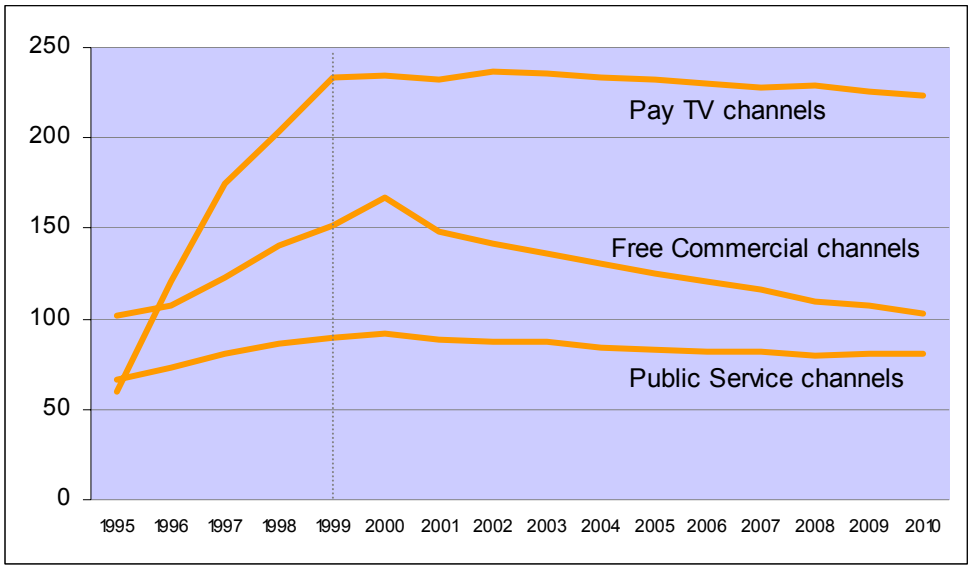
In a negative economic environment (GPD –1% per annum), the advertising revenues are under pressure as these budgets are linked to GDP. The number of channels that can be sustained will decrease, resulting in a decrease in the number of free commercial channels as they have no targeted audiences. Subscription revenues will increase in a negative economic environment, but at a lower rate than in the growth environment (14 percent in growth versus 6 percent in negative economic).

Pay TV channels remain stable. This phenomenon can be explained by the sharp decrease of pay TV channels in some “overdeveloped” countries, while their number increases in “developing” countries.

France and the UK can be considered “overdeveloped” countries. In France, the number of pay TV channels decreases from 57 to 40 channels, while the number decreases in the UK from 61 to 53.

Germany and the Netherlands are the two countries responsible for the increase in the number of channels in the “developing” countries. In the Netherlands, the number of channels evolve from 2 to 7, while they increase from 30 to 38 in Germany.

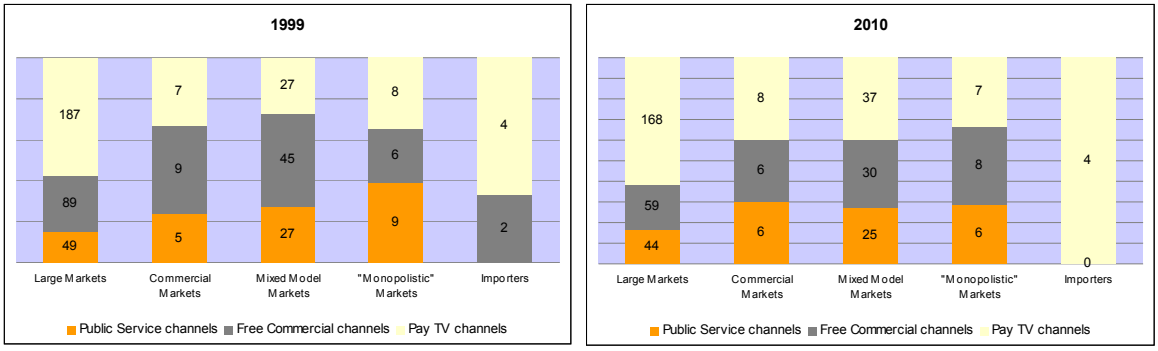
**Figure 89: Evolution of the number of channels in a negative economic environment**




Although the overall trends discussed above, hold for the majority of the country segments, some exceptions occur:

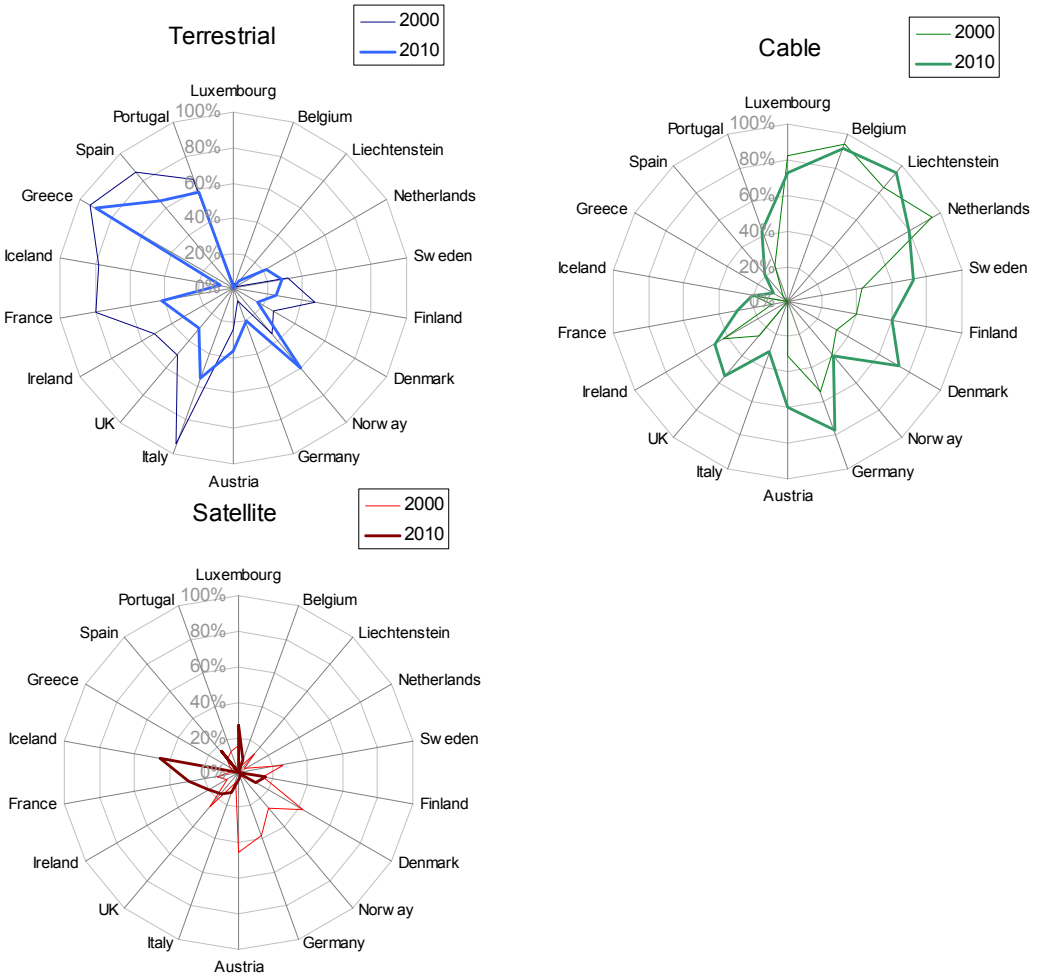
- The number of pay TV channels in the Large markets decrease due to the decrease in “overdeveloped” countries (the UK and France);
- In the Mixed markets the number of pay TV channels increases, fuelled by the strong increase in the Netherlands;
- The increase with 37 percent in the number of free commercial channels in the “Monopolistic” markets is caused by Austria (see growth environment).

**Figure 90: Distribution of the number of channels in 1999 versus 2010 in a negative economic environment**



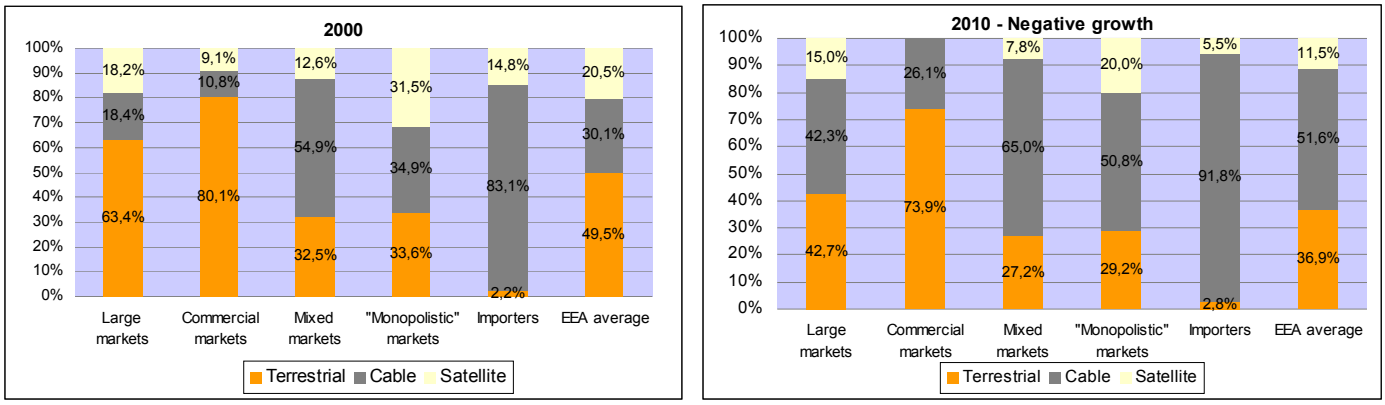

Even in a negative economic environment, given that consumers will value interactive services, terrestrial networks will lose market share, as they cannot provide the two-way capacity required. On the other hand, cable wins wherever it is feasible to deploy it, while satellite will remain status quo.

**Figure 91: Evolution of the transmission modes in a negative economic environment**




On a country segment basis, Commercial markets will strongly develop cable at the expense of satellite. However, the countries of the Commercial markets remain terrestrial.

**Figure 92: Estimated penetration of transmission modes (in percentage TV households) in a negative economic environment**




Compared to the current situation, consumer choice and control will decrease since the development in the number of pay TV channels is halted and the number of free commercial channels decreases.

### 8.4.3 Impact on the industry value chain

The above analysis of the change in revenue streams and hence the number of channels and transmission modes clearly indicates that the position of free commercial broadcasters is most threatened by the introduction of interactive applications.

Free commercial channels will experience particular difficulty in gathering revenues, as TV viewing time decreases and as they have not an audience as specific as pay TV channels. Therefore, they will attract less advertising revenue as advertisers prefer pay TV channels for targeted advertising.

Networks as well as content producers will also be influenced by the advent of interactivity. However, this scenario brings opportunities rather than threats for them.

#### 8.4.3.1 Impact on Programme Packagers

The role of programme packagers is threefold. They are responsible for the selection of individual programmes, for the creation of a schedule (through the packaging of programmes such that the audience flow is promoted from one programme to another) and for the selling of advertisement airtime to fund this schedule.

In an interactive television environment, some roles of programme packagers will be under pressure. The added value of a schedule decreases as viewers divide their time between interactive services and traditional TV viewing and as they will be faster guided away from the schedule. This jeopardises the traditional revenue flows of the programme packagers, who will have to find a new way to capture audiences and revenues.

Programme packagers are confronted with a number of threats in the “Interactivity” scenario:

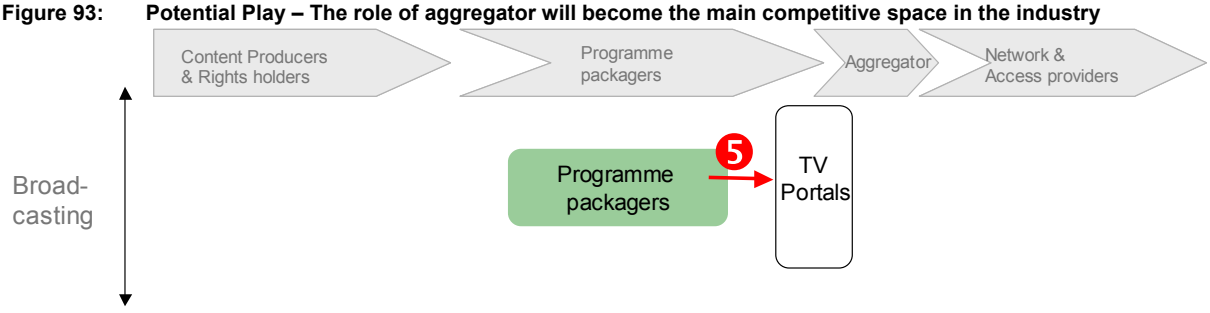
- The decrease in TV viewing time will affect their audience share;
- New entrants offering interactive services, mainly networks and content producers, will have better customer data. They will be better positioned to sell advertising;
- Interactive in-house content production will require new skills and competencies.

Free commercial broadcasters are the ones who will suffer most from the fragmentation of the time spent in front of the television. These channels attract audiences that are not as specific as pay TV channels and have no customer data. Consequently, advertisers will shift advertising budgets to those capturing audience and controlling customer data, i.e. networks, access providers and pay TV broadcasters.

Programme packagers can react in two ways to overcome this threat. On the one hand, programme packagers can try to differentiate themselves (and attract audience) by offering “embedded” interactive services, whether or not charged to the consumer.
On the other hand, they can take up the role of aggregator. The traditional role of an aggregator is to package individual channels into a market offer that will be sold to consumers. In the “Interactivity” scenario, the aggregator is called a TV portal. The value of strong brands will be a key factor in this process.
These TV portals’ main role is to aggregate interactive applications and services. TV portals will become the main competitive space in the industry because it is the main mass audience point. Consumers will use these portals to get guidance through the multitude of interactive services and content offered.

Several industry actors will move towards the TV portal space, each contributing their specific skills (see further in this section for the move of other industry actors). These TV portals will become multi-device and multi-channel (TV, PC, mobile, etc.). Andersen estimates the likelihood of this move to be around 50 percent.
As the selection of content and services will remain a key value proposition, programme packagers can expand their current role of content “selector” in the interactive environment (see figure below). They have access to content libraries, a condition to be successful in the TV portal space, but they will have to develop interactive services.

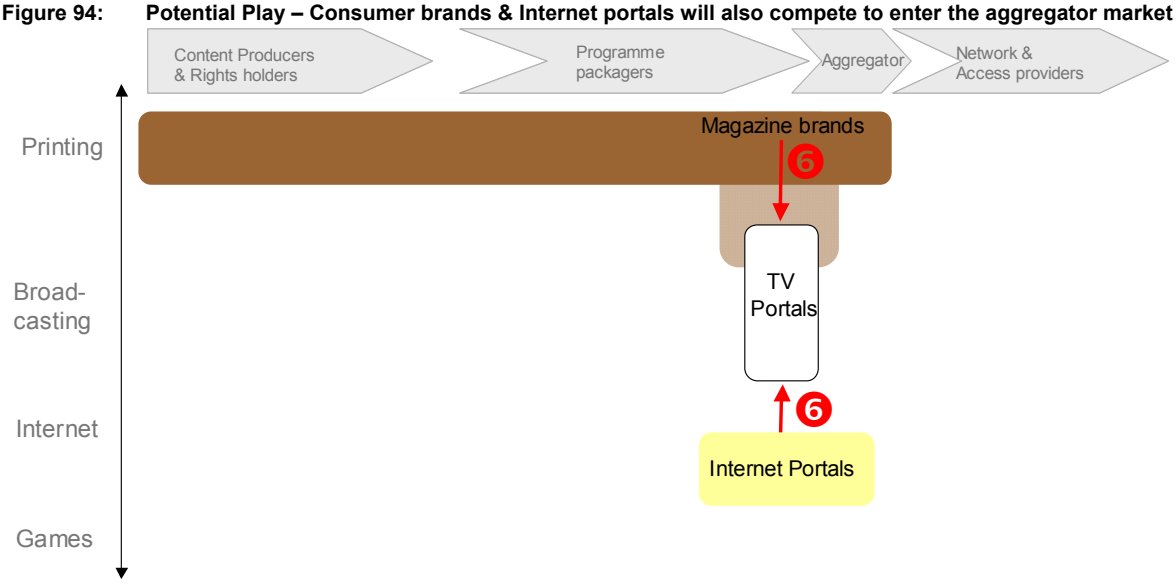
**Figure 93: Potential Play – The role of aggregator will become the main competitive space in the industry**




Consumer brands, not only media-related, and Internet portals will also compete to enter the aggregator market (see figure below). Magazine brands can use their brand name and existing customer relationship as leverage to move towards the TV portal space, while Internet providers can rely on their “portal” experience.

However, the likelihood of this scenario is assessed to be quite low (40 percent), as it requires access to the media networks. On the one hand, actors from the Internet and magazine market will have to develop a valuable and relevant package of services, while networks and access providers, on the other hand, must be willing to deploy the offer of these new actors.

**Figure 94: Potential Play – Consumer brands & Internet portals will also compete to enter the aggregator market**




### 8.4.3.2 Impact on Aggregators, Access Providers, Networks

The access providers and networks face many opportunities in the “Interactivity” scenario. The majority of interviewees of the Delphi study indicate the access provider and networks to be the ones in control of the set-top box. Indeed, as these actors will own or control the transmission and the return channel, they are able to monitor and gather customer data.

Digitally transmitted content offers the opportunity to change the advertisement messages or language according to the geographical area. Advertisers may also want to buy space on the screen of interactive applications in order to be visible during games, information searched, etc. The network operators are in the best position to do this as they are the “gatekeeper” to the consumer, able to link the targeted adverts to their customer data.

Networks and access providers are well positioned to deliver interactive services to consumers as they already have a relationship with the customers for telephony, Internet, pay-TV services, etc. They can decide to bundle the existing services they offer to the consumer with interactive services, capturing part of the subscription revenues. Consumer churn will be reduced by bundling the offering, as consumers will be reluctant to change operator since they receive one bill for all these services.

However, networks and access providers face significant investment to build the infrastructure to roll out an iTV platform. Service providers will only access an iTV platform when it provides them access to a significant number of consumers, justifying their investments.
In order to stimulate the uptake, access providers can decide to subsidise set-top boxes but this means a significant increase in the investment made.

In the segment of the networks and access providers, Andersen believes there is room for three possible moves:

- Broadcast distribution networks will enter the market of Internet access as well as on-line games;
- Networks and access providers will move towards the TV portal space;
- Typical Internet networks will become media-capable, enlarging their television and on-line game distribution capacities.

Firstly, broadcast distribution networks and access providers such as terrestrial, satellite and cable operators will enter the market of Internet access as well as on-line games (see below figure).

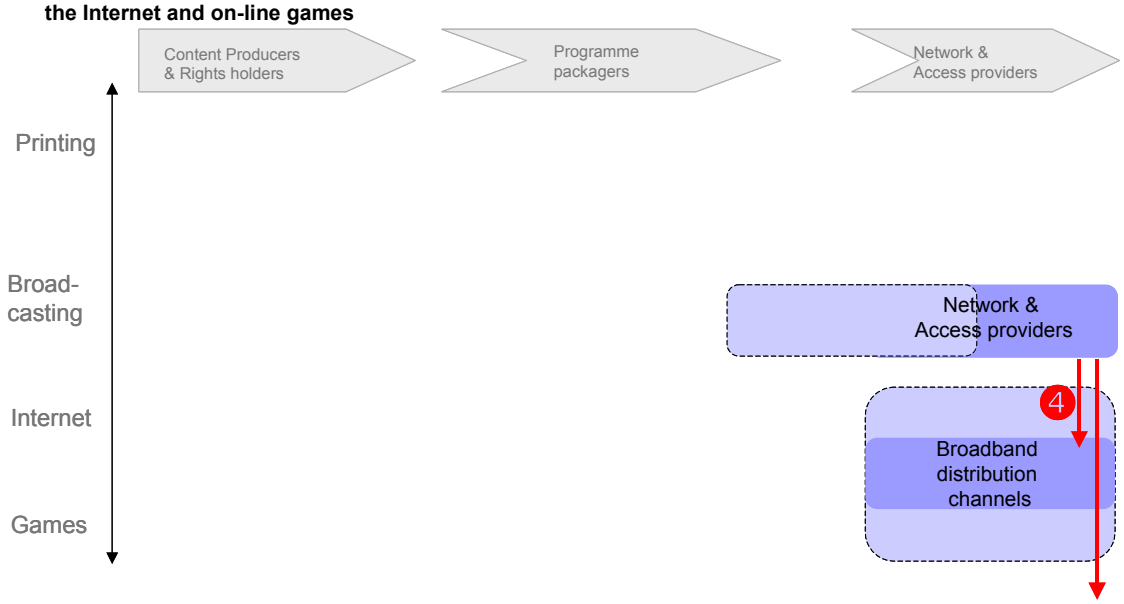
Cable networks will be the first to move towards this play as their technology is inherently better suited to provide access to on-line games and as they already provide Internet access. Satellite and digital terrestrial platforms will provide the access later as they depend on the evolution of broadband platforms (e.g. xDSL) in order to offer a return path. This return path is needed to have true interactive media capabilities. Research conducted by the Yankee Group[170] in the US indicates that satellite networks will also experience difficulties from the fact that they have no local presence. This will limit their ability to maximise revenues from local services as it will be more difficult to sell advertising when not being locally present.
In order for networks and access providers to provide access to the Internet and on-line games, the integration of entertainment services on new media platforms is required.

On the other hand, broadband distribution channels from the Internet environment or those who have experience in games provisioning can also move towards the broadcasting industry. They can use their capacities and competencies to successfully enter the audio-visual market.

Andersen estimates the likelihood of this scenario to be 65 percent, since cable companies are already providing Internet access and satellite and DTT providers will initially provide it through a PSTN return channel.

[170] The Yankee Group, "TV portals, opening the door to interactive television", 2001

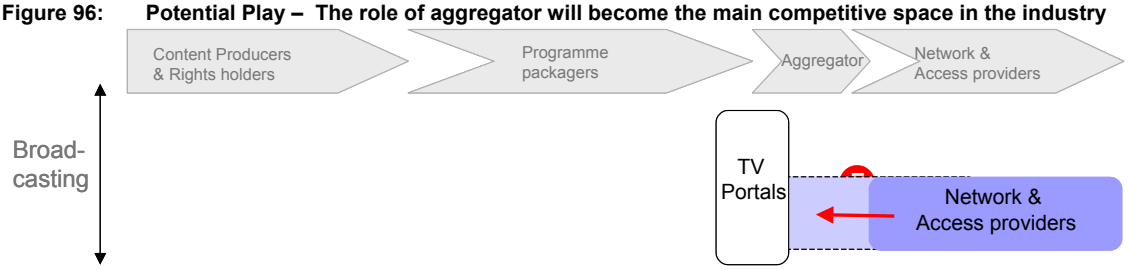
**Figure 95: Potential Play – Broadcasting distribution networks and access providers will also provide access to the Internet and on-line games**




Secondly, TV portals become the main competitive space in the industry, as consumers need guidance in view of the large content and services offer. As these TV portals will become multi-device and multi-channel (TV, PC, mobile, etc.), networks, as well as access providers, are in a good position to enter this TV portal space (see below figure). They will take up the aggregator role easily as it is an extension of their current activities.

