

Technology, Media & Communications



Business Consulting

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



June 2002

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Background and methodology of the study

Background of the study

- The "Television without Frontiers" directive 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 development and application of digital technologies, combined with other developments in the broadcasting markets, are changing the reality 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 studies that will provide the necessary input:
 - Lot 1 : « Evaluation of the impact of measures concerning the promotion of distribution and production of television programmes in the European audio-visual sector »
 - Lot 2 : « Outlook of the development of technologies and markets for the European Audiovisual sector up to 2010 »
 - Lot 3 : « The development of new advertising techniques »
- Andersen has been awarded the realisation of Lot 2

Background of the study

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:

- 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 benefit from a larger choice than traditional TV channels.

Methodology of the study

This report is based on three main sources of information:

- Secondary market research
- A Delphi study conducted amongst 49 European audio-visual organisations
- Two workshops with industry expert groups
- The framework of the study is based on a common understanding of the audio-visual value chain



- The report also takes into account the diversity of the countries forming the EU and EEA.
 Andersen has approached the industry in defining characteristics among limited subgroups of countries. The selected key dimensions are:
 - The size and revenue potential of the local media markets
 - The dominant market model in the local media markets
 - The main distribution and reception mode in the local media markets

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

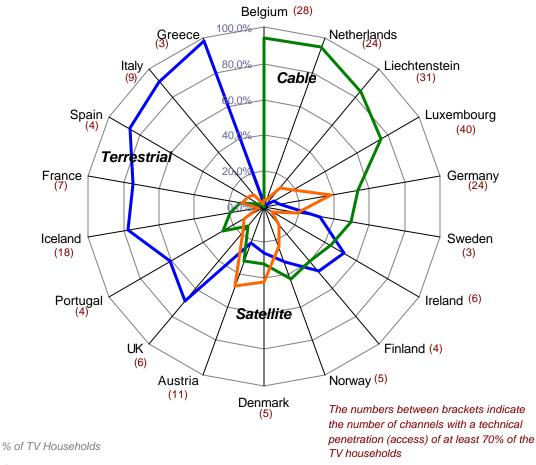
Trends in the audio-visual industry (1995-2000)

- Trend 1 Continuing growth of multi-channel and/or digital platforms
- Trend 2 Public service and commercial free-to-air channels maintain their audience share
- Trend 3 Decreasing financial strength and progressive consolidation of all operators
- Trend 4 Creation of large integrated and international groups
- Trend 5 Subscription revenues gain relative weight



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

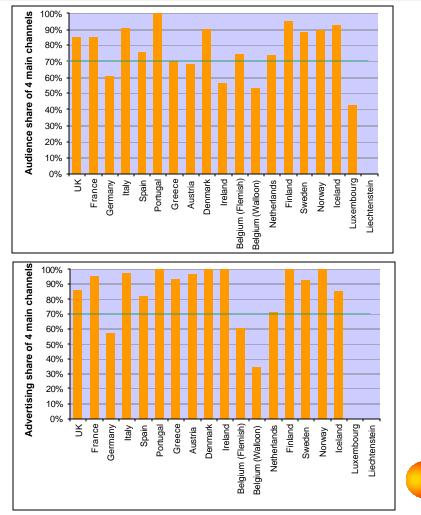
- A growing number of television households can access multichannel access platforms
- The continuing growth of these platforms provides consumers with an increasing choice of content
- However, some television households still have accces to less than 5 channels