Actors moving towards the TV portal space need rights management systems, EPG-like functionalities and access compelling content in order to attract subscribers to their platform. Andersen estimates the likelihood of this move to be around 50 percent.

**Figure 96: Potential Play – The role of aggregator will become the main competitive space in the industry**



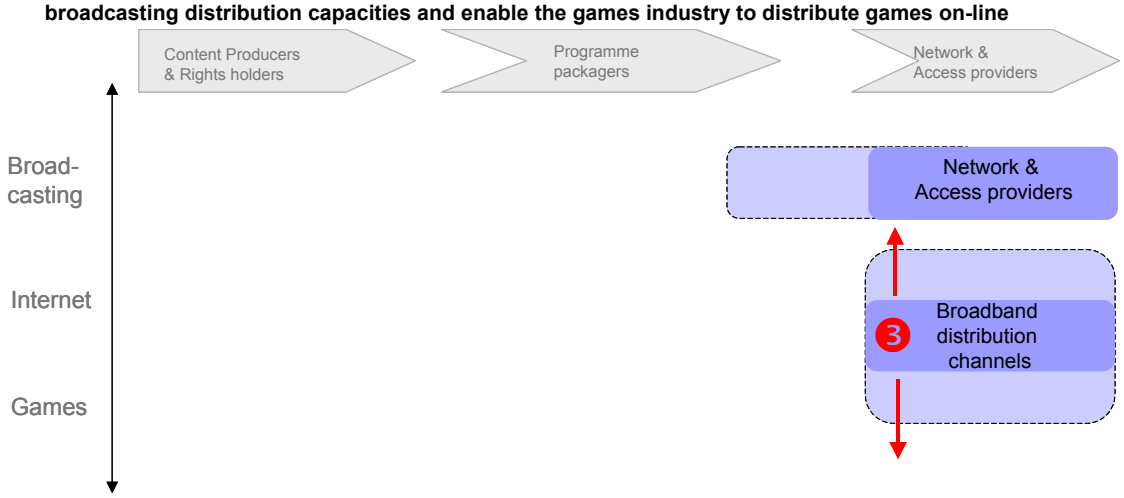

Thirdly, as typical Internet networks (such as xDSL networks, deployed by European PTO's) are gradually becoming media-capable, these actors will first enlarge their rich television distribution capacities. In a second phase they will focus on the distribution of on-line games (see below figure). This leads to a convergence of the studied media devices (PC, TV, etc.) as well as new ones, thereby expanding beyond media.

The likelihood of the scenario is estimated to be 75 percent. Actors will need the following to be successful when making this move:

- Financial means for the continued rollout of broadband networks;
- The ability to develop interesting entertainment services in these networks;
- Digital asset management solutions;
- Billing solutions;

- Customer care.

**Figure 97: Potential Play – Broadband networks are gradually becoming media-capable. They will enlarge their broadcasting distribution capacities and enable the games industry to distribute games on-line**




### 8.4.3.3 Impact on Rights Holders and Content Producers

Content producers' role today is producing audio-visual content by combining artistic, financial and commercial know-how. They can produce the content as such or be solely responsible for the creation of formats. The content production industry today consists of two segments: local producers and international content producers. Content is either commissioned by programme packagers or directly bought from content producers.

Interactive technologies will impact the audio-visual content producers by offering opportunities as well as threats.

An increase in the demand for audio-visual content is a first opportunity for content producers, as providers of interactive services need interactive content. However, the production of interactive content requires new skills and new competencies. For the existing audio-visual content producers, this implies they have to adapt when they want to take a part in the interactive production opportunity.

Secondly, content producers who get involved in interactive content production can decide to offer these services directly to the consumer. That way, they capture part of the subscription revenues, diversifying their current business model. For existing content producers, this means they are no longer as dependent on commissioned content from programme packagers.

However, as the production of interactive content requires additional skills and competencies from content producers, it is possible that other actors enter the interactive content production industry. Actors from the Internet, games and magazine markets possess certain skills and competencies that make them competitive actors.

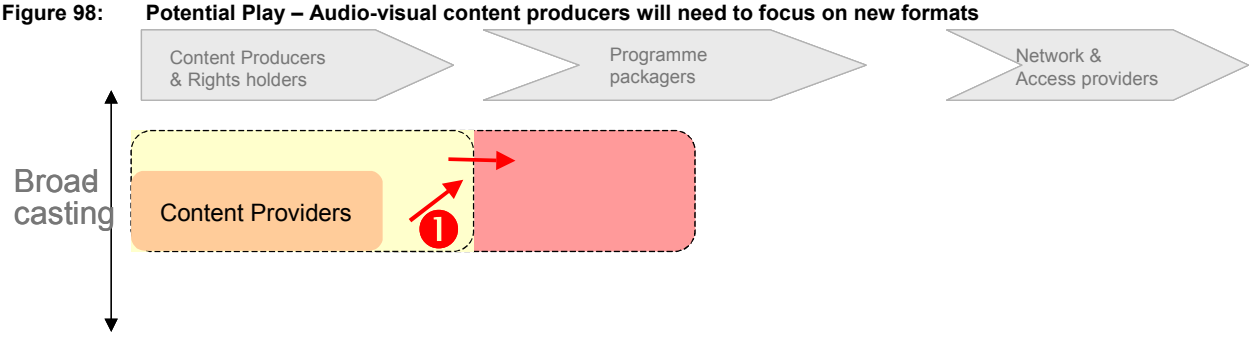
The opportunities and threats discussed above give rise to a number of potential plays. Andersen believes that existing content producers will need to focus on new interactive audio-visual formats, such as play along games, voting, programme-related chats, etc. as this will enable them to strengthen their position in the "Interactive" market.

Existing content producers not only need to invest in interactive formats, they also need to build new skills and competencies to be competitive in that market. Although interactive content production offers a major opportunity for content producers, there will still be a need for regular content production.

The below figure shows a first potential move where existing content providers directly connect with the iTV platform, focusing on these new content formats. This provides the content producers with the opportunity to extend their offer to a new platform and generate additional visibility for their interactive services. Platforms, in turn, in this way ensure access to compelling content, making their platform more attractive.

An existing example of this move is “Big Brother”, a broadcast programme and interactive services, bundled in a TV channel (24 hours) and directly available on the distribution platform[171].

**Figure 98: Potential Play – Audio-visual content producers will need to focus on new formats**



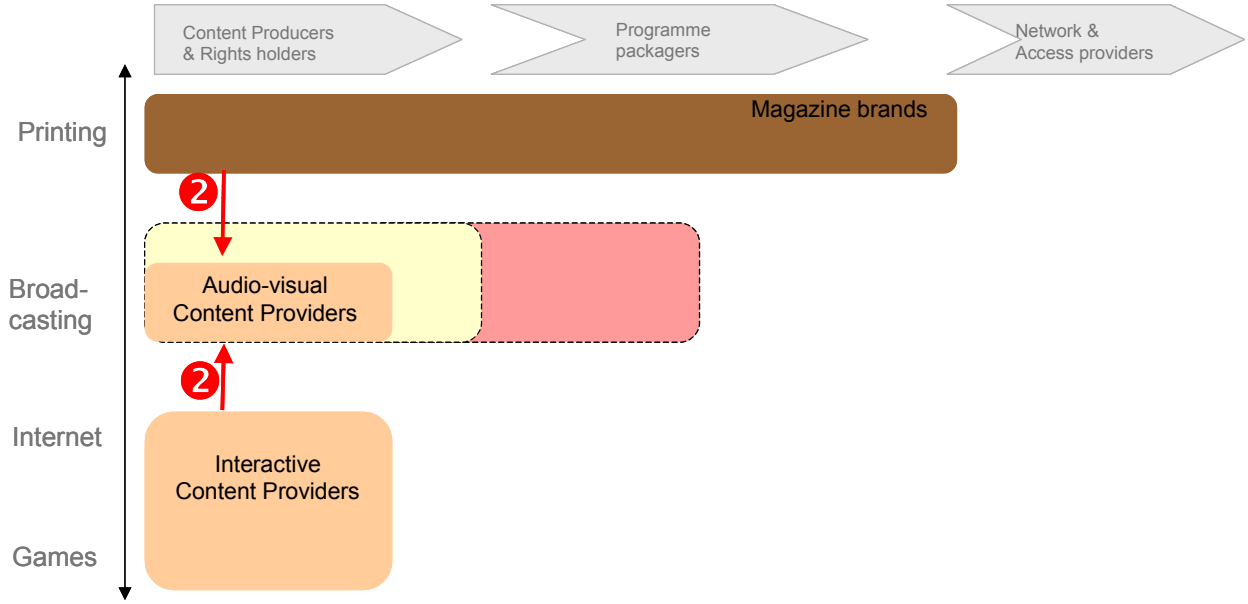

A second possible move concerns other actors entering the audio-visual content production market (see figure below). As discussed above, actors from the Internet market (e.g. software developers) and games industry only need to adapt their current skills in order to be able to create TV-ready applications. These actors can leverage their Web presence and brand awareness to move towards television.

Magazine brands are another type of actor that can be expected to enter the interactive audio-visual content production market. These actors possess quality content and can leverage their brand name and content relationship to drive customers to their interactive services. Lagardère is one example of a publishing company who created an iTV version of their magazine content, almost comparable to niche channels.

Andersen expects an 80 percent likelihood of this move, as these actors only need little effort when entering the content production market.

[171] See Big Brother channel in Portugal (fully interactive) on TV Cabo, and non-interactive version in Belgium, France, etc.

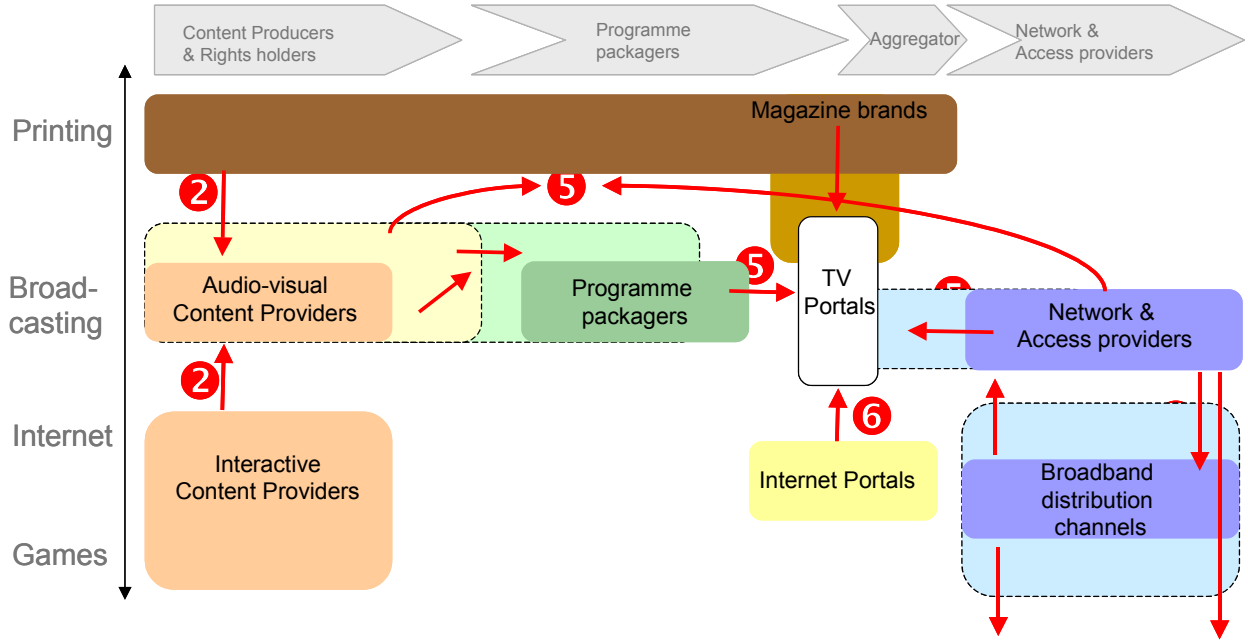
**Figure 99: Potential Play – Software developers from the games industry and producers of magazines will use their skills to enter the audio-visual content production industry**




### 8.4.4 Overview of potential plays

The changes in revenue flows together with the resulting impact on the industry will make the industry actor review their role for the future and move them towards a change in the way they position themselves in the market. In view of the elements discussed above, Andersen expects that the TV portal will be the key competitive space in the audio-visual industry.

**Figure 100: Potential Plays of the Audio-visual Industry**



The figure above provides an overview of potential plays of the different industry actors and their likelihood of occurrence. These moves will require new skills and competencies of the actors (see summary in the table hereunder).

**Table 33: Overview of the Potential Plays of the Audio-visual Industry and according skills**

| *Potential Plays* | *Conditions that should be met* | *Likelihood* |
|---|---|---|
| 1 New interactive -visual formats will be increasingly Audio-visual content producers will need to on these new formats (e.g. Play along games, voting and programmes, etc | - New skills for the content<br>- Investments to enter this | 100% |
| 2 Software developers from the games industry and producers magazines will use their skills to enter the -visual content production industry | - Adapt skills to be able to create ready applications | 80% |
| 3 Broadband networks (such as xDSL deployed by large PTO's) are gradually becoming -capable. They will their broadcasting distribution and enable the games industry to distribute games | - Financing for continued rollout of networks<br>- Developing interesting services in these<br>- Digital asset management solutions, customer care | 75% |
| 4 Broadcasting distribution networks and access providers as terrestrial television, satellite and cable operators so provide access to internet and online | - Rapid digitisation of current media<br>- Integration of entertainment on new media | 65% |
| 5 The role of aggregator (TV portal) will become the competitive space in the industry as it will become the mass audience point (cfr. Internet). These portals will multidevice and multichannel (TV, PC, Mobile, | - Consumers need guidance in view of the large content offers<br>- Access to programme<br>- Rights management<br>- EPG-like functionalities | 50% |
| 6 Consumer brands (not only -related brands) and Internet portals will also compete to enter the market | - Access to the media | 40% |

The potential plays discussed above provide a generic model for the European audio-visual industry in the development of the "Interactivity" scenario. However, in some market models, as defined in chapter 2, these moves will be accelerated while in other market models, the moves will be slowed down, depending on the presence of enablers and barriers.

The table below gives an overview of the barriers and enhancing factors of the "Interactivity" scenario in order to gain insight to which enablers are present, accelerating the moves on the one hand, and which barriers will delay the moves, on the other hand.

The presence of local interactive content, measured by the number of programme packagers, is assessed as an enabling factor for interactive services. The more actors in the local market, the more likely interactive services will be offered.

On the side of the barriers, programme packagers' attitude towards new services is assessed. In some countries, programme packagers can be reluctant to offer new services, which will delay the development of the industry moves.

**Table 34: Overview of criteria that are "enablers" or "barriers" for the development of the "Interactivity" scenario[172]**

| Criteria | Key metric | Large markets | Mixed markets | "Monopolistic" markets | Commercial markets | Importers |
|---|---|---|---|---|---|---|
| **ENABLERS** | | | | | | |
| - Development of broadband networks | Penetration of broadband networks | 0 | + | + | - | + |
| - Potential uptake of intelligent end-user equipment | Number of TV HH | ++ | 0 | 0 | 0 | - - |
| - Consumer acceptance | Adoption of new services (Internet penetration, pay TV, etc.) | + | + | 0 | 0 | + |
| - Local interactive content available | Number of local programme packagers | ++ | + | - | + | - - |
| **BARRIERS** | | | | | | |
| - Advertising markets | Level of new media advertising (internet, etc.) | ++ | 0 | - | 0 | - - |
| - Production costs interactive content | | - | - | - | - | - |
| - Programme packagers' attittude | Availability of new services | ++ | 0 | 0 | 0 | - |
| ***OVERALL*** | | **++** | **+** | **0 / -** | **0** | **- -** |

In the Large markets, the development of the potential plays will be accelerated since these countries have a large market size, both in terms of number of TV households and in number of channels (local content). The market conditions, in terms of "consumer readiness" are very favourable, as the penetration of digital TV lies far above the European average. There are no significant barriers that will delay the development in these countries.

Although the Mixed markets have a relatively small market size, the development of the "Interactivity" scenario is accelerated due to the availability of good transmission mediums, the large content offer and the lack of barriers.

The "Monopolistic" markets score on average on all of the factors. They have mixed transmission modes, a low number of channels available, a low pick up of new services (e.g. the Internet) and an underdeveloped advertising market. For these markets, it is expected that the interactive services will be introduced with some delay, as no favourable conditions are in place.

The industry actors of the Commercial markets and the Importers will be impeded by a number of factors, as they have to deal with a low penetration of broadband networks and unfavourable consumer behaviour: there is a low TV spend per household and the pick up of new services is slow.

[172] The meaning of the signs in the table are as follows:

- On the enablers' side: ++ means that this enabler is strongly present, accelerating the developments, 0 means that the impact will not accelerate nor impede the development, - means that this enabler is not present and thus will not contribute to the development;
- On the barriers' side: ++ means that this barrier is not present, thus this factor will not impede the development, - means that the barrier is strongly present and hence impedes the development.

Industry actors in the Importers markets face quite a lot of barriers and no real presence of enablers. They will not get involved in the potential plays indicated above as these markets are too small, they have no local content and there is no advertising market.

## 8.5 Conclusion

The “personalisation” scenario focuses on the rapid development of interactivity. By interactivity, Andersen mainly refers to interactivity in the broadcast stream (such as multiple camera angles, betting and voting, etc.) more than internet-access and e-mail. As a key hypothesis, it is assumed that the TV screen will be used by consumers in a more pro-active way to access new entertainment services.

These new uses of television are expected to fragment the time spent in front of the television set over the different interactive services and the traditional TV viewing. Consequently, TV viewing time is expected to decrease, while the total time spent in front of the television is expected to increase. The attractiveness and new possibilities interactive services introduce, are expected to increase the time consumers spend on these new services.

Programme packagers are likely to develop and promote interactive services that are included in the broadcast stream while interactive services that are provided outside the broadcast stream will probably be promoted by the access providers.

In addition, interactivity shakes up the way advertising is done today. New techniques are developed (due to more accurate customer data gathering) and advertising budgets are allocated to the “new media” applications.

**Table 35: Key impacts on the stakeholders per market model**

| | Content | Packaging | Aggregator | Diffusion |
|---|---|---|---|---|
| **Key impacts** | For the content production industry, the interactive applications provide huge opportunities, as new distribution channels (e.g. Mobile phones, PDAs, etc.) are developed and each of these new "gateways" needs a specific content format. The impact of the "Interactivity scenario on the audio-visual industry will change the evolution of the role or the power of the industry players in the value chain. The role of content producers will change. On the one hand, the development of interactive services will provide opportunities for the content production industry as it increases the demand for content. On the other hand, new players such as software developers, game developers, producers of magazines, etc. Will enter the market. Therefore, the power of content producers in the value chain is difficult to assess. Andersen expects the software engineering industry and Internet players, to be better prepared to enter the market of interactive content production, whereas European content providers have little experience with interactive content. | Programme packagers' power in the value chain is eroded as a consequence of the market fragmentation and the increased competition for viewing time (new services). | As the role of the portal will become the main competitive space in the market, different types of actors are urged to position themselves in this segment. Industry actors who have access to the customer data will be able to attract targeted advertising revenues. | The networks and access providers will see their role within the industry evolve, as the TV will be used to access more content types and a large part of the interactivity is platform-provided. This, together with the monetisation of audience data will provide new revenues for these actors, which will lead to an increase of their power in the value chain. In the medium-term, Anderse, expects pay-TV or network operators to own or control the majority of the set-top boxes and the return path. The connection back to the service provider is vital to provide high-level interactivity and retrieve customer information. |
| | ? | ↓ | ↑ | ↑ |
| **Large Markets** | + + | - - | + + | + + |
| **Commercial Markets** | = | - | + | = |
| **Mixed Model Markets** | + | - | + | + |
| **Monopolistic Markets** | - | = | + | = |
| **Importers** | / | / | = | + |

As a consequence of the numerous new interactive applications available through television, it is foreseen that viewing time will be fragmented over the television's different uses. These changes in consumer behaviour pose a real threat for the programme packagers. As advertising revenues are linked to audience shares, a fragmentation of this audience is expected to put the business model of these industry players under pressure (Andersen's model predicts a decrease of the audience share that can reach up to 20%, resulting in an expected decrease of 16% in advertising revenues in 2010). On the other hand, interactivity opens up new perspectives for advertisers, giving them the opportunity to reach their audience in a new creative way (expected increase of 4% in advertising revenues in 2010, mainly based on a shift from the "below-the-line" advertising budgets and a revenue sharing model between access providers and programme packagers). Both trends result in a compound annual growth rate for television advertising of 0,67% in a positive economic environment and a compound annual growth rate of –3,11% in a negative economic environment.

In a positive economic environment the market penetration of interactive TV services is expected to reach 74% of households in 2010. A first growth wave is expected to occur in 2003-2004 when cable networks throughout Europe will be upgraded. A second wave is expected to occur in 2009-2010 provided new broadband platforms (such as xDSL and hybrid solutions involving DTT or satellite) are massively deployed. A long lasting economic growth environment can stimulate the development of thematic channels as they should be able to access more advertising revenues. Cable will develop to its maximum, given that it is so far the best-suited medium for interactivity (broadcast capacity and return path). Satellite is expected to suffer from the cable growth but is expected to gain market share from the strong reduction of the market share of terrestrial networks.

In a negative environment, the decreasing advertising market is expected to lead to a reduction of the number of commercial free-to-air channels, while the number of pay-TV channels remains almost constant. This is due to a combination of a sharp decrease in some "overdeveloped" countries while the number of pay-TV channels still increase in “developing" markets.

Terrestrial networks are expected to lose market share (in terms of penetration) as they cannot provide the 2-way capabilities and as multiplexing allocates priority to broadcast content. Cable is likely to win market share wherever it is feasible to deploy cable further whilst satellite remains at a status-quo.

Since the “interactivity” scenario will not significantly impact the public funding conditions, the number and remit of public service programme packagers will remain substantially unchanged, since the public funding conditions remained unchanged. Their audience share is also expected to remain globally unchanged.

The “interactivity” scenario is also expected to significantly impact the relative market strength of the operators described in the value chain. Three main consequences are foreseen by Andersen.

*Trend 1: The content production industry is expected to focus on new interactive formats:*

Audio-visual content producers will start compete against operators from the publishing industry (and notably some well-known brands) and against software engineering companies. It is therefore expected that the audio-visual content producers will need new skills and will need to make significant investments.

*Trend 2: Technological convergence will likely occur between broadcast networks and broadband distribution channels*:

Broadcast networks consist by nature in the multi-directional diffusion of signals and were therefore intended to provide one-way distribution. Telecommunications networks were originally intended for the two-way transmission of data. Both type of networks will now be able to carry a full scale of services (different formats -data, audio, video- and in two directions) and start to compete against each other.

*Trend 3: Aggregation becomes a viable stand-alone position:*

Finally, the market strength of TV portals or aggregators is expected to gradually increase. Subscription, commissions on transactions and an increasing part of advertising revenues will transit through them. Internet portals, popular publishing brands, programme packagers and access providers are expected to transform themselves to aggregators, thereby creating a very competitive space. Aggregators are expected to dominate the customer relation.

# 9 “personalisation” Scenario

## 9.1 Introduction

As introduced in Chapter 6, the main assumption of the current scenario is a paradigm shift from channel-based viewing habits to programme-based viewing habits supported by various technology and economic enablers.

The paradigm shift from channel-based viewing to programme-based viewing implies that the majority of programmes will be entirely recorded (either locally or centrally) and watched afterwards, reducing the time watching simultaneous TV the moment it is broadcast. The consumer will access the content on-demand, effectively creating his own channel.

This will pose a fundamental threat to the key areas underpinning the current broadcasting business model. Both the notion of a channel and the notion of prime time might become less significant, directly threatening the advertising model on which a large part of the broadcasting industry is built.

This shift from channel-based viewing to programme-based viewing is now possible because of recent advances in digital technology[173] that create a convergence between telecommunication, media and information technology.

The personalisation of television may be achieved under two different technical ways.

On one hand, the “classical” video on demand services (VoD) involve a massive central video server, remote from the user, that streams movies and other content over a unique link to the home. The development of such services have been enabled by the concurrent development of technologies such as increased digital broadband capacities and security and copyright protections.

On the other hand, the PVR is one of the first products of true convergence and is made possible by the following technological breakthroughs:

- The increase in storage capacity and processing power combined with strong price decreases for these technologies. Today the technology exists to digitally store 5,2 hours of video for about 100 Euro (or 19,2 Euro/ hour). Analysts expect that in 2010, you will be able to buy 7 days of video storage for the same 100 Euro (0,6 Euro / hour) [174].
- New content compression techniques like MPEG 4 will reduce the necessary bandwidth and storage capacity needed for a given audio-visual programme, reducing the cost even further.
- Metadata, or a definition/description of content (MPEG 7) will allow the programme packager or content producer to add descriptive data to the content stream, thus allowing a whole new set of functionalities to be developed such as EPG’s, searchable content libraries, etc.

[173] Note that this shift is also possible with an analogue broadcast signal, the adopted technology advancements relate to the PVR hardware (see below)
[174] Durlacher, “Local Digital Storage”, 2000, pp. 39-40

2000 was the year that PVR devices first moved into the spotlight, both in the US and the European market space. This first generation of PVR's, marketed by firms such as TiVo and ReplayTV, have scored some small successes, mainly in the US.

Andersen believes that these are the first small successes of an emerging technology that could grow into a real disruptive technology with significant impact on the media industry. In this chapter, the PVR and its impacts on the audio-visual service offering will be described, the key strategic issues will be identified and through the use of an economic model, a vision on the structure of the industry in 2010 will be obtained.

## 9.2 Definition of the Scenario

### 9.2.1 Definition of a PVR and VoD

The PVR, sometimes also called Home Media Server (HMS) or Digital Video Recorder (DVR), has following key characteristics:

- A user friendly on-screen interface allows any user to select and record programmes. This software should allow for intelligent searches and content management functionality;
- It stores and interprets metadata of current, featured and recorded programmes;
- It has significant storage capacity for recording;
- The recorded programmes are stored on a medium that allows non-linear accessibility (mostly disk based technology);
- The PVR does not necessarily require a network that supports real-time video streams as it caches them locally on disk.

A PVR can be a stand-alone device or can be integrated in a digital set-top box. The first generation of PVR's (TiVo, ReplayTV) are stand-alone devices but it is widely assumed that the next generation will be integrated into digital set-top boxes, allowing for integration of the recording functionality with the EPG (Electronic Programme Guide) of the customer's aggregator and/ or access provider.

The main limitation of current PVR's is still the storage capacity. Although PVR's with a capacity to store 40 hours of video are commercially available, the absence of a real archiving technology still limits its appeal. By adding a connection to an analogue VCR (see TiVo) or a recordable DVD this limitation could be overcome. Both solutions however still encounter objections from rights holders since high-quality copies of their content could be made.

The technical characteristics of a PVR are similar to those of existing video-on-demand (VoD) systems. The PVR puts the processing power and the storage capacity in the end-user device, whilst the VoD systems locate it at the network side. One could say that where the PVR uses a distributed architecture, VoD systems are centralised. Centralising these systems can lead to more economical operations, both of the storage space

required and the maintenance required. However, the VoD systems require a local-loop network that can support a real-time video stream[175].
Potentially, VoD providers could provide content not only from their own catalogue, but also from other catalogues, creating an offer that would outperform the PVR. However, when centralising, the consumer unavoidably must give up some of his autonomy or control, thereby limiting the appeal of VoD systems.

The debate on the possible winner between PVR and VoD is still going on and is important since both technologies have very different implications on the roles of existing actors and possible new entrants:

- If VoD takes the lead on PVR technology, access providers will buy premium content directly from content producers. This fact has an enormous impact on the value chain. Access providers will get new revenues from advertisement, only large content producers will be able to provide premium content which implies a dual functioning mode for them, and programme packagers are left with lower audience content;
- If the PVR takes the lead, programme-based viewing will be at the advantage of content producers who will sell programmes to programme packagers.

Nevertheless in the remainder of this chapter, VoD and PVR systems will be treated equally as they have the same basic impacts on the viewing behaviour of the consumer. The reader should keep the differences identified above in mind when interpreting the conclusions.

### 9.2.2 Overview of the new functionalities

The table below provides an overview of the new functionalities that are made possible with personalisation services. The advantages for the viewer lie mainly in the PVR and VoD's ability to manage the programme content shown on the television screen.

Time shifting allows the viewer to pause and/or rewind the live TV programme he is watching. This often cited feature offers additional convenience but does not change the current TV viewing as we know it today.

[175] For a detailed discussion of the differences of PVR and VoD technology, see Durlacher, "Local Digital Storage", pp. 50-56

**Figure 101: New functionalities available to the consumer through the PVR and the VoD**

| | |
|---|---|
| ▪ Time shifting | ▪ Pause live TV programmes<br>▪ Rewind live TV programmes |
| ▪ Channel schedule independence by easy recording of multiple programmes | ▪ Less live TV viewing<br>▪ Individual channel creation<br>▪ Availability of previously "unreachable" programmes because of timing<br>▪ Skipping inter-programme commercials |
| ▪ New services | ▪ Electronic programme guide (EPG)<br>▪ Searchable content libraries (VoD)<br>▪ Real-time or "download" based VoD for specific content<br>▪ Virtual channels (aggregators using search engines and VoD solutions to create a channel) |

The ability to easily record multiple programmes and create one's own programme line up or personal channel does however significantly change viewing behaviour. These intelligent recording functionalities allow viewers to watch television independent of a schedule and allow viewers to have access to programmes, which previously they had been unable to access because of timing.

Consequently, this will lead to an increased use of non-real-time viewing and the creation of a personal TV evening, hence reducing the role and the visibility of the channel. Recording of programmes also allows viewers to skip inter-programme commercials. The implication of this change will be discussed in the next section.
The PVR's intelligent recording functionalities allow viewers to:

- Record programmes from the EPG;
- Search for specific programmes based on metadata;
- "Subscribe" to every episode of a show or series (from trailer);
- Automated recording based upon the viewers' personal or family profile;
- Automatic "update" recording for item-based programmes such as news, etc.;
- Record targeted and personal advertising;
- Instant-record, available on screen;
- Automatic and user-friendly management of the recorded content.

The third significant addition to the service offering is the new services that come with the introduction of the PVR/VOD. Two main services exist: the Electronic Programme Guide and the "content library".

The EPG (Electronic Programme Guide) is an application that provides a programme line up for each available TV and radio channel for up to two weeks in the future. Unlike the printed version of the TV-Guide, the EPG allows users to search for specific programmes, create alarms when favourite programmes start and schedule programmes for recording.

A "content library" is a searchable on-demand catalogue (PVR for download viewing). Both services allow the user to make his selection of programmes in a world where a

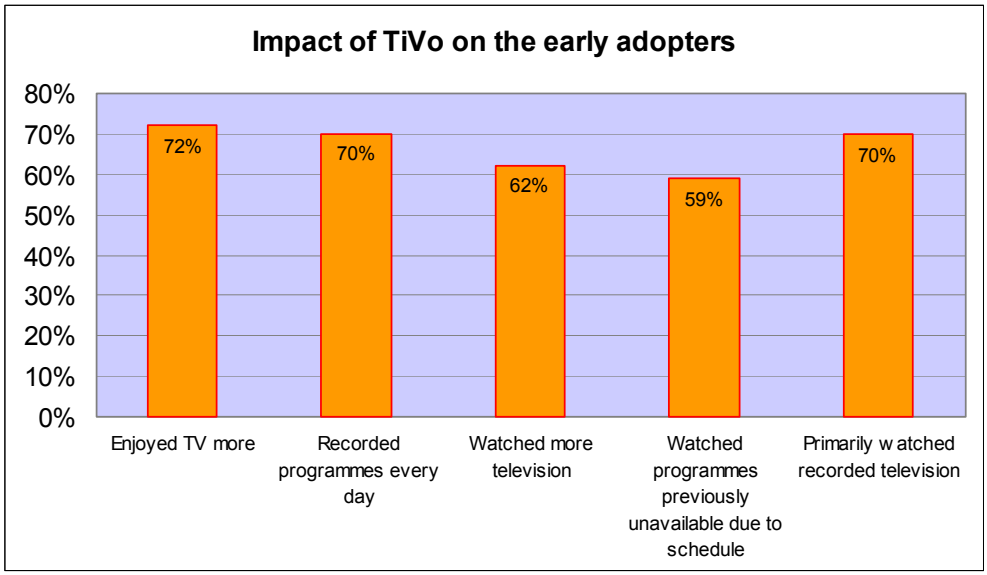
plethora of channels and on-line content libraries offer an overwhelming range of audio-visual products.

### 9.2.3 Changing consumer behaviour

Although consumer behaviour generally changes slowly, VOD/PVR will have an impact on the way consumers watch TV. Since the timeframe of this study ends in 2010, and given the penetration assumption of a of VOD/PVR by that time, we can assume that the results shown below will be extended to the majority of the VOD/PVR users.

Empirical evidence of the value the consumers attribute to the above mentioned advantages can be found in the first surveys of PVR users (see figure below). The surveys of the early-adopters show that 70 percent of the current users record programmes every day and primarily watch these recordings, rather than live-TV.
A significant percentage (59 percent) of the respondents also indicate that they watch programmes previously unavailable due to schedule times and 62 percent of the respondents say their total viewing time has increased.

**Figure 102: First survey of PVR users**[176]




Although the “Personalisation” scenario has an impact on the way consumers watch television, the dominant model of watching TV remains “lean back” viewing.

[176] Source : BBC/Tivo & Magid associates, taken from Durlacher (2000), p. 15

### 9.2.4 Impact on the service offering

#### 9.2.4.1 Creation of new exploitation possibilities

The explosion in the available audio-visual content will stimulate content producers and packagers to create more available content. This, in turn, will positively impact consumer choice.

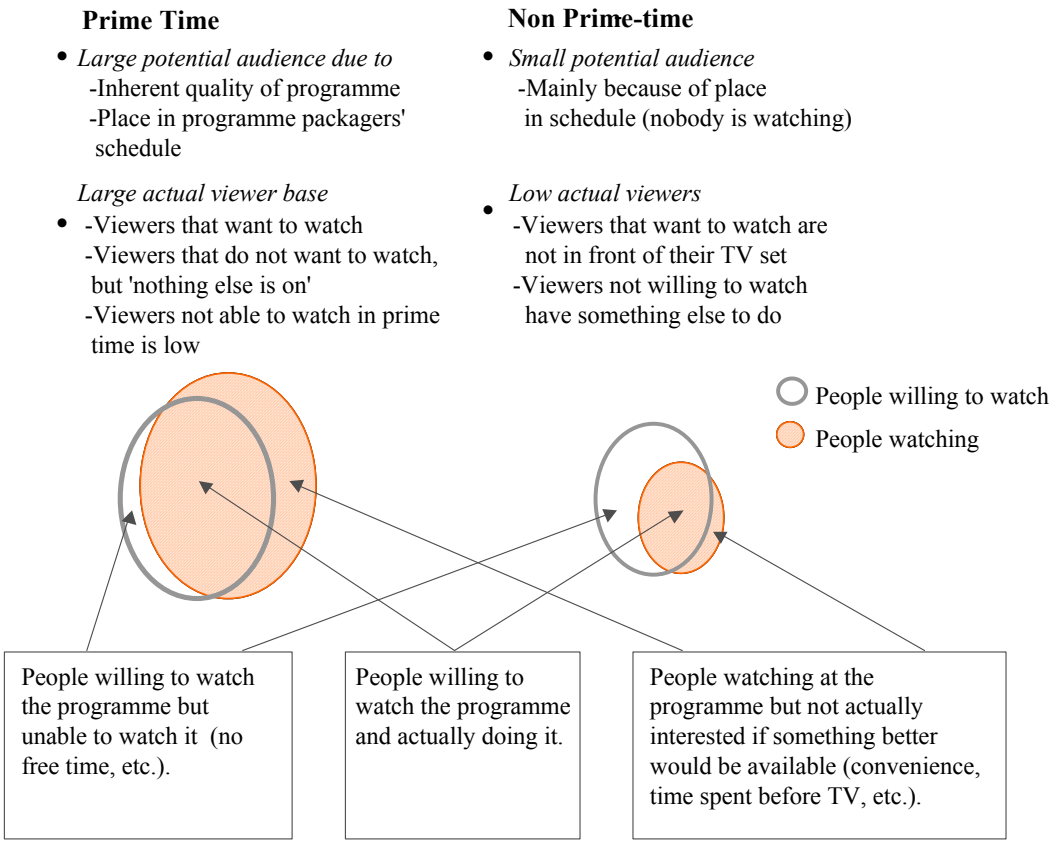
A similar growth in available content was realised in the past. The introduction of several generations programme packagers, combined with new possibilities to distribute audio-visual content (analogue cable and satellite networks) increased the offer.

The use of local storage devices like the PVR will again increase the audio-visual content that is available to the consumer at any given moment in time. Estimates by Durlacher range the number of hours of content produced from a few tens of hours from 2000 onwards to a few 1000 of hours in 2010. Ultimately, in a world with increasing consumer choice, the viewing time will further be fragmented across the increasing number of audio-visual programmes that are available.

However, Andersen assumes that this fragmentation of the audience will not be evenly spread over all existing programmes since viewers will pre-record programmes and create their own television evening. The current distinction between prime time and non prime-time programmes will be difficult to make. Therefore the potential audience a programme can reach will be much more related to its intrinsic quality and the size of its target group, as the scheduling factor will be weakened or non-existent.

If current prime-time programmes are compared with non-prime-time users, the following observations can be made:

**Figure 103: Consumer behaviour in prime time versus non prime time**




The above reasoning indicates that prime time programmes are currently overvalued in terms of actual viewers whilst non prime time programmes are severely undervalued. When the consumer no longer makes his choice based on the timeslot a programme is in, this leads to a loss of viewers for current prime time programmes and a significant gain for (current) *non* prime time content, which is often content for a specific yet small target group.

Given that the advertisers allocate their budgets based on the audience shares of programmes, the distribution of the advertising budget over the programmes will change drastically in this situation (see impact on industry actors' revenue flows):

- The audience share will equal the advertising share (power ratio = 1) as the advertising threshold will be eliminated;
- The extra value of peak programmes will decrease, while the value of non-peak programmes will increase;
- These developments will favour the development of pay TV channels.

#### 9.2.4.2 New focal points emerge

Since consumers will watch recorded programmes, rather than live viewing, and since there is an explosion of the available content, new 'structured' entry points are needed. In order for the consumer to find the content he wants to consume, new entry points that have functions aimed at providing searching and browsing convenience will emerge. These will help the user confronted with a huge number of available services and

channels, to record and view the programmes he likes (the channel will be an ineffective way of doing that).

This role will be taken up by new applications such as the Electronic Programme Guide (EPG) and on-line content catalogues. Much like Internet portals, they will become the new entry points for consumers, hereby concentrating their attention on these applications. Likewise, the browsable and searchable on-line content library provides convenience for previously broadcast content or content released in the on-demand window.

EPG's will become one of the only mass audience concentration points left. This will enable EPG's to attract some advertising budgets. The role and the importance of brands will become increasingly important as audiences will identify themselves with these brands

## 9.3 Market forecasts

### 9.3.1 Market forecasts

In order to quantify the impact of the "Personalisation" on the media industry, an assumption about this technology's penetration of television households has to be made.

The average PVR penetration in the EU today is very low and amounts to 0,5 percent of the television households (see table below). Although Durlacher expects that the uptake will be rapid, reaching a penetration of 75 percent of households by 2010, several factors might impede the rate at which the consumer market will adopt PVR's:

- Prices of storage devices: if the prices do not drop as expected, this will slow down the uptake;
- Standards: if no standards emerge or are put forward, penetration will be negatively affected;
- Technical evolutions: consumers' investment in PVR's might be inhibited by the rapidly evolving technologies. As these technologies will bring innovative features to the PVR, the existing types of PVR's will become obsolete;
- Consumer behaviour: slowly changing viewing habits go hand in hand with a slow uptake of the device.

On the other hand, the supply side of the market or the industry stakeholders could also be reluctant to deploy or support PVR's:

- A period of co-existence between non-PVR and PVR households will have to be supported by the channels. Programme packagers who broadcast programmes, specifically designed for the PVR, will initially only be viewed by the PVR households, which affects their potential audience reach;
- Not all PVR's will be standardised immediately, so it is possible that not all EPG's function on every PVR. Co-existence between different technology generations is foreseeable;

- Although the threat of the VOD/PVR to the traditional free-to-air business model is clear, no clear new business model has emerged yet.

As the scenario logic used in this study is based upon exploring the most extreme scenarios, the assumption will be made that all of the above barriers can be overcome. This also means that as far as market penetration of the PVR is concerned, this study will use Durlacher's "faster take-up scenario" data as the basis for modeling the impact of the PVR on the media industry. The table below summarises the data used and the figure below compares this fast take-up scenario with the take-up of other media technologies.

As this study considers that the choice between PVR and VoD services will mainly be done by operators in view of the optimisation of their networks, the projected percentage household penetration should be viewed as representative for all types of "Personalisation" services, including VoD, NvoD, PVR, streaming, etc.

As can be seen from the data, the initial growth is relatively modest due to the high cost of the first-generation technology combined with normal consumer lag towards an innovative approach of TV consumption.

**Figure 104: Projected percentage household penetration by year and receiver type (net of churn) for the UK and Western Europe (faster take-up scenario)[177]**

Millions, households

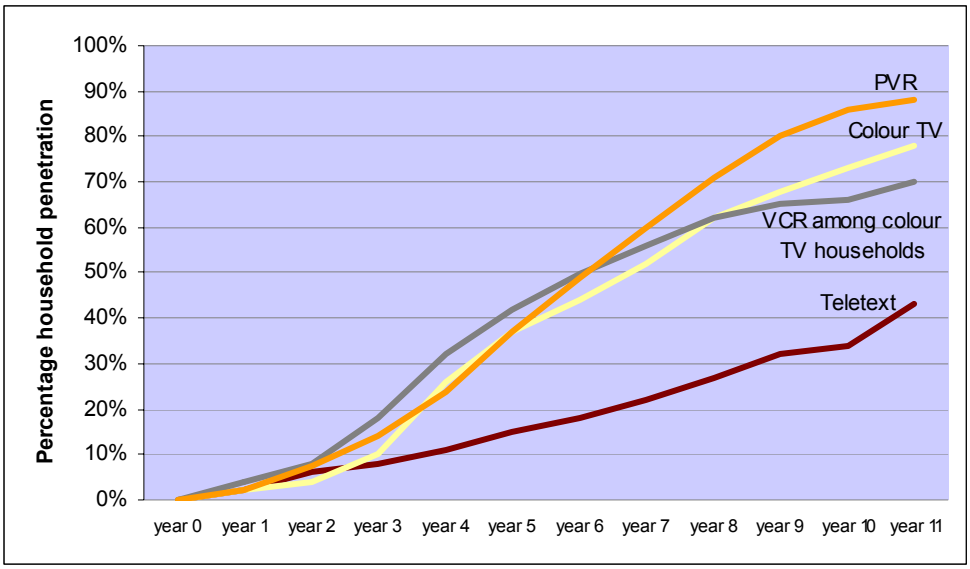
| | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
|---|---|---|---|---|---|---|---|---|---|---|
| Total PVR's in the EU | 0,8 | 3,6 | 17,0 | 28,8 | 38,5 | 52,7 | 68,6 | 84,6 | 101,2 | 116,3 |
| Year on year growth units | 0,8 | 2,8 | 13,5 | 11,7 | 9,8 | 14,2 | 15,9 | 16,0 | 16,7 | 15,1 |
| Year on year growth percentage penetration | 1% | 2% | 9% | 8% | 6% | 9% | 10% | 10% | 11% | 10% |
| **% households** | **1%** | **2%** | **11%** | **19%** | **25%** | **34%** | **44%** | **55%** | **65%** | **75%** |

However, from 2006 onwards, a higher growth rate is expected, driven by falling prices, mature technology and the drive towards digital transmission means as analogue switch-off approaches. As a result of the switch-off, households will require a set-top box or iTV television set in order to capture the programmes.

Compared to other media technologies, the growth of the PVR technology in this scenario is normal as shown on the below figure.

[177] Source: Durlacher, "Local Digital Storage", p.34

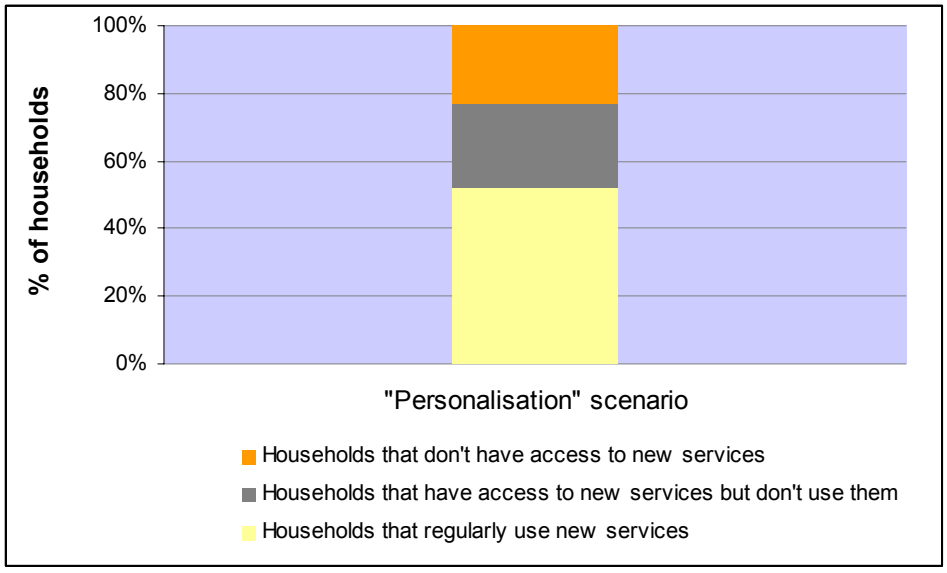
**Figure 105: Percentage historical household penetration of major TV innovations (by year after first market availability) compared with PVR projections – faster take-up scenario (UK figures)[178]**




The market forecast detailed above will be used throughout this section and in the model as a basic input.