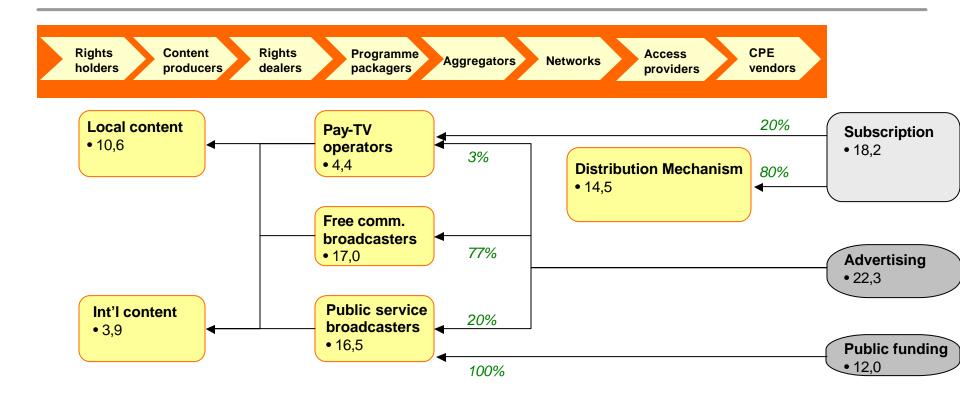
Source: IP, TV 2001, 2000 figures

Trend 2: Public service and commercial free-to-air channels maintain their audience share

- Although new platforms bring an enlarged offer of content, European consumers have not yet changed their behaviour
- In most European countries, the four largest channels still capture 70% of the audience
- This also means that advertising revenues are still captured by these large channels, decreasing the funding available for small channels and indirectly for the producers associated to these channels



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

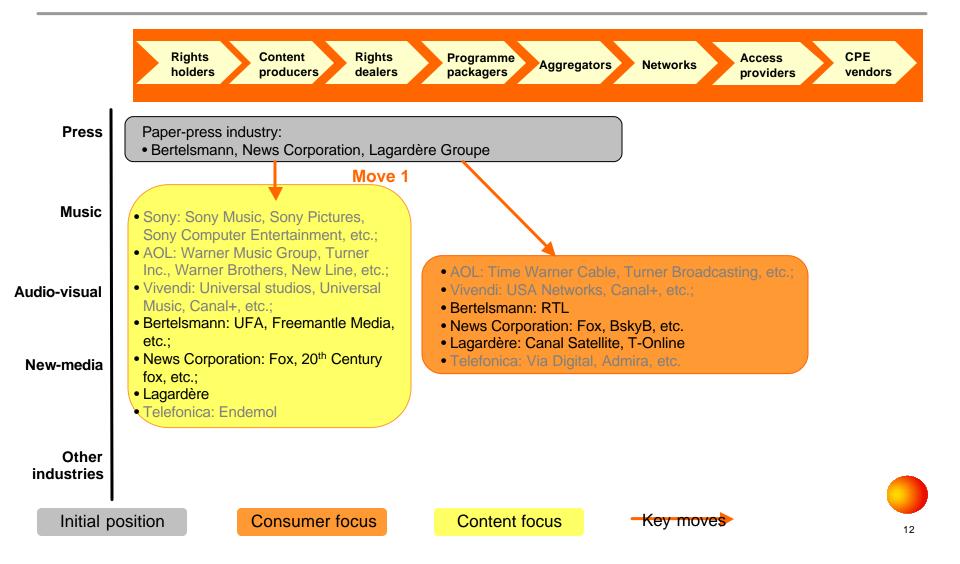


All figures relate to 1999 All figures in billion Euro Figures represent totals for the 18 EEA countries.