The Figure below provides an overview of the expected behaviour of consumers in case of a negative growth environment. In the “personalisation” scenario, about half of the households have access to new services and use them regularly. A quarter of the households do not have access to new services and another quarter have access but do not use them.

**Figure 106: Insight on how audience behaviour could change in the “personalisation” scenario**



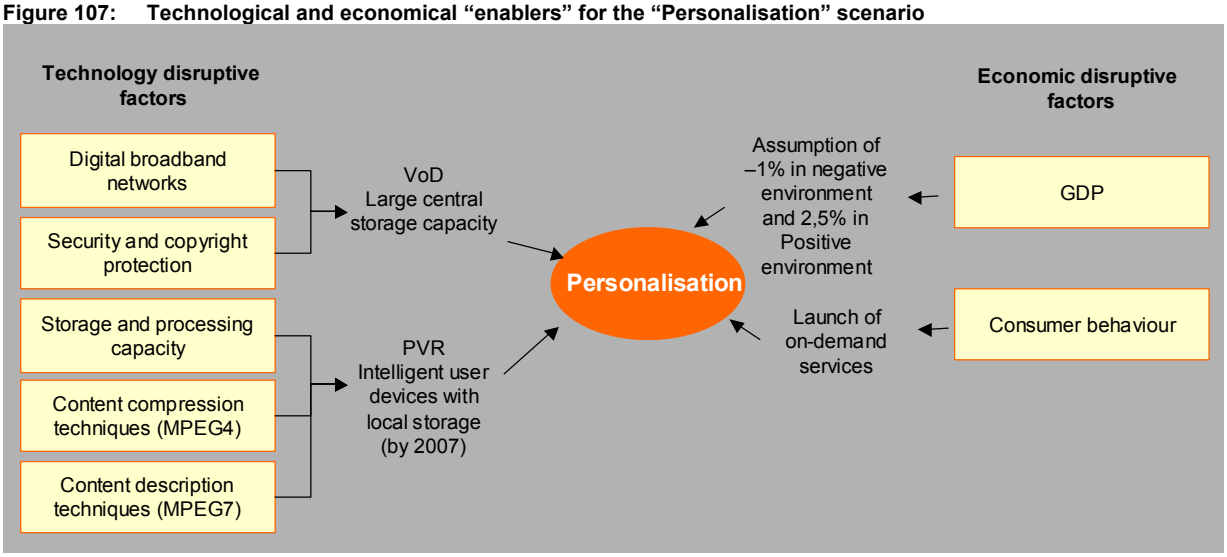

[178] Source: Durlacher, “Local Digital Storage”, p.34

### 9.3.2 Enablers to the scenario

The “Personalisation” scenario is based on some strong hypotheses of disruptive factors. These hypotheses may or may not occur in the future, depending on numerous economic, technical or sociological factors that will enable or prevent them. The likelihood of the “Personalisation” scenario can be determined on short, medium and long term basis, based on these enablers and barriers.

The “Personalisation” scenario is based on the hypothesis that there will be a paradigm shift from channel-based viewing to programme-based viewing.

**Figure 107: Technological and economical “enablers” for the “Personalisation” scenario**



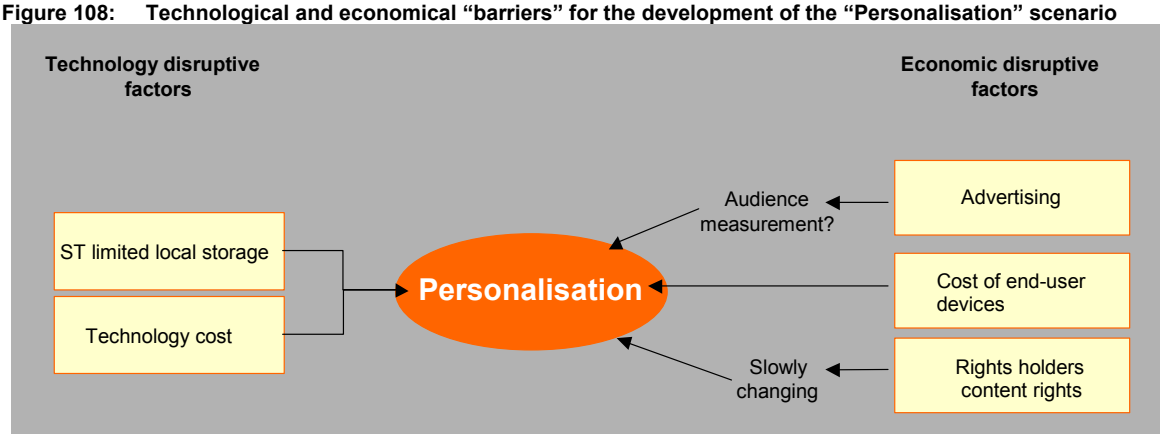

The first enabler for this scenario is technological innovation: the breakthrough of intelligent user devices with local or central storage. PVR new devices are the result of several technological developments: an increase in storage and processing capacity, better compression techniques and new content description techniques. VoD service developments result from the increased digital broadband capacities and security and copyright protection.

Furthermore, the investments made by access providers in the digitisation of their platforms, will also be an enabler for this scenario. They now need to secure their return on investment and will invest further in the development of new media services.

Another enabler is related to consumers’ favourable behaviour. Consumers are very interested in the devices and new applications that these developments bring and want to improve their convenience when watching television. Consumers indicate that the availability of VoD and PVR services are their most important criteria when selecting a platform.

### 9.3.3 Barriers for the development of the scenario

**Figure 108: Technological and economical "barriers" for the development of the "Personalisation" scenario**




The first barrier for the development of the "Personalisation" scenario is technological. On the one hand, the current capacity of local storage within the PVR is still limited and therefore a barrier to provide compelling content and services. On the other hand, the cost of massive central servers and the available bandwidth to the home can be considered as barriers for the development of VoD services.

Economic factors also impact the development of the "Personalisation" scenario. The advertising market, which is still the main revenue source for programme packagers, is relatively conservative and evolving relatively slowly. Advertisers need validated ways of measuring the audience of a medium before investing in it. The new business models, enabled by PVR and VoD, are up to now still unproven and will need effective measurement tools to guarantee the audience reach.

As indicated by the market forecasts, the price of the storage devices is an important barrier. The wide deployment of PVR's today is still at high cost.

Another barrier relates to content rights. Rights holders still have doubts about the security and copyright protection of the content that is supposed to be delivered on-demand. As long as these actors are convinced that there is a threat for their business regarding copyright protection, they will not allow the transmission of their content through these new distribution channels.

Lastly, programme packagers will have a decreased role in the "Personalisation" scenario since it means a shift from channel viewing to programme viewing. They could therefore be reluctant to participate in this model. Only 23 percent of the interviewees of the Delphi study indicate programme packagers as the industry actors that will gain control of the set-top box.

## 9.4 Strategic implications of the "Personalisation" Scenario

The introduction of the PVR/VOD will impact the audio-visual industry in two ways:

- As the audience share of a programme is the primary measurement by which the advertisers allocate their budgets, any change in this measure will immediately impact the size and distribution of this budget over the industry;
- As new services and service providers are created to develop services and supply the PVR technology, the balance of power in the value chain might shift. In addition, the new services might change the types of revenues that the broadcasting industry attracts.

### 9.4.1 Impact on the financial strength of the industry stakeholders

The impact of the "Personalisation" scenario on the revenue flows of the audio-visual industry is twofold.

Firstly, advertising revenues might flow to different industry actors. As advertising is correlated with the GDP, these revenues are expected to increase in growth while they are expected to decrease in a negative economic environment.

Secondly, there is an impact on subscription fees and revenues from pay-per-view services, as consumers will shift part of their TV spending from video sales and rentals to the PVR platform.

#### 9.4.1.1 Advertising revenues

The changes in consumer behaviour will make advertisers reconsider their way of advertising. The current television advertisers face following challenges:

- Fragmentation of the audience share of programmes;
- Ad-skipping and programme-based viewing (no inter-programme ads);
- New focal points, being the EPG's and content libraries;
- Possibility of targeting specific profiles and local ad insertion.

Their most likely response to the changes that the PVR bring are to devise new ways of advertising. Programme-based advertising such as product placement, etc. will be more common as well as advertising on new focal points. Once released from scheduling, advertising can become a (targeted) audio-visual work in itself allowing advertisers to have their content (the advertisement) available to the viewers at all time. Another new way of advertising are "surround sessions", enabling the advertisers to target and follow the viewer for a certain time, when navigating or watching TV.

These changes in the role of advertising will impact the allocation of advertising budgets (see table below):

- The evolution of the "traditional" television advertising will significantly differ depending on the economic environment. In a growth environment, "traditional"

television advertising will only increase by 1,0 billion Euro, while in the negative economic environment, “traditional” television advertising will decrease by 6,4 billion Euro;

- Some changes to the television advertising market, mentioned below, will have a total positive impact on the audio-visual industry of 1.479 million Euro in the growth environment and 1.140 million Euro in the negative economic environment. These changes can be summarised as follows:
  - Better audience measurement systems will remove the 3 to 5 percent advertising budget threshold for the allocation of budgets. Pay TV channels will benefit from this and attract a part of the advertising revenues, formerly dedicated to Public Service and free commercial channels;
  - The increase in available content will on the one hand fragment audiences, but will on the other hand allow advertisers to target audiences more efficiently. Andersen expects that, taking into account the estimated penetration of PVR/VoD services, 5 percent of the magazine advertising market will shift towards the audio-visual industry;
  - PVR technologies can potentially allow for ad-skipping. First usage statistics already indicate that users tend to prerecord a large number of programmes allowing for manually advertising windows. Andersen estimates that advertising will decrease by 10 percent in 2010;
  - Andersen estimates that 7,5 percent of the TV advertising market will move to the EPG space by 2010.
- It has to be noted that in the case of the “personalisation scenario”, programme packagers and access providers also benefit from other advertising revenues, generated from the (current) publishing industry (estimated at 4,3 billion Euro in the positive economic environment and 2,9 billion Euro in the negative economic environment). In reality, these advertising revenues will benefit new aggregation companies, not part of the traditional audio-visual industry.
- Overall, the total “new” television advertising will increase by 2,5 billion Euro in the growth environment, while it will decrease in a negative economic environment by 5,4 billion Euro.

**Figure 109: Advertising budgets move within the audio-visual industry[179]**

| | | Growth environment | | | | Negative economic environment | | | |
|---|---|---|---|---|---|---|---|---|---|
| | "Traditional" television advertising spend in 1999 (in mio Euro) | Evolution "traditional" television advertising in 2010 (in Mio Euro) | Non-TV related advertising that will benefit the audio-visual industry (in Mio Euro) | TV Advertising spending in 2010 (in Mio Euro) | Additional advertising originating from the publishing industry that will benefit programme packagers and access providers | Evolution "traditional" television advertising in 2010 (in Mio Euro) | Non-TV related advertising that will benefit the audio-visual industry (in Mio Euro) | TV Advertising spending in 2010 (in Mio Euro) | Additional advertising originating from the publishing industry that will benefit programme packagers and access providers |
| Austria | 425 | 481 | 28 | 509 | 150 | 277 | 21 | 298 | 84 |
| Belgium | 691 | 879 | 46 | 925 | 65 | 464 | 35 | 499 | 48 |
| Denmark | 241 | 228 | 18 | 246 | 11 | 189 | 14 | 203 | 10 |
| Finland | 205 | 195 | 14 | 209 | 50 | 151 | 11 | 162 | 32 |
| France | 2.684 | 2.686 | 180 | 2.866 | 1.077 | 1.919 | 138 | 2.057 | 576 |
| Germany | 4.317 | 4.572 | 270 | 4.842 | 1.171 | 3.042 | 212 | 3.254 | 859 |
| Greece | 613 | 628 | 41 | 669 | 81 | 491 | 33 | 524 | 63 |
| Iceland | 6 | 46 | 2 | 48 | 4 | 19 | 1 | 20 | 2 |
| Ireland | 173 | 166 | 12 | 178 | 4 | 125 | 9 | 134 | 4 |
| Italy | 3.680 | 3.890 | 246 | 4.136 | 298 | 2.587 | 188 | 2.775 | 197 |
| Liechtenstein | 0 | 0 | 0 | 0 | 3 | 1 | 0 | 1 | 1 |
| Luxembourg | 8 | 13 | 1 | 14 | 12 | 4 | 0 | 4 | 4 |
| Netherlands | 604 | 556 | 40 | 596 | 254 | 443 | 31 | 474 | 171 |
| Norway | 469 | 504 | 31 | 535 | 60 | 333 | 24 | 357 | 30 |
| Portugal | 836 | 1.000 | 56 | 1.056 | 65 | 594 | 43 | 637 | 41 |
| Spain | 2.100 | 2.276 | 141 | 2.417 | 188 | 1.485 | 108 | 1.593 | 131 |
| Sweden | 361 | 398 | 24 | 422 | 82 | 254 | 18 | 272 | 50 |
| UK | 4.924 | 4.846 | 329 | 5.175 | 757 | 3.530 | 253 | 3.783 | 548 |
| **Europe** | **22.336** | **23.364** | **1.479** | **24.843** | **4.332** | **15.907** | **1.140** | **17.047** | **2.852** |

### 9.4.1.2 Subscription and pay-per-view revenues

Subscription fees and revenues from pay-per-view services are the second flow of revenues that are impacted by the “Personalisation” scenario.

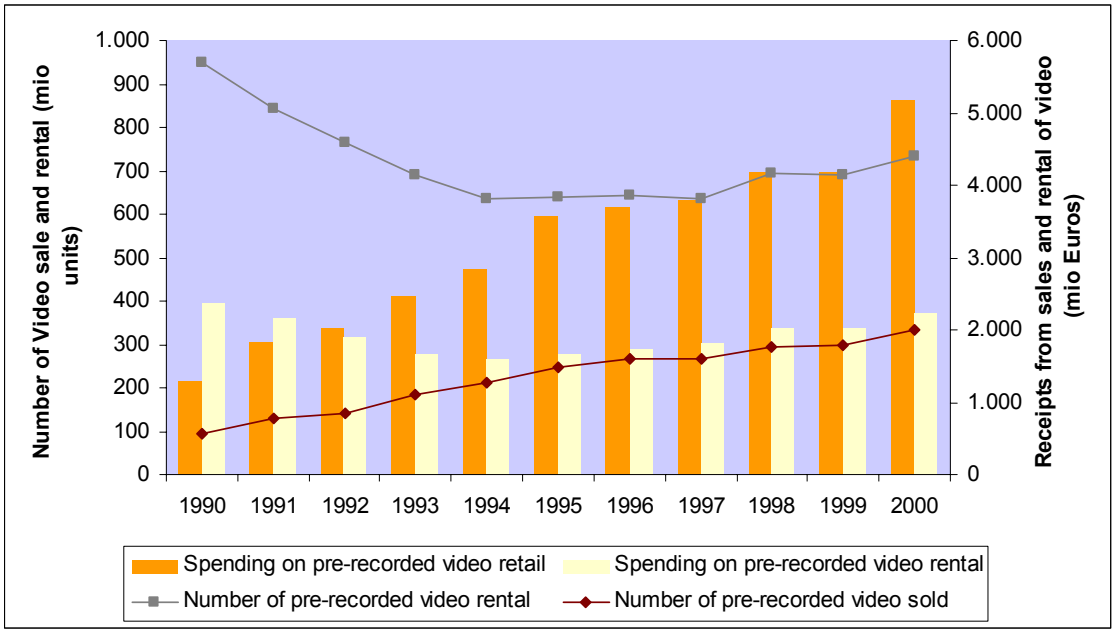
The PVR brings along new functionalities that may be translated into new television revenues:

- Slower than real time downloads and viewing later (locally stored);
- Large on-line content libraries since real time transport is not an issue;
- Possibility to locally archive film for second viewing.

Due to these new functionalities, part of the video rental and sales market will move to the PVR platform (e.g. Blockbuster) and the subscription-based channels (pay TV) can be download-only channels, lowering the transmission costs. The current video rental and sell-through market in Europe is summarised on the below figure.

[179] Source advertising spend: ZenithMedia and Andersen analysis

**Figure 110: Evolution of the European video rental and sell-through market[180]**




Between 1990 and 2000, the European Union video market as a whole expanded. Nevertheless, its sub-markets experienced contrasting trends. While the pre-recorded video sales market took off at the end of the 1980s, the video rental market suffered from a sharp decline from 1989 until 1994-95 and has been somewhat recovering since.

The period between 1980 and the early 1990s was characterised by a boom in household VCR equipment. As the household penetration approached saturation growth rates have declined since the mid 1990s. The 1980s saw the emergence of the VHS as a dominant cassette format and the development of stereo sound in video recording. Next came the laser disc development during the beginning of the 1990s, which ended with the recent launch of DVD (Digital Versatile Disc) in April 1998.

Since 1990, the expansion of the EU video market is due to the strong growth in the sales of pre-recorded videocassettes (i.e. sell-through video). From its launch in 1998 onwards, the DVD has taken over has the main growth generator, especially in the video retail market.

Consumers are expected to shift part of their spending on video rental and video sales to the PVR platform. Table below gives an overview of VCR household spending on video rental and video sales in 1998 in the 18 countries studied in this report. The assumption made for this scenario is that the PVR owners will shift all of their video rental spend to the PVR platform and 50 percent of their video/DVD spend. Using this assumption, together with the foreseen PVR penetration rate (see section 9.3) an estimate of the additional revenues flowing into the broadcasting industry can be made.

[180] Source : International Video Federation 2001 - European Video Yearbook 2001/2002

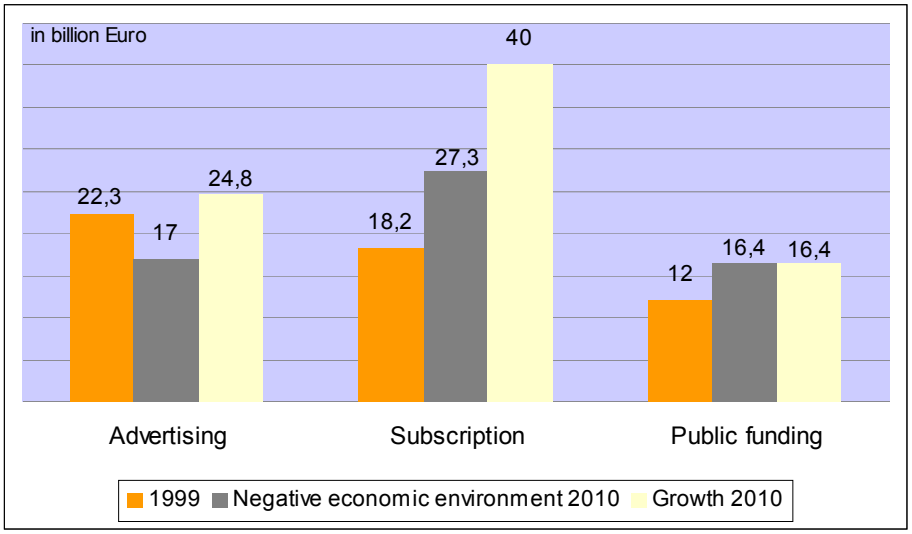
**Figure 111: Rental & sales spend per household, 1998 figures (except Belgium, Luxembourg 1997 figures)**[181]

| | Rental spend in € (per TV HH) | Sell through in € (per TV HH) | VCR HH in 000 | Rental spend moved to PVR in 000€ | Sales spend moved to PVR in 000€ |
|---|---|---|---|---|---|
| Austria | 13,11 | 24,24 | 2347 | 30.676 | 28.366 |
| Belgium | 17,46 | 34,11 | 3157 | 52.192 | 51.000 |
| Denmark | 41,10 | 57,18 | 1889 | 73.607 | 51.205 |
| Finland | 14,07 | 27,94 | 1671 | 23.237 | 23.066 |
| France | 11,76 | 47,20 | 18339 | 200.715 | 402.641 |
| Germany | 15,10 | 20,39 | 27242 | 365.644 | 246.810 |
| Greece | 8,87 | 4,79 | 1821 | 12.282 | 3.320 |
| Iceland | 114,34 | 51,76 | 83 | 9.178 | 2.077 |
| Ireland | 91,32 | 43,70 | 939 | 77.075 | 18.442 |
| Italy | 3,75 | 10,67 | 13241 | 50.567 | 71.957 |
| Liechtenstein | NA | NA | N/A | NA | NA |
| Luxembourg | 12,96 | 28,69 | N/A | 1.088 | 1.204 |
| Netherlands | 19,56 | 23,11 | 5153 | 99.093 | 58.555 |
| Norway | 37,44 | 32,95 | 1393 | 53.273 | 23.447 |
| Portugal | 6,16 | 16,82 | 1873 | 11.933 | 16.284 |
| Spain | 19,46 | 26,35 | 8563 | 172.809 | 116.988 |
| Sweden | 22,94 | 24,48 | 3227 | 78.399 | 83.670 |
| UK | 31,03 | 66,74 | 20699 | 605.605 | 1.302.675 |
| **EU average** | **28,26** | **31,83** | **-** | **1.917.374** | **2.501.706** |

### 9.4.1.3 Overview of revenue flows

The figure below provides an overview of the revenue sources in the different economic environments. As discussed above, the advertising revenues will be influenced by the change in consumer behaviour, new ways of advertising and the differences in the service offering. The subscription revenues will increase since the PVR brings along new functionalities that can be translated in new revenue streams and consumers will shift part of their video sales and rental spend to the PVR platform.

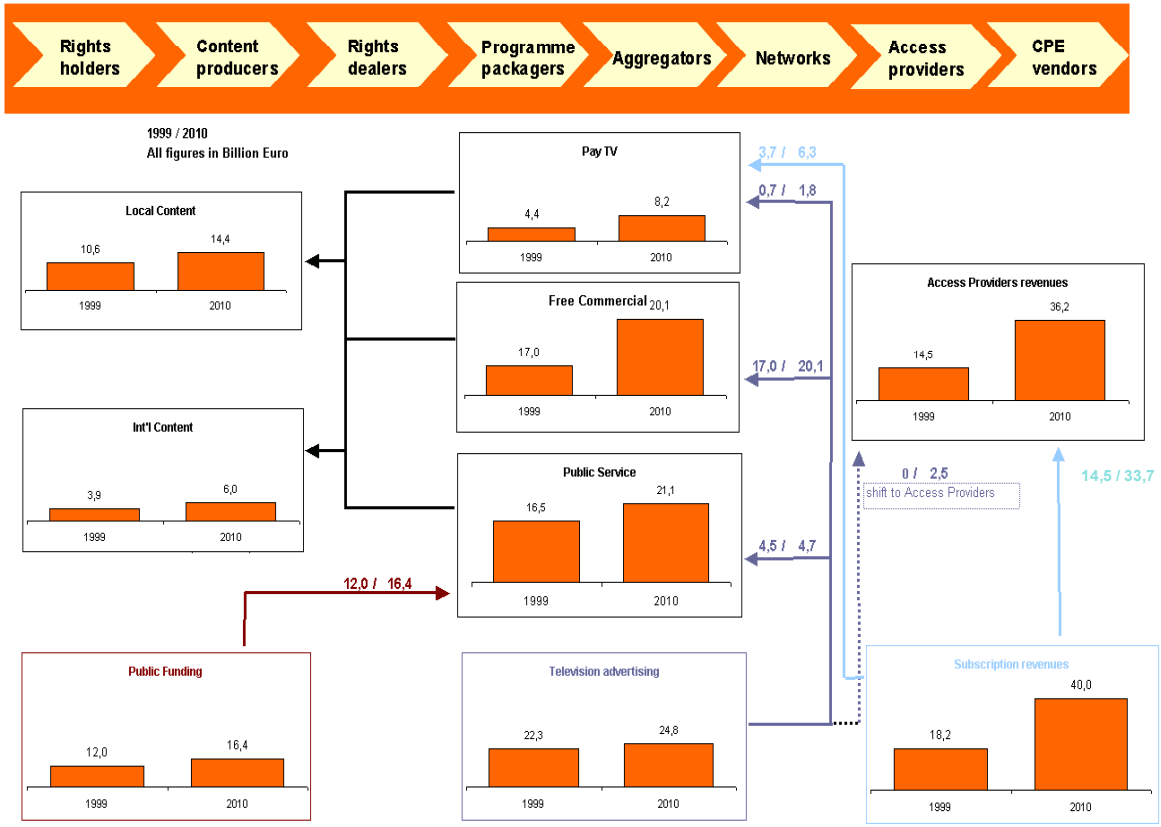
**Figure 112: Overview of impact on revenue flows in a growth and a negative economic environment**




[181] Compiled by Andersen based on the data sources mentioned in section 2.5.3.1
According to the International Video Federation 2001 - European Video Yearbook 2001/2002, the average spending in 1998 is 54,5 Euro in stead of 60,1 Euro. For 2000, this source indicate an average spending of 59,7 Euro.

The three flows of the audio-visual industry, will be distributed among the different type of industry actors. The below figure provides an overview of the repartition of the advertising, subscription and public funding revenues in an economic growth environment.

**Figure 113: Impact on the value maps in a growth environment**[182]




In an economic growth environment, the advertising revenues are expected to grow with 1,1 percent (compound annual growth rate). Several movements of the budgets can be noted:

- The potential ad-skipping has a negative effect on the total advertising budget;
- The EPG will attract part of the advertising budget (between 0 and 4 percent);
- The increase in available content will shift advertising budgets towards the channels who have a specific target audience.

Therefore, pay TV operators will benefit most from the changes in the advertising revenues, while the budgets for Public Service and free commercial channels will not fundamentally change.

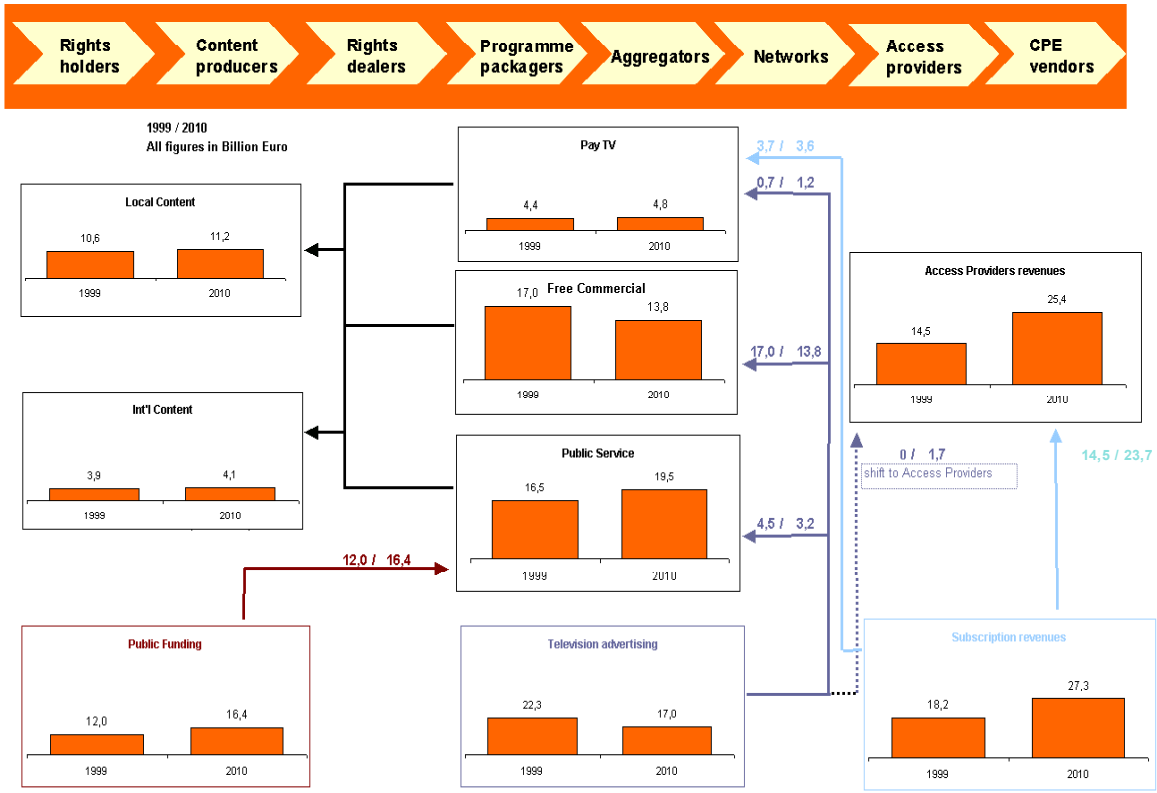
The subscription revenues will increase with 9,3 percent (compound annual growth rate) or from 15 billion Euro in 1999 to 40 billion Euro in 2010. These revenues will mainly flow to the distribution mechanisms, but pay TV operators will also benefit from its increase.

[182] A difference exists between the total television advertising revenues and the sum of the advertising flows running to the programme packagers and access providers. The difference of 4,3 Billion Euro relates to new advertising funds coming from the magazine and newspapers advertising market. In reality, these advertising revenues will benefit new aggregation companies, traditionally not part of the audio-visual industry.

In a negative economic environment, the advertising revenues will decline as they are directly linked to GDP growth (see chapter 4). Free commercial broadcasters will be most impacted and face a decrease in advertising budgets. The budgets of pay TV operators and Public Service Broadcasters, however will not decrease. Consequently, there will be less shifts in the budgets allocated to local and international content.

The shift of advertising budgets to the EPG will be less high than in the growth environment.

**Figure 114: Impact on the value maps in a negative economic environment**[183]




[183] A difference exists between the total advertising revenues and the sum of the advertising flows running to the programme packagers and access providers. The difference of 2,9 Billion Euro relates to new advertising funds coming from the magazine and newspapers advertising market.

### 9.4.2 Impact on consumers choice and service offerings

In order to gain insight to the impact of the “Personalisation” scenario on customer choice and control, the number of channels and the distribution modes of the different countries have been studied, both in a negative economic and a growth situation.

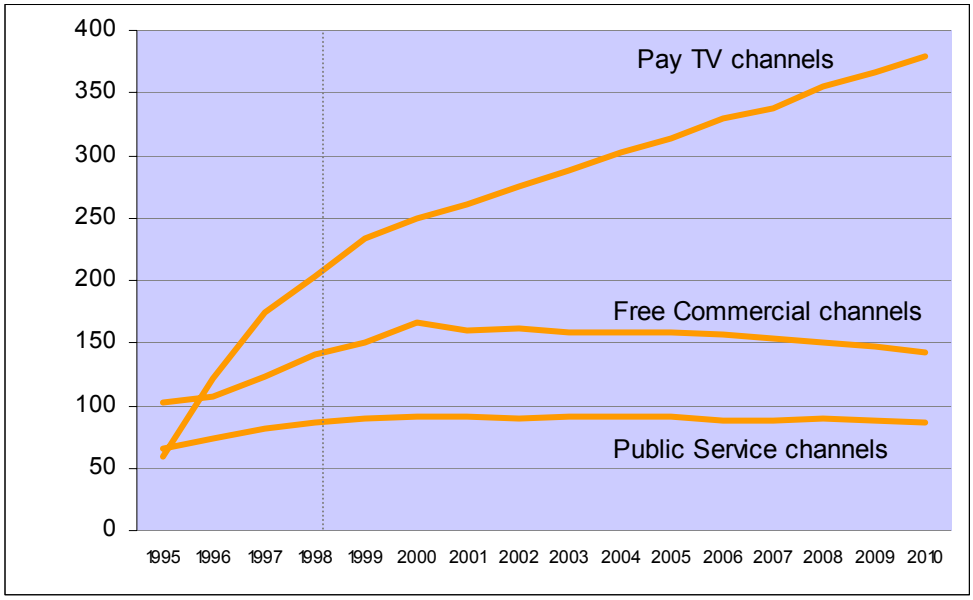
The number of channels may be considered as a not fully adequate measure in this scenario as the ability to broadcast, record and release content on demand enables the user to create its own TV “channel” and therefore the notion of traditional TV channel is expected to loose relevancy. Yet the notion of number of channels may also be considered as a proxy of the total financial resources used by the packaging industry in order to select, aggregate and make content available to viewers, whatever the form it takes (traditional channel or “on-demand” in this case ). Therefore, this variable has also been considered as a relevant variable for this scenario.

#### 9.4.2.1 Impact on Consumer Choice in a growth environment

The changes in the revenue streams of the industry indicated in the previous section, will necessarily induce changes in the number of channels that can be supported and in the transmission platforms the consumers select.

In a growth environment, the subscription revenues will increase as part of the consumer spending on video rental and sales will flow to the PVR platform. Advertising revenues are expected to be shifted to the actors in the value chain who have customer data and who can provide the right audience for advertisers i.e. the aggregators. In addition, part of the magazine advertising will flow towards the television and the EPG platform will attract part of the budgets.

**Figure 115: Evolution of the number of channels in a growth environment**




This all leads to an increase in the number of pay TV channels, supported by the increased revenues, as:

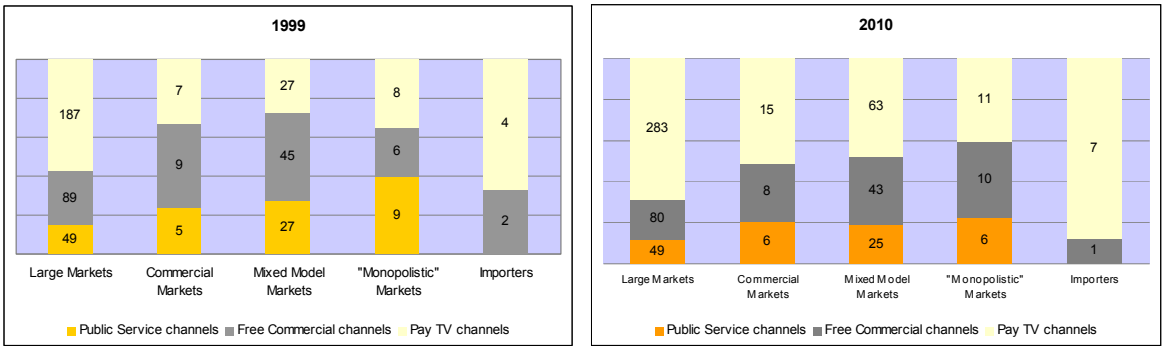
- The PVR will make audience measurement more accurate, this provides advertisers with precise figures of the audiences reached. Andersen expects that this will eliminate the existing 3 to 5 percent threshold advertisers use when attributing budgets;
- The audiences are more segmented, increasing the “cost per thousand”, which will stimulate the development of new pay TV channels;
- Pay TV channels can tap revenues from the magazine advertising business.

Pay TV channels in the VOD/PVR scenario do not necessarily relate to pay-TV channels, but to channels that tend to specialise in a community or a theme.
In contrast, the number of free commercial channels decreases slightly (see figure above), even in a growth scenario, as part of their advertising revenues will shift to pay TV channels as less channels can be supported with the decreased advertising revenues.

The increase in the number of pay TV channels and the decrease in the free commercial channels can also be found when looking at the evolution in the different market segments (as defined in Chapter 2), as can be seen from the figure below:

- The increase of pay TV channels is amplified in the Large markets and the Mixed markets;
- The decreasing trend in the number of free commercial channels is not perceived in the “Monopolistic” markets.

**Figure 116: Distribution of the number of channels in 1999 versus 2010 in a growth environment**




The number of pay TV channels is expected to increase as they will find a feasible revenue model by combining subscription and advertising revenues.
This will increase consumer choice and control.

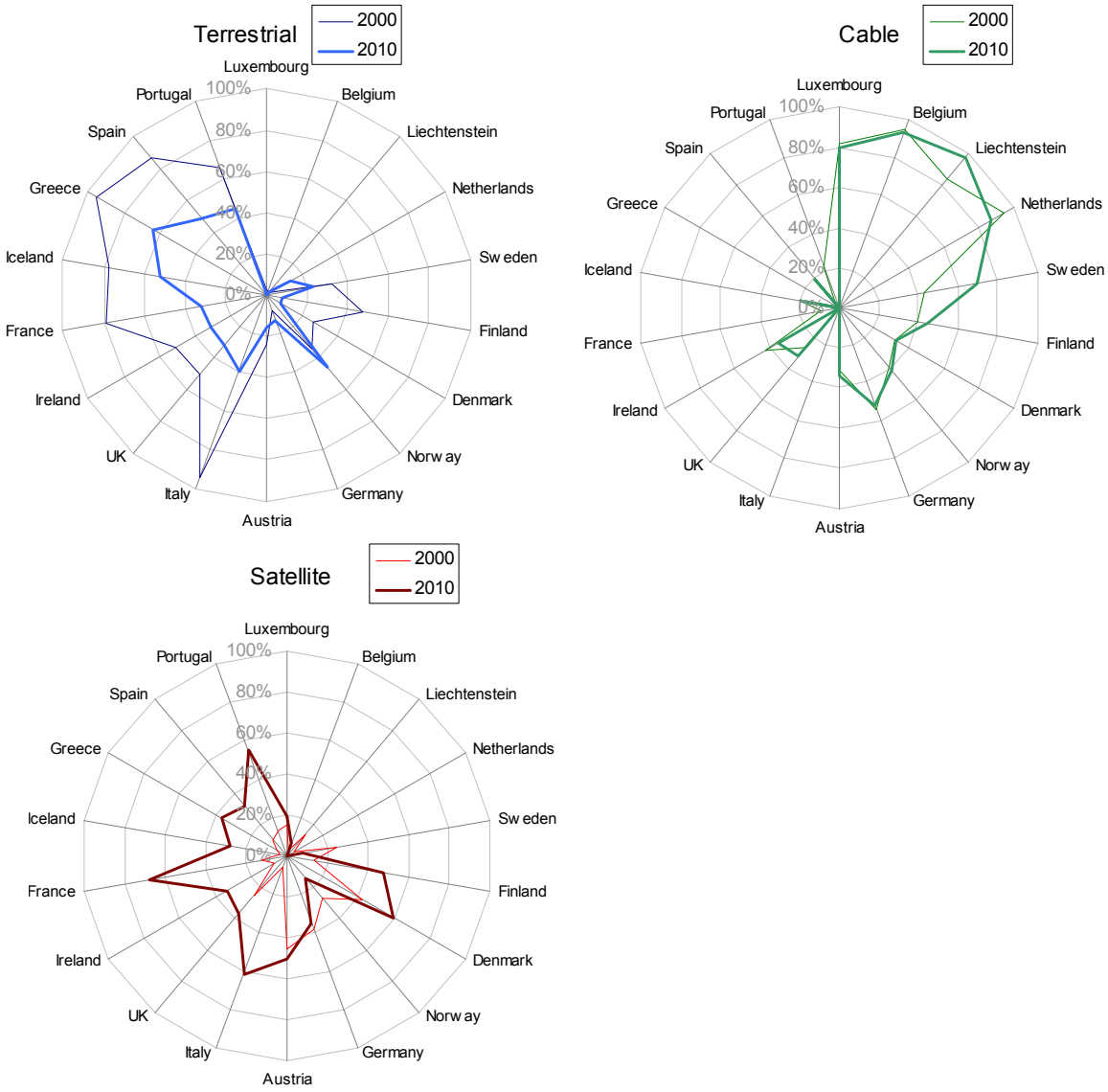
Another phenomenon in a growth scenario is the transition of a large number of homes to multi-channel television services, inducing a shift in the predominant transmission modes. However, not all countries will develop competitive platforms.

Satellite penetration grows by 2010 to almost 40 percent, up from 20,5 percent in 2000, as satellite offers the largest selection of content and hence the biggest value for PVR owners.

In addition, cable holds its current penetration in all countries, as households do not switch since the offer is close to the satellite offer.

Terrestrial loses a lot of its attraction, even in its digital form, as it simply cannot supply the multitude of channels offered by the competing platforms and hence reduces the value of having a PVR.

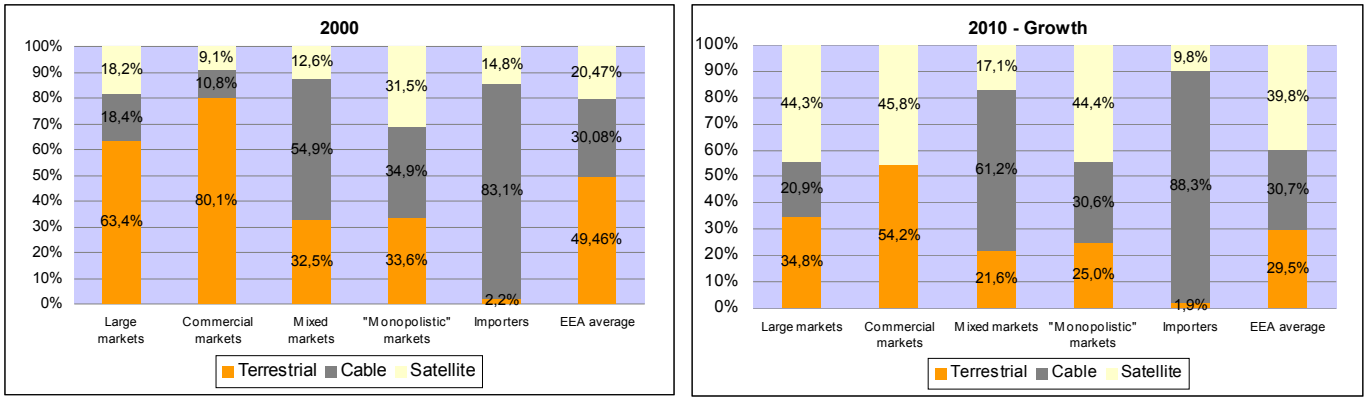
**Figure 117: Evolution of the transmission modes in a growth environment**




In some countries of the market segments, the general trend in the transmission modes is weakened:

- In the UK, all three distribution platforms are equally developed;
- The Commercial markets are still characterised by a terrestrial transmission mode.

**Figure 118: Estimated penetration of transmission modes (in percentage of TV households) in a growth environment in 2010**



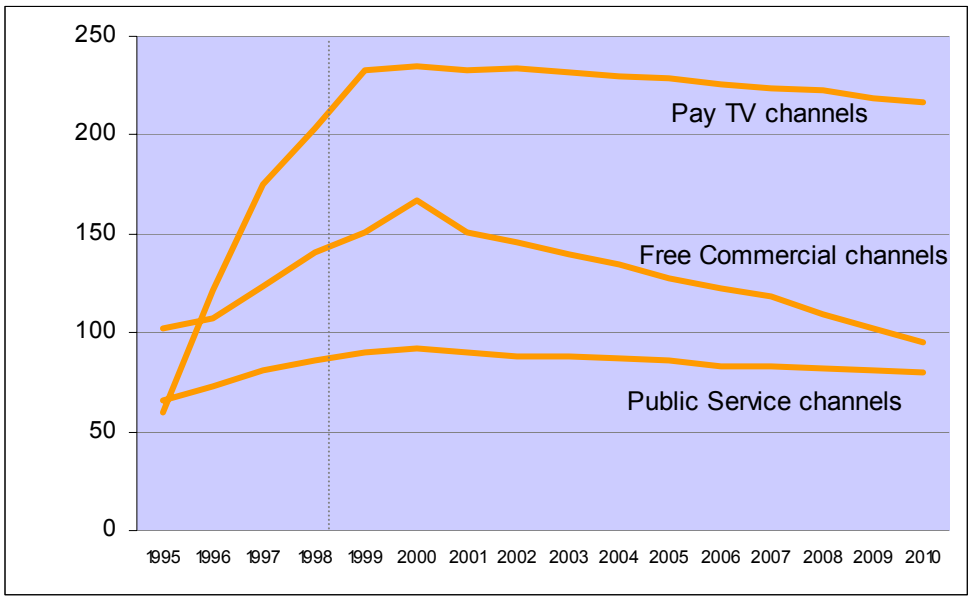

All this means an increase in customer choice and control as most households will have access to digital distribution mechanisms that will carry a large number of channels. It should be noted however that even in 2010, a maximum PVR penetration of 75 percent is foreseen. This means that, on average, 25 percent of the television households will not have this functionality and continue to watch schedule-based channels.

### 9.4.2.2 Impact on consumer choice in a negative economic environment

In a negative economic environment (GDP minus 1 percent per annum), especially the revenues from advertising are under pressure (see section 9.4.1.1). Due to the shift of VHS and DVD rental and sales to the platforms, the average television spend per household will still increase thus favouring the pay TV channels. However, the willingness to increase a household's spending on the transmission platform may be limited.

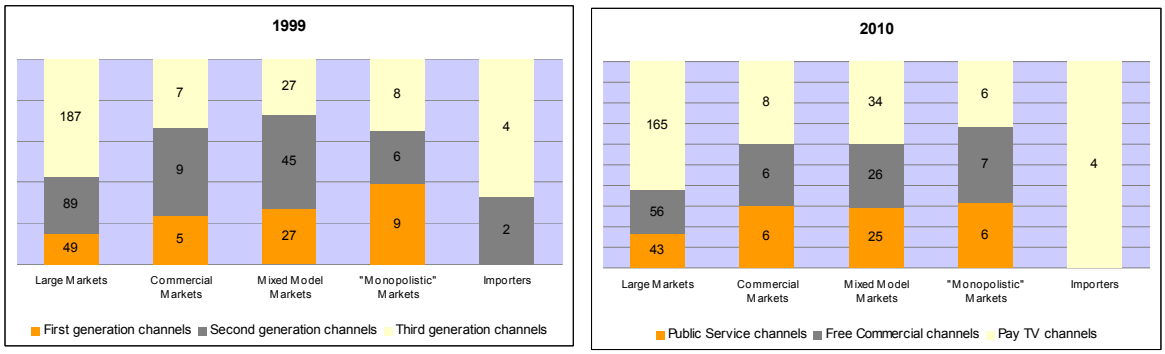
Given these changes in the industry's revenue streams, a large part of the European audiences will be able to access pay TV channels. Free commercial channels, on the other hand, face a difficult time in a negative economic climate, since the advertising revenues are reduced.