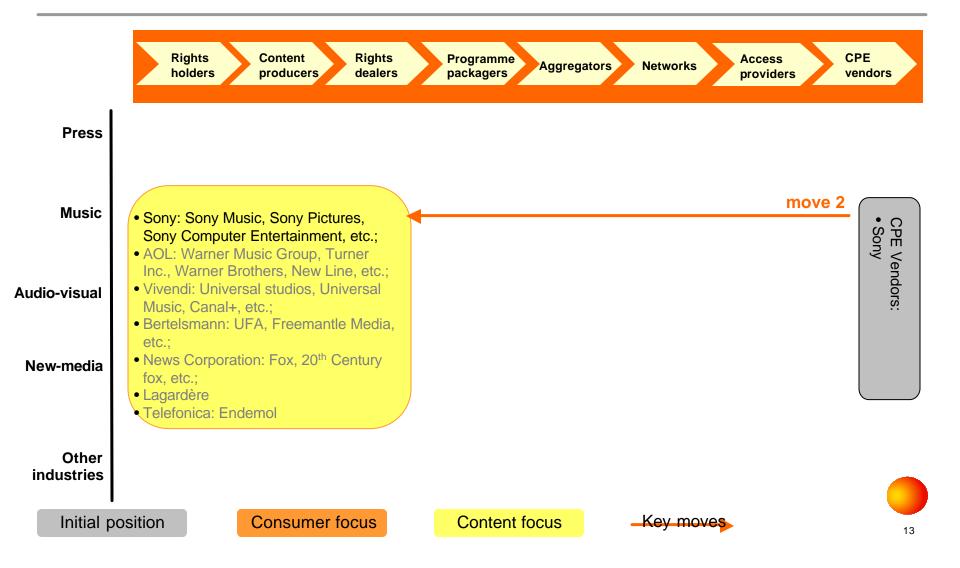
Trend 4: Creation of large integrated and international groups

The first move relates to the massive investment of paper-press companies into the audiovisual industry



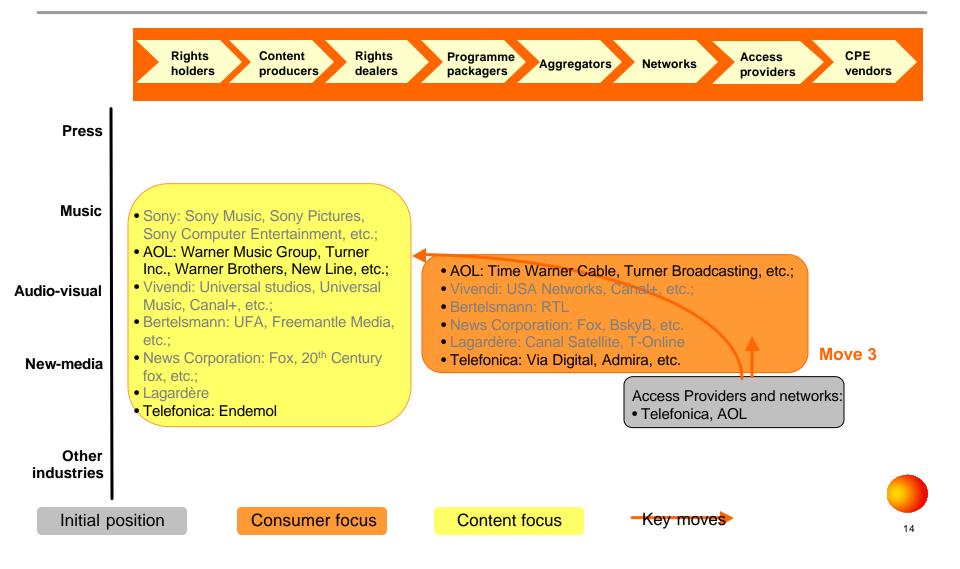
Trend 4: Creation of large integrated and international groups

The second move relates to the diversification of customer premises equipment vendors into the content production industry