**Figure 119: Evolution of the number of channels in a negative economic environment**



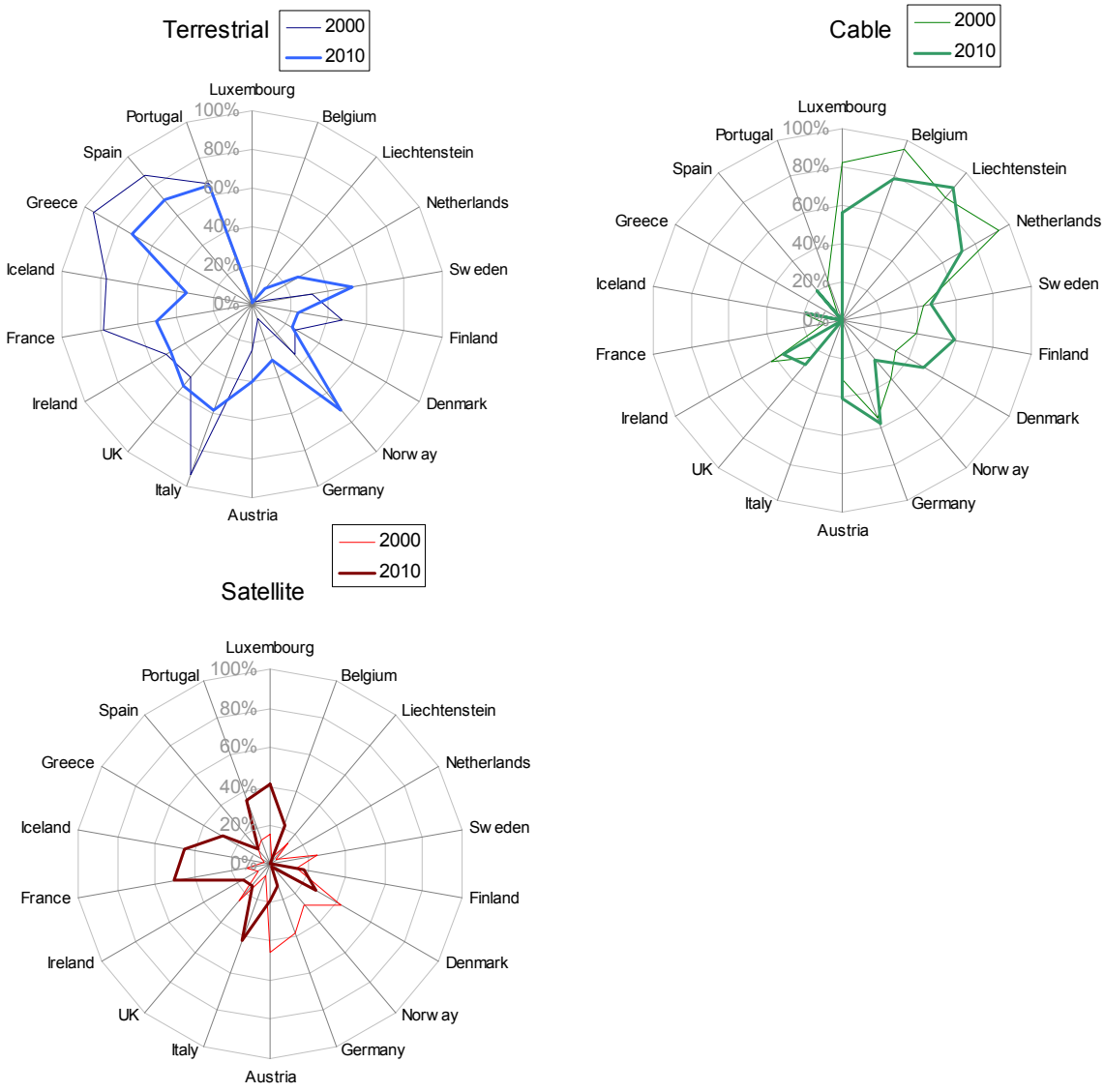

The overall trends discussed above hold for the majority of the country segments. Only the Importers will have an increase in the number of channels as they currently have underdeveloped media markets.

**Figure 120: Distribution of the number of channels in 1999 versus 2010 in a negative economic environment**



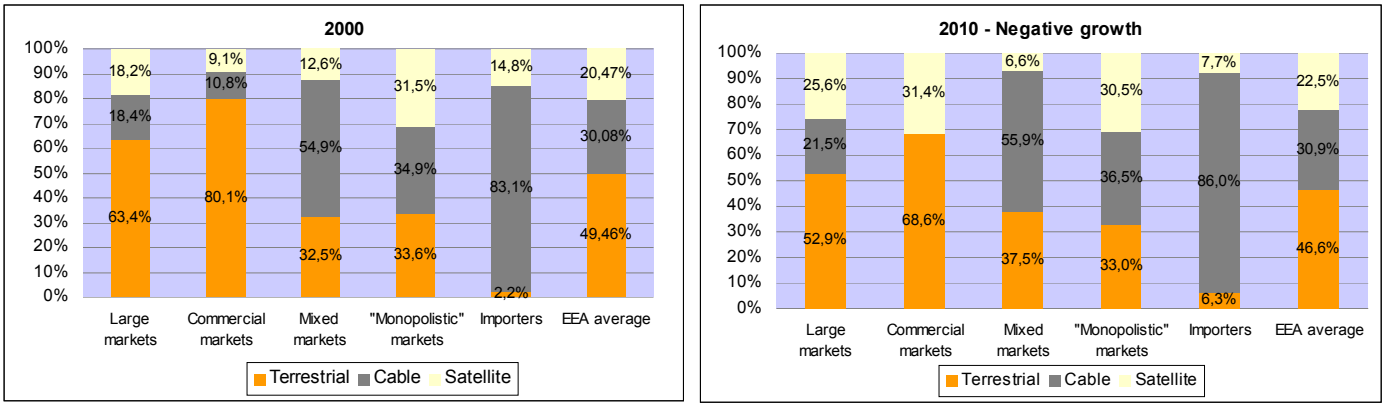

In a negative economic environment, the terrestrial distribution mode looses less market share than in a growth environment, as the consumer spending is limited. Overall, the satellite platform will take a significant part of the market share in the current terrestrial countries.

**Figure 121: Evolution of the transmission modes in a negative economic environment**




On a country segment basis, terrestrial will be most important distribution platform in the Large and Commercial markets. Satellite will not develop in these countries as in a growth environment. The cable countries will continue to attract households to their platform, even in a negative economic environment, as the content offer is close to the satellite offer, but less expensive.

**Figure 122: Estimated penetration of transmission modes (in percentage of TV households) in a negative economic environment in 2010**




Given the decrease in the total number of channels in any category and the small decrease of cable and satellite penetration, it is unlikely that a PVR penetration of 75 percent can be achieved.

Hence, the VOD/PVR scenario is unrealistic in a negative economic environment.

### 9.4.3 Impact on the industry value chain

The above analysis of the change in revenue streams and hence the number of channels and transmission modes clearly indicates that the position of “programme packagers” is most threatened by the PVR, especially the free commercial (generalist) free-to-air broadcasters that heavily depend on schedule-based advertising.

Apart from the programme packagers, both the content providers and the aggregators will be influenced by the advent of the PVR. However, for these types of actors, the PVR brings opportunities rather than threats.

#### 9.4.3.1 Impact on Programme Packagers

Programme packagers have three main roles. They select, commission or buy programmes and aggregate and package the content such that the audience flow is promoted from one programme to another, and they sell advertising slots in this flow (for more detail see Chapter 3).

In a world where viewers select programmes individually rather than watching the channel, a schedule no longer adds value to the consumer. The channel brand and specifically the channel manager responsible for programming is no longer the best representation of the end-customer since other parties exist that have deeper customer knowledge.

Programme packagers are confronted with a number of threats:

- The value of scheduling, repeat scheduling and prime time is reduced. This threatens the current revenue model;
- New entrants, mainly the aggregators or access providers, will have better customer knowledge. They will be better positioned to sell advertising;
- The selection, commissioning and acquisition of programmes will become more competitive as also aggregators will enter this market space.

Programme packagers can react in two basic manners to these threats: by trying to compete head-to-head with the PVR or by cooperating with it[184].

If a programme packager would choose to compete, it has two basic options: the programme packager can try to create barriers to the use of the PVR or it can try to generate a higher customer value than its competitors. Setting up barriers to the usage of the PVR might involve any of the following actions:

- Electronic record-protection measures preventing the PVR from recording a programme or a channel;
- Not supplying the metadata needed for one's programmes;
- Include adverts in between the start/end metadata of a programme, making sure the ads are at least recorded.

However, these measures will only be successful in blocking the PVR as long as all relevant programme packagers in a geographic area apply them. History has shown that this type of cartel agreement is not sustainable over the long term, certainly not when a clear customer demand exists.

The second competitive option would be to create a brand strength that will survive and be relevant in the programme-based viewing era. This can be achieved by focusing on non-PVR content or content that viewers will *want* to watch live like sport events, concerts, etc. This model could be sustained by both the existing advertising model and/or a subscription model.

Andersen expects this option to lead to a far-reaching consolidation of this type of programme packager, as the continually increasing prices for the television rights to these events will render this model profitable only for a few worldwide actors. These high costs for the rights of the events will be the primordial non-PVR content that will still generate mass audiences. In addition to the advertising model, specialised event-based programme packagers might also use a subscription model. The only possible change in the advertising model at this level might be that by use of digital insertion techniques, local ads are inserted into the audio-visual stream.

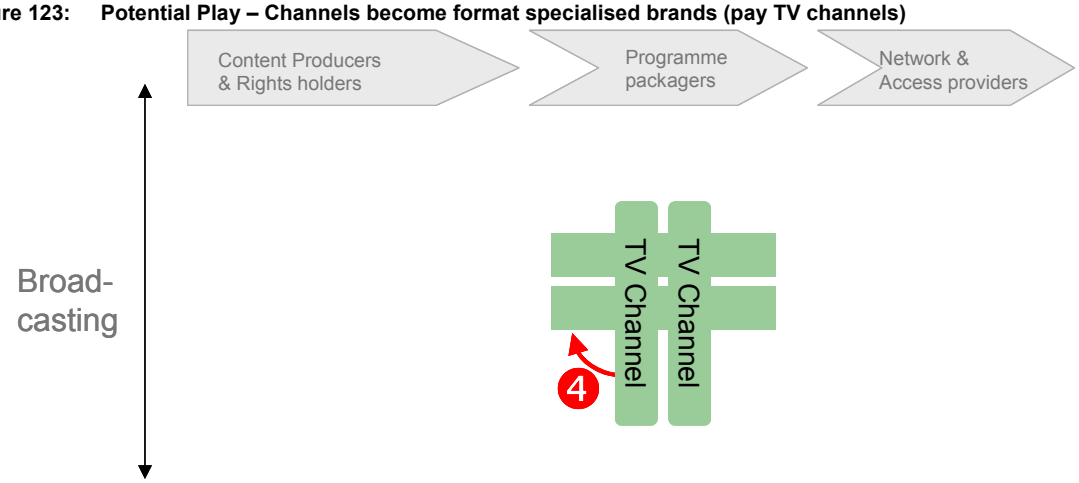
When a programme packager chooses to cooperate with a PVR platform, it can again exercise a number of options:

- Become a programme format supplier to a PVR platform;
- Become a target group (community) programme packager.

[184] Based on Journal of Media Management, Vol.3, no.1, 2001, pp.15-24

The first option would make the programme packager specialise in a single format and become the market maker between content producers and the aggregators (see figure below).

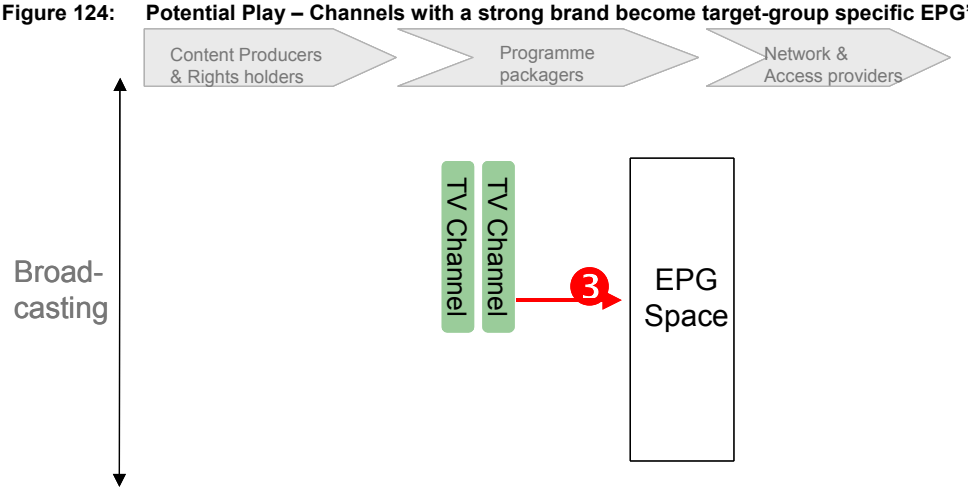
**Figure 123: Potential Play – Channels become format specialised brands (pay TV channels)**




For this move to be successful, programme packagers need to split their generic channels into specialised content channels. Better audience measurement systems will decrease the advertising threshold, so these niche channels can generate better “revenue per thousand”.

The programme packager would focus on its content commissioning processes and its knowledge of building good formats. Since not a lot of different formats have a large appeal and are thus economically interesting, this could lead to further consolidation around formats, reducing the variety of the offer. The model sustaining this position would be a payment from the PVR platform for the content broadcast. The PVR platform would handle the ad-insertion and subscription revenues. Possible candidates for format-based programme packagers could be public broadcasters for informational programmes. Andersen expects a 60 percent likelihood of this move. A second option a programme packager can take, is to become focused on a specific target audience and try to be the most relevant brand to this community (see figure below).

**Figure 124: Potential Play – Channels with a strong brand become target-group specific EPG's**




This would mean that the programme packager positions itself based on its customer knowledge and the knowledge of the available content. It will be recognised by the target community as a TV portal, pre-selecting content and branding it. This would imply a close cooperation between the programme packager and the PVR platform for the exchange of customer information, because the programme packager will manage a community specific EPG.

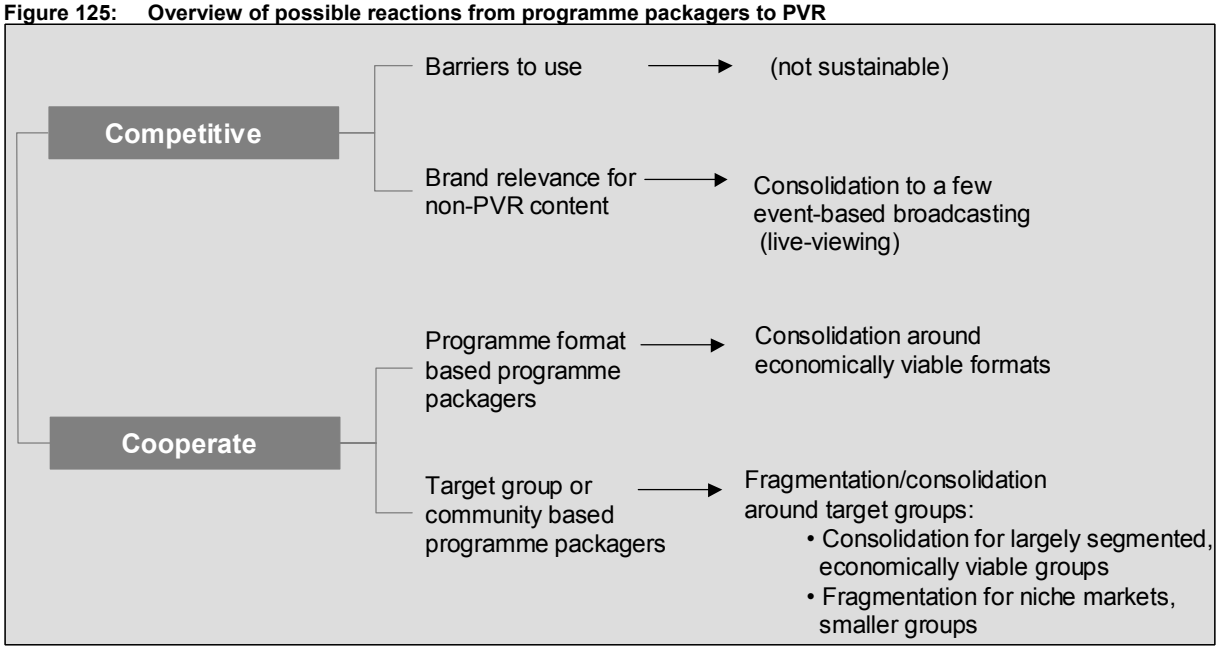
In order for programme packagers to move to the EPG space, they need a strong brand. The brand relevance is more important than connectivity and ownership of the platform. Andersen expects 50% likelihood of occurrence of this move, since only the strongest brand will succeed in doing this.

This model could be sustained by revenue sharing (EPG advertising + subscription) between the programme packager and the platform. It should be noted that any brand with customer loyalty or relevance can play this role, especially printed-media brands.

Both of the above models transform the current concept of broadcasting (packing programmes into a schedule) to a model that is closely related to the publishing model. In these new models, programme packagers will manage programme windows, programme advertising and targeted communities.

This evolution will lead to a greatly enhanced customer choice and an initial fragmentation of the programme packagers, however some key brands will emerge both for format-based and community-based programme packagers.
As the Internet model clearly shows, a very small percentage of the sites on the Internet actually attract the majority of the traffic. These sites are mainly the portals (the new focal points, in our case the EPG's) and the sites with prime or targeted content.

**Figure 125: Overview of possible reactions from programme packagers to PVR**




The above reactions to the PVR will not be drastically visible in the next few years as even the optimistic market forecast chosen for this study still provides for a penetration of only 25 percent in 2005, indicating a long period of co-existence between the current generation of programme packagers and the new models that can emerge.

#### 9.4.3.2 Impact on Aggregators and Access Providers

The impact of PVR's on aggregators is twofold:

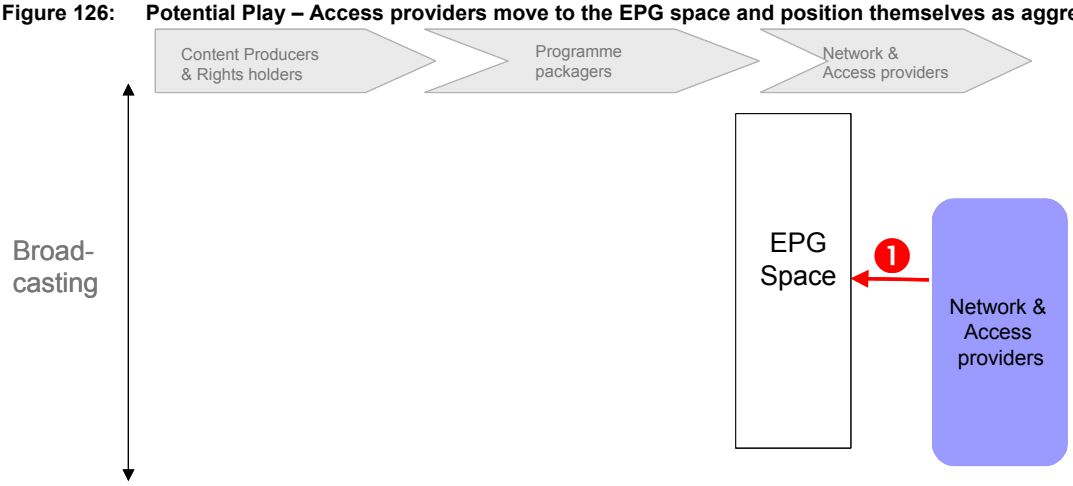
- Firstly, aggregators – currently a role that is integrated with access providers and/or network providers – can become a self-sustainable role;
- Secondly, aggregators will be able to attract a significant amount of money from the advertising market.

The current integrated role of the aggregators/access providers is being questioned with the creation of the EPG space. The "Personalisation" scenario will offer opportunities for a new, separate aggregator's role.

A feasible revenue model is put in place, since the EPG space will become the new focal point of a consumer's television environment and such will attract advertising revenue. These actors are also the ones managing the customer data and they are able to package content.

Therefore, access providers will move into this competitive space and benefit from the new revenues (see figure below). Programme packagers can leverage on a strong brand and a lot of experience in content commissioning processes. As discussed, programme packagers can closely work together with aggregators, taking up the role of TV portal, pre-selecting content and branding it. In this model, programme packagers are remunerated for their new role from the advertising and subscription revenues generated by the aggregator.

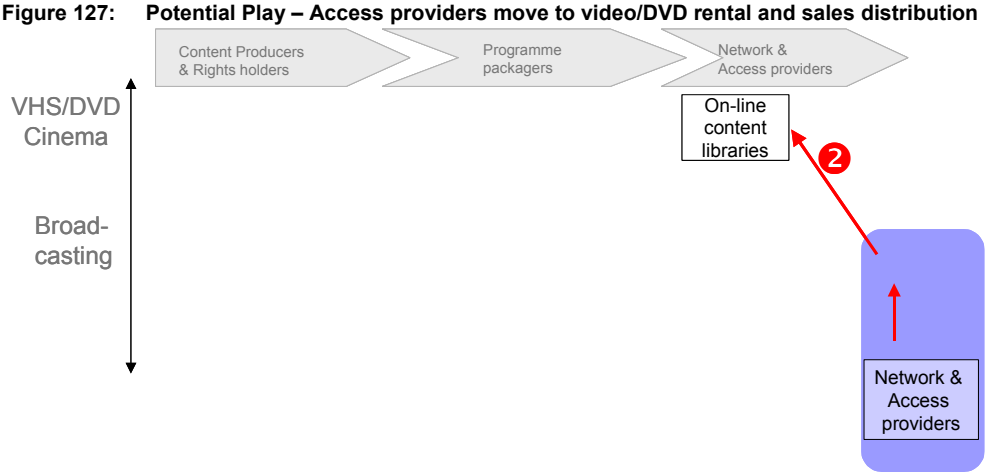
**Figure 126: Potential Play – Access providers move to the EPG space and position themselves as aggregators**




In order for aggregators and access providers to be able to succeed in this move, they need to have the control over the set-top box platform and the personal data of the customers. Andersen estimates that there is 90 percent chance that this move will occur in the future.

A second possible play of the access providers is the move towards on-line content libraries (see figure below). This means they have to invest heavily in VoD platforms and they need access to content libraries. Already, most cable companies include VoD as a service to differentiate themselves from other platforms. Andersen estimates a 90 percent likelihood of this move.

**Figure 127: Potential Play – Access providers move to video/DVD rental and sales distribution**




An important element to consider is the ownership of the PVR. Do customers have full control of their PVR or can the network operator and/or aggregator control part of the device? As Durlacher discusses[185] the most likely scenario will be a shared control between the consumer and the PVR operator. The consumer would have control over free-to-air recordings, his own programme preferences, whilst the operator or programme packager would keep the control over the access to premium content, the default EPG and virtual channels that are downloaded automatically to the box.

[185] Durlacher, "Local Digital Storage", p. 28

#### 9.4.3.3 Impact on networks

The impact of the PVR on the network provider is more technical in nature. By introducing a PVR, these actors can optimise their network usage (available spectrum) as they can download audio-visual material at any hour of the day. This is especially applicable to the DTT operators who are confronted with spectrum restrictions (vs. cable or satellite) but could offer a rich set of services (including some form of VoD) by using the local storage capacity of the PVR.

This also signifies that new entrants in the network game will be introduced, using distribution mechanisms inherently ill suited for live broadcasts such as xDSL or mobile network (UMTS). By downloading material before the normal viewing time they could be used for media purposes, but the probability of this move is low.

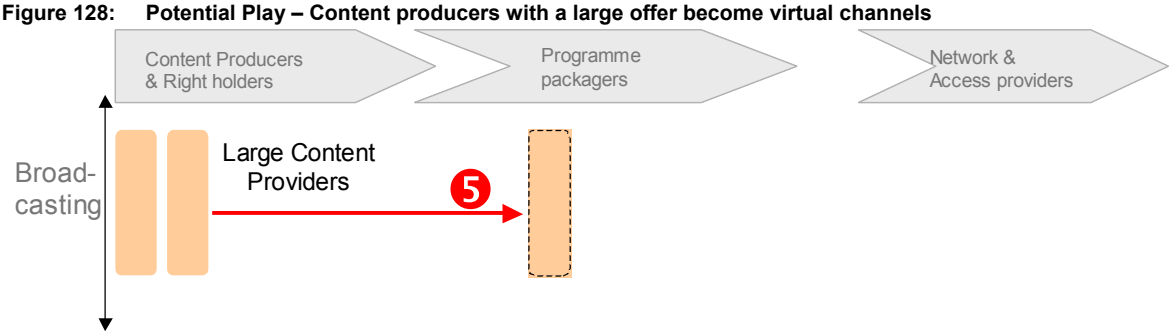
#### 9.4.3.4 Impact on Rights Holders and Content Producers

To the rights holders and content producers, the PVR will allow the transit of the television market from its current oligopoly model into a "publishing" model. This would mean that the general demand for audio-visual content would continue to increase, as is the case in the magazine business and the Internet today.

This increase is fuelled by a further refinement of the market segments (target groups) and a lowering of the barriers of entry (production & distribution costs).
If the parallel with the Internet model is pushed further, one might expect the content producers to align themselves directly with the aggregators and build their own format-focused brand[186].

Content producers with a large offer will become virtual channels (see figure below) if these actors succeed in creating efficient search engines and if the transmission costs decrease. Andersen assesses the likelihood of this move quite low (40 percent), since early attempts (e.g. on the Internet) have not been successful.

**Figure 128: Potential Play – Content producers with a large offer become virtual channels**

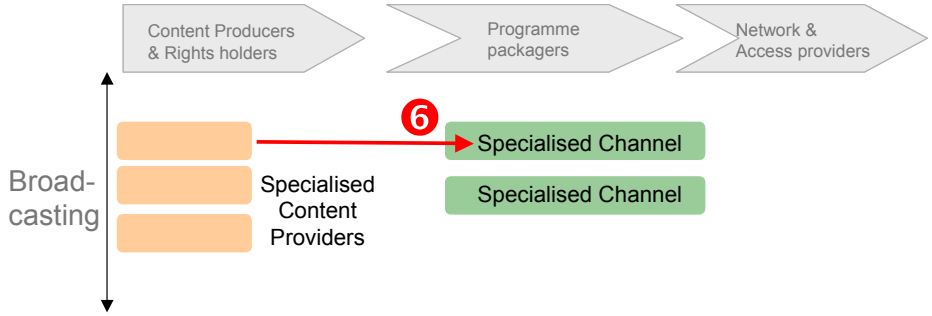



Specialised content producers, on the other hand, are expected to become format-specific channels (see figure below). The difference between format-specific programme packagers and content producers is small, but actors will need to invest funds into direct

[186] See Endemol case

links with the platform. Today, specialised content producers with large content libraries could launch their own TV channels. Therefore, the likelihood of this move is assessed higher (60 percent).

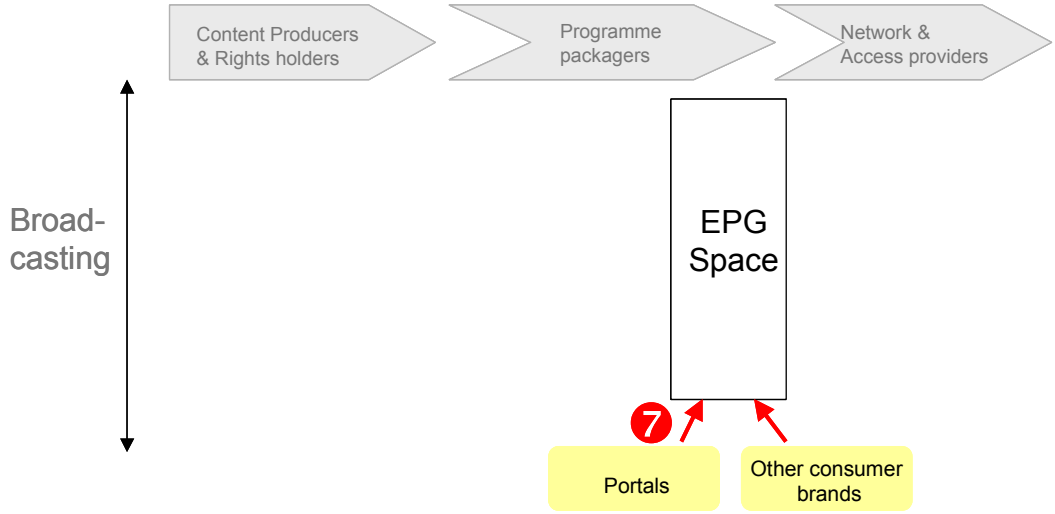
**Figure 129: Potential Play – Large content producers become format-specific channels**




### 9.4.3.5 Impact on other stakeholders - Portals

New entrants from the Internet (portals) and actors from the publishing world are expected to enter the EPG space (see figure below). These actors have a strong consumer brand, which is the most important condition for actors who want to move successfully into the EPG space.

**Figure 130: Potential Play – New entrants from the Internet (portals) and publishing world**



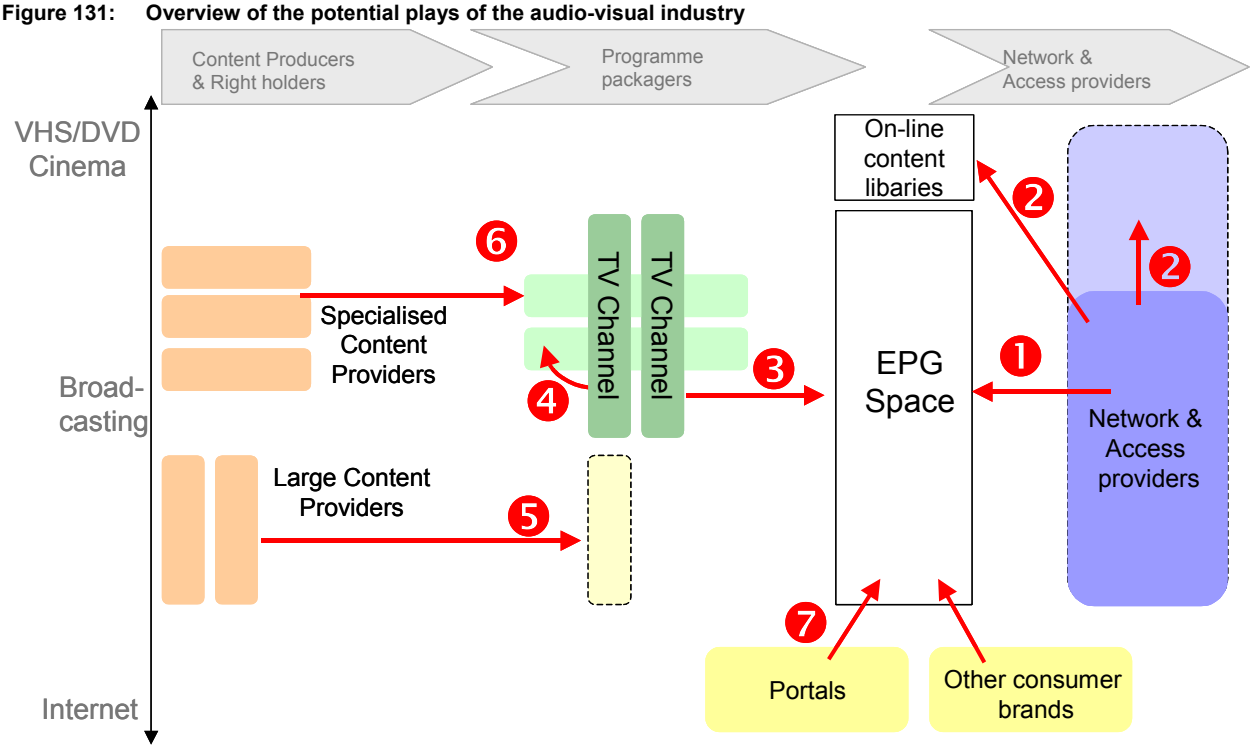

Relevant consumer brands are well placed to provide community-specific EPG's, although they will need to build an on-line strategy. An example of a company that already moved into this play is AOL TV. Andersen's estimate on the likelihood of this move lies at 75 percent.

## 9.4.4 Overview of potential plays

The changes in revenue flows together with the resulting impact on the industry will make the industry actors review their role for the future and might move them towards a change in the way they position themselves in the market. In view of the elements discussed

above, Andersen expects that the EPG space (aggregator) will become one of the key competitive spots in the industry.

**Figure 131: Overview of the potential plays of the audio-visual industry**




The figure above provides an overview of the above-discussed potential plays of the different industry actors and their likelihood of occurrence. These moves will require new skills and competencies of the actors (see summary in the below table).

**Figure 132: Overview of the potential plays of the audio-visual industry and according skills**

| *Potential Plays* | *Conditions that should be met* | *Likelihood* |
|---|---|---|
| 1 Networks and Access providers move to the EPG space and position themselves as aggregators | - Control of the STB platform<br>- Control of personal data<br>- Have a relationship with the customer | 90% |
| 2 Access providers and networks move to video/DVD rental and sales distribution | - Investments in VoD platforms<br>- Have a billing relationship with the customer<br>- Access to content libraries | 90% |
| 3 Channels with a strong brand become target - group specific EPGs | - Brand relevance is more important than connectivity and ownership of platform<br>- The stronngest brands will succeed doing this | 50% |
| 4 Channels become (format) specialised brands (G3 channels) | - Spliting up generic channels into new specialised channels for the content types they are strong in<br>- Disposing of other content types | 60% |
| 5 Content producers with a large offer become virtual channels | - Decrease of transmission costs<br>- Creation of efficient search engines | 40% |
| 6 Large content producers become format-specific channels | - The difference between format -specific programme packagers and content producers is small<br>- Need to invest funds into direct links with the platform | 60% |
| 7 New entrants from the Internet (portals) and the publishing world | - Relevant consumer brands can provide community-specific EPGs<br>- Build on online strategy | 75% |

The potential plays discussed above provide a generic model for the European audio-visual industry in the development of the "Personalisation" scenario. However, in some market models, as defined in chapter 2, these moves will be accelerated while in other market models, the moves will be slowed down, depending on the presence of enablers and barriers.
An overview is made per market segment in order to gain insight to which enablers are present, accelerating the moves on the one hand, and which barriers will delay the moves, on the other hand.

**Figure 133: Overview of criteria that are "enablers" or "barriers" for the development of the "Personalisation" scenario[187]**

| Criteria | Key metric | Large markets | Mixed markets | "Monopolistic" markets | Commercial markets | Importers |
|---|---|---|---|---|---|---|
| **ENABLERS** | | | | | | |
| - Set-top box manufacturers market opportunity | Number of TV households | ++ | 0 | 0 | 0 | - - |
| - Investment in digital platforms | Penetration of digital subscriptions | ++ | 0 | + | 0 | - |
| - Network equipment | Terrestrial, satellite, cable penetration | ++ | + | 0 | 0 | + |
| - Consumer acceptance | Adoption of new services (Internet penetration, pay TV, etc.) | + | + | 0 | 0 | + |
| - Local content available | Number of local programme packagers | ++ | + | - | + | - - |
| **BARRIERS** | | | | | | |
| - Advertising markets | Level of new media advertising (internet, etc.) | ++ | 0 | - | 0 | - - |
| - Copyright protection | | - | - | - | - | - |
| - Programme packagers' attittude | Availability of new services | ++ | 0 | 0 | 0 | - |
| ***OVERALL*** | | **++** | **+** | **0 / -** | **0** | **- -** |

In the Large markets, the development of the potential plays will be accelerated since these countries have a large market size, both in terms of number of TV households and in number of channels (local content). The market conditions, in terms of "consumer readiness" are very favourable, as the penetration of digital TV lies far above the European average. These countries have a high satellite penetration, which indicates that the channel offer is high. Consequently, satellite households benefit most from the PVR. There are no significant barriers that will delay the development in these countries.

Although the Mixed markets have a relatively small market size, the development of the "Personalisation" scenario is accelerated due to the availability of good transmission mediums, the large content offer and the lack of barriers.

The "Monopolistic" markets score on average on all of the factors. They have mixed transmission modes, a low number of channels available, a low pick up of new services (e.g. the Internet) and an underdeveloped advertising market. For these markets, it is

[187] The meaning of the signs in the table are as follows:
- On the enablers' side: ++ means that this enabler is strongly present, accelerating the developments, 0 means that the impact will not accelerate nor impede the development, - means that this enabler is not present and thus will not contribute to the development;
- On the barriers' side: ++ means that this barrier is not present, thus this factor will not impede the development, - means that the barrier is strongly present and hence impedes the development.

expected that the PVR will be introduced with some delay, as no favourable conditions are in place.

The industry actors of the Commercial markets and the Importers will be impeded by a number of factors, as they have to deal with unfavourable consumer behaviour: there is a low TV spend per household and the pick up of new services is slow. These countries are predominantly terrestrial and still need to develop multi-channel television first.

Industry actors in the Importers markets face quite a lot of barriers and no real presence of enablers. They will not get involved in the potential plays indicated above as these markets are too small, they have no local content and there is no advertising market.

### 9.5 Conclusion

Andersen expects the consumers' behaviour towards television viewing to change dramatically in a scenario where personalisation, through PVR or VoD technologies, takes off. Audiences will no longer be dependent on schedules. Revenue models and revenue flows will change: advertising will no longer be attached to the channel (what), but to the viewer (who), and household TV spend will increase due to the move towards other transmission modes, providing more quality content and maximising the value of the PVR or VoD services.

As consumers are able to record programmes and watch them afterwards, the current concept of a channel, based on a time schedule, will gradually disappear. PVR and VoD mean that any consumer has a wide range of content to choose from, compared to the limited number of channels today. This content will increasingly be consumed using one-to-one distribution mechanisms (e.g. xDSL, UMTS, fibre to the home, etc.) instead of using "broadcasting" types of distribution mechanisms.

The availability of local storage will change the economics of audio-visual content distribution. The technology will allow for a large number of geographically dispersed on-line content libraries to be accessible to every user (cfr. publishing or Internet model), further increasing the user's choice in content. This will also allow the rights holders and content producers to attain a greater reach of these programmes in the TV window.

This could pose a fundamental threat to the key areas underpinning the current broadcasting business model. Both the notion of a channel and the notion of prime time might become less significant, directly threatening the advertising model on which a large part of the broadcasting industry is built. Advertising revenues for programme packagers are expected to decrease by 10% in 2010, due to enabled ad-skipping techniques. This calculation takes into account the penetration of personalised services, the estimated usage and the percentage of live programming. At the same time personalisation will also allow programme packagers to attract new advertising revenues in view of a better targeting of key audiences. This will result in an increase of television advertising by 5% due to the shift of some magazine advertising budgets towards television. It is estimated that electronic programme guides could benefit from 7,5% of the total TV advertising revenues in 2010. These trends result in a compound annual growth rate for television advertising of 0,02% in a positive economic environment and a compound annual growth

rate of –3,75% in a negative economic environment. These figures don't take into account that some programme packagers will develop electronic programme guides and benefit from specific advertising revenues.
The table below provides an overview of the key impacts of this scenario on the stakeholders and analyses possible differences per market model (as introduced in Chapter 2).

**Figure 134: Key impacts on the stakeholders per market model**

| | Content | Packaging | Aggregator | Diffusion |
|---|---|---|---|---|
| **Key impacts** | Content producers' power in the value chain will increase since the market for content producers will further expand with the increase of the number of third generation channels. The role of content producers will change as they might form direct links with the aggregators. | This future does not support a proliferation of programme packagers as we know them. On the contrary, a personalised channel will replace the current plethora of channels. As programme packagers will not be able to oppose any significant barrier, some will transform into aggregators (and operate EPG's):<br>•The second generation programme packagers lose their revenue model;<br>•The role of public service broadcasters or first generation programme packagers is questioned;<br>•Except for the third generation programme packagers, who can further expand. | The aggregators will gain importance and their role in the value chain will increase most since a stand-alone role is sustainable and these actors will have a feasible revenue model by gaining advertising revenues. EPGs will become increasingly important in view of the explosion of the number of content sources. | Networks and access providers will remain powerful actors in the value chain since they will develop new services around VoD and they will build on the aggregator role. Current aggregators are linked with access providers and sometimes networks (e.g. often the case for cable networks). |
| **Large Markets** | + + | - - | + + | + + |
| **Commercial Markets** | + | - | + | + |
| **Mixed Model Markets** | = | - | + + | + + |
| **Monopolistic Markets** | = | - | = | = |
| **Importers** | N.A. | + | = | = |

A positive economic climate will create the conditions for a significant increase in the number of pay-TV channels, while the number of free commercial programme packagers is expected to decrease as a consequence of the development of new advertising techniques enabling a distribution of advertising revenues towards targeted rather than mass audience media. Customer choice and control will increase as most households will have a potential access to at least two digital distribution mechanisms that can carry a large number of channels.

If this scenario materialises despite the negative environment, free commercial and 'generalist' channels could be threatened. It is expected that consumers will shift their viewing time from free commercial broadcasters to "personalised" channels. This would have particularly negative consequences for free commercial channels, and overall the number of channels is expected to decrease, especially in the large markets as these are currently best developed.

Moreover, if global economic conditions remain unpredictable for a long period of time, it is expected that satellite operators are likely to be the only ones to offer personalisation based services since alternative providers (cable and DTT) will not take the risk or will not be able to invest in the required platforms.

The presence of public service channels is expected to remain substantially unchanged in both economic environments, since the public funding conditions are unchanged. However, the mission of public service programme packagers may be questioned in a "personalisation" scenario.

The "interactivity" scenario will also significantly impact the way the roles interact and the relative market strength of the operators described in the value chain. Andersen foresees two main consequences.

*Trend 1: EPG's is likely to become the main competitive space.*

Electronic Programme Guides are sophisticated interface programmes (electronic directories) installed in the set-top-box or television set that will enable users to search and select programmes interactively. With the possibility offered to viewers to select their own programmes, EPG's are likely to become the only mass-audience points and traditional programme packagers should rethink their current model. Generalist channels with strong brands and niche channels could see their role evolve towards the role of EPG. EPG's are likely to become a highly competitive space as access providers, (internet) portals and even content producers will position themselves in this role.

*Trend 2: Specialised content providers and channels could become specialised brands and could evolve towards niche channels*.

This means that content producers could develop a direct contact with audiences. This would further increase the consumer level of choice and control with a new range of intermediaries.

# 10 Conclusion

The European audio-visual industry is an industry approaching a transition as a result of the introduction of digital technologies and related new services and business models. We have not seen the end of these changes yet. Some level of volatility and uncertainty will remain over the next few years as viable new models and services emerge and define the new looks of the audio-visual industry.

As indicated by the industry itself[188], the two major factors of uncertainty are related to changes in consumer behaviour and to the revenue potential of new services. This study analysed three scenarios based upon different hypotheses about the two factors of uncertainty.

When analysing the economics of these scenarios and drawing conclusions for regulatory recommendations, a balanced view is adopted. On the one hand, the consumer choice and control dimension has been recognised as one of the key dimensions, in order to estimate consumers' welfare in terms of audio-visual offering and as an effective dimension to synthesise the achievement of general interest objectives, such as cultural diversity and pluralism. On the other hand, the strength of the European audio-visual industry has also been taken in to account.

It is noteworthy that the chosen scenarios highlight extremes in the possible evolution of the industry and do not pretend to predict the exact future. It is unclear at the moment in which direction the European audio-visual market will evolve.

All the regulatory recommendations put forward in this chapter have to be interpreted as suggestions. This study has not extended into economic consequences of the recommendations or their practicality.

## 10.1 Towards an industry optimum?

The audio-visual industry has three main revenue drivers: advertising, subscriptions and public funding. The total revenue of the audio-visual industry has been estimated to 52,5 billion Euro in 1999. In the most optimistic scenario for the industry (i.e. the "interactivity" scenario in a positive economic environment), the total revenue will grow to 89,4 billion Euro in 2010. In the most pessimistic scenario (i.e. the business as usual scenario in a negative economic environment), the total revenue will still grow to 60,7 billion Euro in 2010[189].

In the economic theory, an industry is expected to evolve naturally towards a situation that maximises the satisfaction of the operators. In this case, and from a pure economic

[188] See comments of industry stakeholders in the Delphi study, as included in appendix III
[189] Andersen estimations based on the data sources mentioned in section 2.5.3.1

point of view, one would expect the European audio-visual industry to evolve naturally towards the scenario that maximises the financial revenues of the global audio-visual industry. This scenario could be called a “best-case” scenario for the whole audio-visual industry.

The table below summarises for each scenario the forecast of the revenues of each category of operators as well as for the industry as a whole. Andersen’s market forecasts[190] identify the “interactivity” scenario as the scenario that promotes best the economic interests of the industry as a whole (expressed in terms of overall revenues), and as the scenario that could be the “best-case” referred to above.

The main conclusion of this table relates to the fact that none of the scenarios is a best case for both the individual operators and the industry as a whole. In this situation, it remains uncertain if the market as a whole will evolve naturally according to the economic theory towards the global industry optimum. The reader should be careful in interpreting the figures included in the table below. They cannot be used for any other conclusion.

The table below also indicates that the economic environment (positive or negative) influences the size of the overall industry revenues but does not impact the ranking of the scenarios.

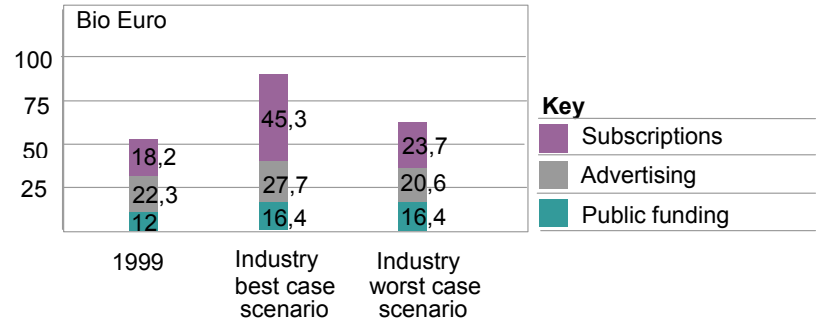
The economic environment influences the size of the market as a whole and also influences the relative importance of subscription and other customer originated revenues in the total revenues of the industry. From about 30% in 1999, subscriptions will gradually increase to a range between 40% and more than 55% in 2010, depending on the scenario.

[190] Market forecasts are based on the identified revenue flows and changes to these revenue flows in each scenario.

**Figure 135: Overview of the growth of the main revenue sources**

| | | Content | | Packaging | | Diffusion | | Overall Industry Revenues[191] | |
|---|---|---|---|---|---|---|---|---|---|
| | | Bio Euro | Ranking | Bio Euro | Ranking | Bio Euro | Ranking | Bio Euro | Ranking |
| 1999 | | 14,5 | - | 37,9 | - | 14,5 | - | 52,5 | - |
| Positive Economic Environment | Business as usual Scenario | 21,8 | 1 | 52,8 | 1 | 28,4 | 3 | 81,3 | 2 |
| | "personalisation" Scenario | 20,4 | 3 | 49,4 | 3 | 36,2 | 2 | 81,2 | 3 |
| | "interactivity" Scenario | 20,8 | 2 | 50,3 | 2 | 39,1 | 1 | 89,4 | 1 |
| Negative Economic Environment | Business as usual Scenario | 16,3 | 1 | 40,6 | 1 | 20,1 | 3 | 60,7 | 2 |
| | "personalisation" Scenario | 15,3 | 3 | 38,1 | 3 | 25,4 | 2 | 60,7 | 2 |
| | "interactivity" Scenario | 15,6 | 2 | 38,9 | 2 | 27,4 | 1 | 66,3 | 1 |

**Figure 136: Overview of the main revenues**




This analysis demonstrates that different industry operators have different economic interests. The content and packaging operators are likely to benefit most from a business as usual scenario while diffusion operators would benefit most from interactivity.

In this situation, it remains uncertain if the market as a whole will evolve naturally according to the economic theory towards the global industry optimum (i.e. the "interactivity" scenario).

[191] Overall industry revenues include public funding, television advertising and subscriptions. In the case of the "personalisation scenario", programme packagers and access providers also benefit from other advertising revenues, generated from the (current) publishing industry (estimated at 4,3 billion Euro in the positive economic environment and 2,9 billion Euro in the negative economic environment). In reality, these advertising revenues will benefit new aggregation companies, not part of the traditional audio-visual industry.

## 10.2 Industry stakeholders have different interests

Industry stakeholders have clearly different economic interests. While interactivity is the best-case scenario for access providers, it is not for content providers. Nevertheless, access providers (diffusion) need attractive content and services to attract new customers. Access providers need to find revenue sharing mechanisms that increase the attractiveness towards content producers.

While for the industry as a whole interactivity is the best-case scenario in terms of total revenue volume, this is not the case for most individual stakeholders. Programme packagers, the main intermediaries of the industry, will even try to postpone or avoid this scenario as this scenario threatens their current position.

### 10.2.1 Programme packagers' interests

Historically, programme packagers have been the main intermediaries between content producers and the audiences. The largest part of the revenue streams transited through them. They were responsible for the acquisition or commissioning of content and, in an analogue terrestrial world, were even responsible for the diffusion.

Programme packagers will most benefit form a business as usual scenario. In this environment, business models are not challenged and consumer behaviour will not change. Television viewing time and hence advertising, the major source of revenues for programme packagers, will remain stable.

Programme packagers have three roles. They select, commission or buy programmes and aggregate the content. They are also responsible for the commercialisation of this content through subscriptions or through advertising. Programme packagers have most to lose from a "personalisation" scenario. Especially the introduction of personal video recorders and video on demand will lead to a change in viewing behaviour from schedule based viewing to programme based viewing. In a world where viewers select programmes individually rather than watching the channel, a schedule no longer adds value to the consumer. The channel brand and specifically the channel manager responsible for programming is no longer the best representation of the end-customer since other parties exist that have deeper customer knowledge.

Programme packagers are confronted with a number of threats:

- The value of scheduling, repeat scheduling and prime time is reduced. This threatens the current revenue model:
- New entrants, mainly aggregators or access providers, will have better customer knowledge. They will be better positioned to sell advertising;
- The selection, commissioning and acquisition of programmes will become more competitive as also aggregators will enter this market space.

- Some advertising is at risk in view of possible add-skipping techniques, the fragmentation of audiences and the existence of new focal points that will attract mass advertising.

### 10.2.2 Content producers' interests

Content providers have also most to gain in a business as usual scenario. This is explained by the fact that most content is commissioned or acquired by programme packagers. The revenue models of programme packagers and content producers are closely linked.

Content producers have a lot to lose in the "personalisation" and the "interactivity" scenarios. While interactivity provides new opportunities, most of them are outside the broadcast stream. Audio-visual content producers will face fierce competition in this area from new competitors such as software engineering companies and games producers. Hence, it is expected that the market will be stagnant for traditional content producers.

Some new trends, such as direct access from content producers to audiences, could generate new revenues. These revenues are still uncertain and have not been included in the Andersen model, as they cannot be estimated. It is expected that, should these models work, content producers would mostly benefit from the "personalisation" scenario.

### 10.2.3 Access providers' interests

Access providers and networks have most to gain from the development of the "interactivity" scenario. Especially DSL and cable networks are ideally suited to deliver two-way broadband access.

Subscription revenues are expected to rise strongly as consumers will be prepared to allocate a larger part of their entertainment spending to interactive services. Access providers and networks will also benefit from consumer spending that is traditionally allocated to off-line games and provide broadband internet access, a growing market in Europe. Finally, access providers are also expecting to expand their revenue sources via commissions on television commerce.

Access providers and networks will lose in a business as usual scenario as they already have significant investments in deployed interactive platforms and upgraded networks.

## 10.3 What about consumer choice and control in this context?

The analysis mentioned above only takes into account the economic point of view of the industry (expressed in terms of total revenues). However, it is also essential to look at the industry from a general interest point of view.

In the framework of this study, it is assumed that consumer choice and control is a good measurement for the general interest. Consumer choice and control is analysed through measuring the number of programme packagers and the number of access providers and networks available to the public.

Between 1995 and 2000, the number of channels (and thus programme packagers) has grown significantly. A possible further growth in the number of channels will primarily depend on the economic environment. Especially pay-TV operators are dependent of the economic environment.

**Figure 137: Overview of the number of channels**

| | | Programme Packagers Total number of channels | Average number of channels per household |
|---|---|---|---|
| 1999 | | 474 | **16** |
| Positive Economic Environment | Business as usual Scenario | 599 | **20** |
| | "personalisation" Scenario | 607 | **21** |
| | "interactivity" Scenario | 629 | **21** |
| Negative Economic Environment | Business as usual Scenario | 384 | **13** |
| | "personalisation" Scenario | 392 | **13** |
| | "interactivity" Scenario | 408 | **14** |

In general, a negative economic environment could lead to a decrease in the number of television channels. This will therefore lead to a reduced consumer choice. The impact is most visible on the pay-TV operators and in large countries. This is mainly due to the fact that the profitability of these channels is already low.

The different scenarios indicate minor differences in the number of channels (a range of 30 channels in a 10 year period of time), yet they bring additional features to the way users watch television today: interactivity or personalisation. It is therefore not possible to conclude on the scenario that promotes best consumer choice and control on this quantitative measure only. Other qualitative measures, such as the amount and the

diversity of content could also be taken into account to better understand the evolution in consumer choice and control.

- The "business as usual" scenario will only have a minor impact on the way people watch television. The current TV channels features will remain prevalent: a passive way of watching programmes pushed by broadcasters, being public service broadcasters, free commercial broadcasters or pay-TV

- The "interactivity" scenario is the one that sees the highest increase in the number of channels, in both economic environments (compared to a business as usual situation). Beside the enlarged offer of channels, viewers will also benefit from new services allowing them to search for additional information and interact within or outside the broadcast stream

- The "personalisation" scenario has a strong impact on generalist channels as this scenario clearly promotes specialised and thematic channels. Generalist channels will be mostly under pressure by personal video recorders, near video on demand and video on demand services. Beside the relative minor increase in number of channels in this scenario, the additional services offered to viewers through the use of PVR or VOD are important: intelligent search and selection of programme, independence from schedule, etc. All these new services strongly increase consumer choice and control in terms of TV viewing.

As a conclusion, despite the pure quantitative variable number of channels – which shows minor differences between scenarios, Andersen expects the "personalisation" scenario to be the one that best improves consumer choice and control.

Andersen does not expect that choice, defined as the number of channels, will keep increasing at the pace it has over the period between 1995 and 2000. In all scenarios, choice will decrease due to the negative economic environment.

Between 1995 and 2000, the number of different access providers increased significantly. Andersen expects that almost all European television homes will be connectable to access providers and networks that can carry at least 30 channels even if not all households will take advantage of this possibility.

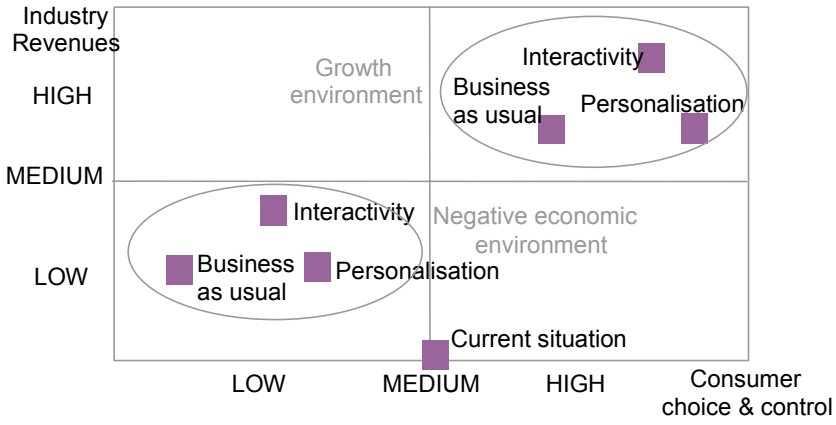
### 10.4 Balancing the industry optimum and the general interest

In order to analyse the possibility of reaching a balance between the industry optimum and the general interest, the following figure combines both dimensions:

- The vertical axis presents the difference, compared to the situation in 1999, in the industry revenues to be expected in each scenario and economic environment;

- The horizontal axis shows the level of consumer choice and control to be expected for each scenario. Again, the axis represents the difference compared to the situation in 1999. For the purpose of this analysis, consumer choice and control is an aggregate of the number of programme packagers and the number of access providers (obviously the weight of the number of access providers is higher than the weight of the number of channels in view of the relative differences in number). The consumer choice and control dimension has been retained as a quantitative and identifiable variable in order to estimate consumers' welfare in terms of audio-visual offering and more generally as an effective dimension to synthesise the achievement of general interest objectives such as cultural diversity and pluralism. Other qualitative measures, such as the amount and the diversity of content, could also be taken into account.

**Figure 138: Can some scenarios balance consumer choice and control with overall industry revenues**




Andersen's analysis suggests that the external economic environment has more impact on both variables (i.e. economic revenues of the audio-visual industry and consumer choice and control) than the scenario the industry has evolved to. In a negative economic environment, whatever the scenario, the expected levels of industry revenues are much lower than in a positive economic environment.

As a conclusion, in view of the different (economic and general) interests of the main industry stakeholders (industry operators and consumers), it is unlikely that the simple play of the market mechanisms will favour optimal consumer choice and control and optimal industry revenues at the same time.

## 10.5 Conclusions and recommendations

The following conclusions and recommendations will highlight the different opportunities and risks that are associated with the different scenarios.

### 10.5.1 Opportunities and risks in case of a business as usual scenario

Overall, the key trends that have prevailed between 1995 and 2000 are expected to continue in the business as usual scenario. The business as usual scenario could be a major threat for the access providers and networks as well. In this scenario, Andersen does not expect they will be able to generate the revenues that are necessary to sustain and develop their infrastructure. In the end, this will also lead to decreased consumer choice and control as the number of access providers could decrease. If this scenario materialises, it would be necessary to support the industry mainly through measures that encourage the development of different access mechanisms.

### 10.5.2 Opportunities and risks in case of an extreme "interactivity" scenario

The interactive scenario provides significant opportunities for industry operators. Access providers could play an increasingly important role as the gateway between content and audiences and aggregators as they can benefit from the development of new interactive applications. The content producers should see new opportunities to exploit in terms of new types of programmes.

However, some new players in the audio-visual industry, such as software engineering companies, will also be able to leverage their technical advance in content production and games and may take a substantial part of the market share, leading potentially to a threat for the "traditional" audio-visual content producers. Since attractive content and services are key for the development of new interactive markets, it is necessary to alleviate these threats in view of strengthening the audio-visual market economics:

- Interactive consumers could de-intermediate the audio-visual industry by picking content out of digital libraries. This trends seriously challenges the role of rights managers;
- Content producers need to be better armed to face the competition with new media companies, software engineering companies and games producers. The opportunity to reform the current training budgets that are supported by the European Media Plus programme could be considered in order to help the audio-visual content producers to reconvert;
- Access providers, as the main beneficiaries of the interactive scenario, will need to find innovative revenue sharing mechanisms to attract content producers onto the new interactive platforms.

### 10.5.3 Opportunities and risks in case of an extreme "personalisation" scenario

The "personalisation" scenario brings interesting opportunities for industry operators, and notably the rights holders as they will be able to develop new ways of exploiting their rights, and to reach the audience directly. Aggregators are expected to benefit from the development of EPGs, since these are likely to become the only mass-audience contact points. Access providers could position themselves as main gateway between content and audiences, and could also penetrate the EPG market.

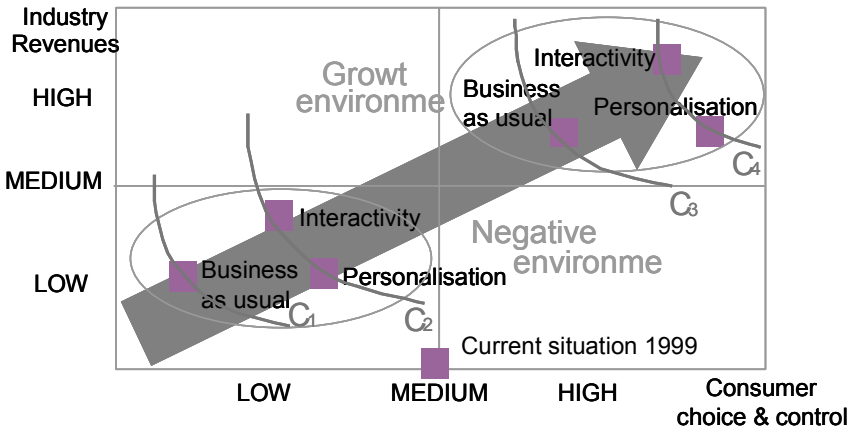
On the other hand, programme packagers are most threatened by the "personalisation" scenario because this scenario challenges their role as aggregator of content in a programme schedule. Historically, programme packagers were the main intermediaries between content providers and audiences. This largely explains why programme packagers, also referred to as broadcasters, are the key focus point of the current directive "Television without Frontiers". In view of the possible decrease of the market strength of programme packagers, it is likely that regulation will become less effective and programme packagers could encounter financial difficulties.

If the "personalisation" scenario materialises, it could be necessary to review the current regulation. There are here three possible options. In the first option, the current prescriptions should not only be applicable to the traditional programme packagers but also on the new intermediaries or the key operators through which most revenue flows transit. In a second option, all content quota regulation towards programme packagers and/or other intermediaries could be withdrawn and consumer choice and control could be ensured through a strict complaint management. In a third option, minimum regulation could be applicable to channels in exchange for the use of scarce resources (e.g. bandwidth).

### 10.5.4 Some opportunities are associated with these risks

As mentioned above, a trend towards interactivity and /or personalisation is expected to lead to higher industry revenues and higher consumer choice and control. Obviously, each of the different scenarios is associated with risks, but they are also associated with some opportunities to create new services and generate new revenues. The "interactivity" and "personalisation" scenarios is expected to benefit more to consumer choice and control and to the industry as a whole than the business as usual scenario.

**Figure 139: The positioning of scenario on the short- and long-term**




In general, higher industry revenues should lead to the deployment of infrastructures and to the development of new services. This means that higher industry revenues lead to higher consumer choice and control. This is indicated by the long-term trend pictured in the figure above.

However, given a certain economic and market context, consumer choice and control and general industry revenues can become opposites. Choices need to be made along the curves (e.g. $C_1$ to $C_4$). From a theoretical standpoint, the move of the industry towards the "interactivity" scenario or the "personalisation" scenario or any combination along the curves mentioned above, is therefore indifferent (indifferent for an observer of the European audio-visual market without any preference between the two criteria of consumer choice and control and industry revenues).

Starting from the situation in 1999, any scenario in any economic environment should lead to improved consumer choice and control and to higher industry revenues. When looking at the figure mentioned above, public authorities have two possible roles to play. A first role is to stimulate the audio-visual industry by developing specific industrial policy measures in order to increase the global level of satisfaction.

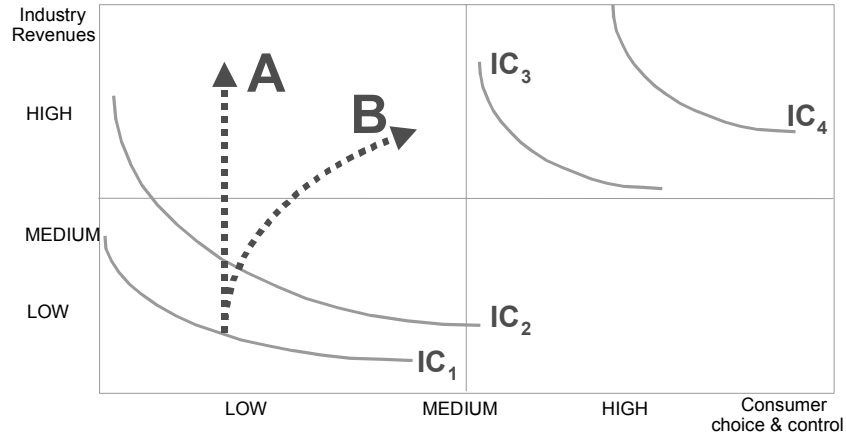
Possible levers in this area could be:

- Regulatory packages in favour of the further development of electronic communications infrastructure and associated services such as equal access to networks and services providers can support market entry by limiting obstacles to market access;
- European support mechanisms such as the Media Plus programme that focuses on training and development within the audio-visual industry as well as the distribution industry could be re-oriented towards the stimulation of skills development in areas such as production of interactive content;

- Other mechanisms such as the "i2i-audio-visual" programme that could stimulate the creation of content producers focusing on new formats;
- Tax incentives like tax credits for content production companies earned on labour expenditure or number of personnel members or like favourable tax treatment mechanisms for investments in European content production, etc. This would strengthen the European content production industry and better prepare it for the increased competitiveness.
- Establishment of a one-stop shopping procedure to facilitate the conclusion of IPRs licenses in multiple Member States[192].

The immediate impact of these levers would be to increase industry revenues (see arrow A in the figure below). The longer-term impact would be to increase both overall industry revenues and consumer choice and control (see arrow B in the figure below). This long-term impact is due to the fact that the operators depicted in the audio-visual value chain will share part of these extra revenues with their consumers and will partly invest these extra revenues in network deployment, new (digital) platforms and the development of new content and new services.

**Figure 140: Illustration of the public authorities' role**

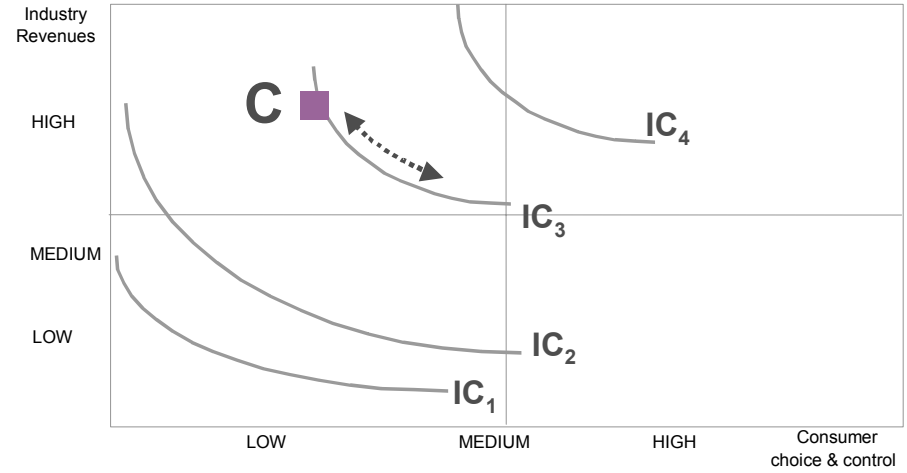



A second regulatory role is to balance individual and general interests. If the European audio-visual industry would find itself in position C (see figure below), regulators could intervene to increase consumer choice and control. In a given economic context and on the short-term, this is often associated with increased pressures on industry revenues.

Ideally, both regulatory roles should be combined.

[192] This issue will be dealt with by the review of the "cable and satellite" Directive.

**Figure 141: Illustration of the regulatory role**




Possible regulatory levers are:

- Must carry rules whereby owners or operators of a distribution infrastructure would have to provide a minimum of selected European broadcast channels over their network / platform to their customers. Overall this would benefit consumers as it appears that in most European countries local content is best valued by consumers;

- The “major events” regulation (article 3a of the directive “Television without Frontiers”) that recognises certain events that have a national importance and should therefore be made available under certain conditions. The selected major events should be enforced in order to ensure mass access to a set of top events;

- “Quota” regulation (article 4 and 5 of the directive “Television without Frontiers”), that imposes to programme packagers to broadcast European works and works from independent producers;

- Regulation relating to television advertising, sponsorship and teleshopping (included in the directive “Television without Frontiers”) that lays down a series of rules in order to ensure that the interests of consumers as television viewers are fully and properly protected.