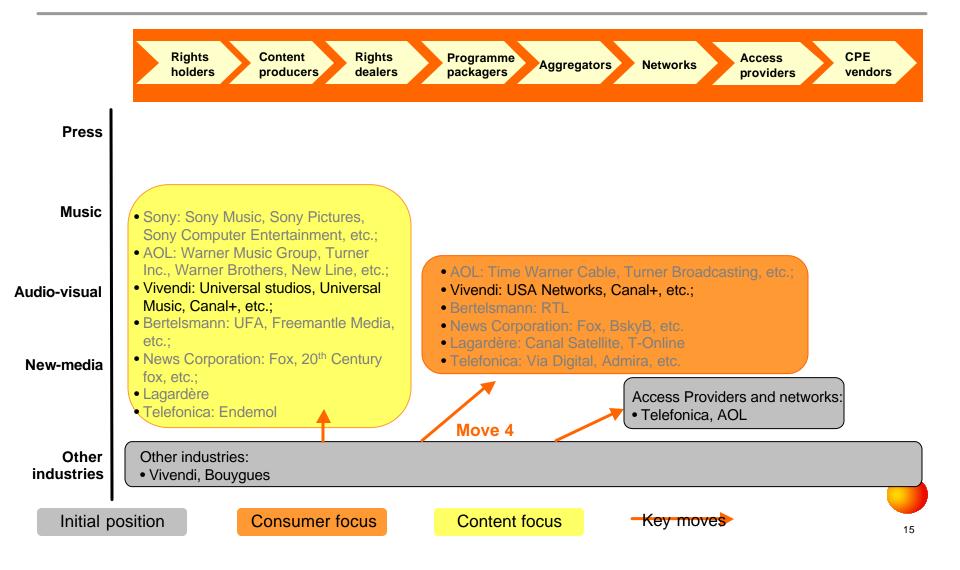
Trend 4: Creation of large integrated and international groups The third move relates to the diversification of access providers and networks to the

content production and packaging industry

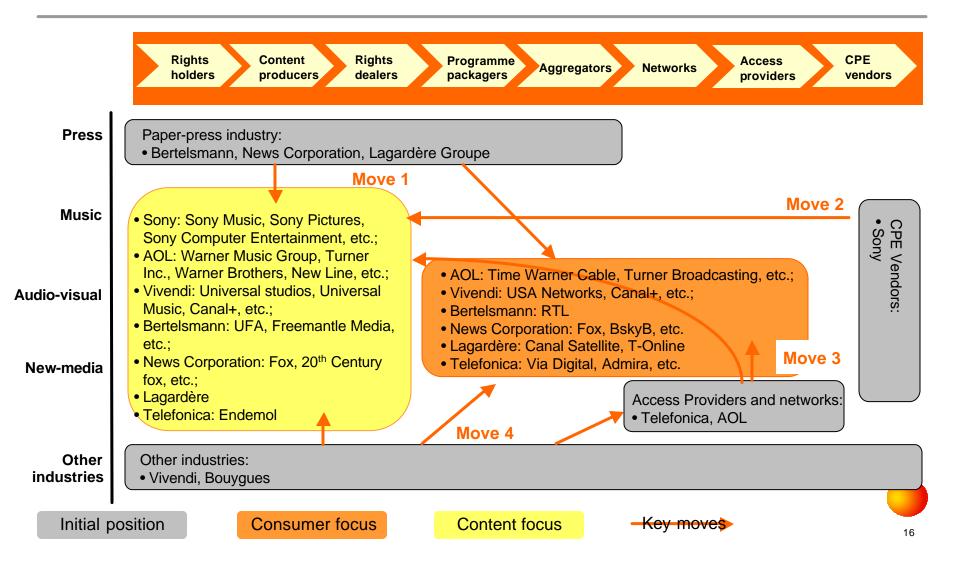


Trend 4: Creation of large integrated and international groups

The fourth move relates to the creation of large audio-visual groups by companies that were previously not active in the media industry

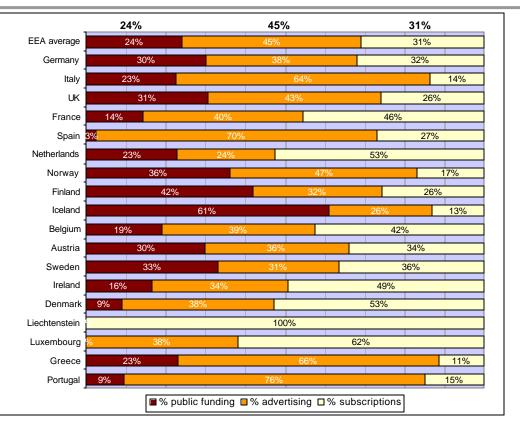


Trend 4: Creation of large integrated and international groups Overall view



Trend 5 – Subscription revenues gain relative weight The current European audio-visual market (trends 1995-2000)

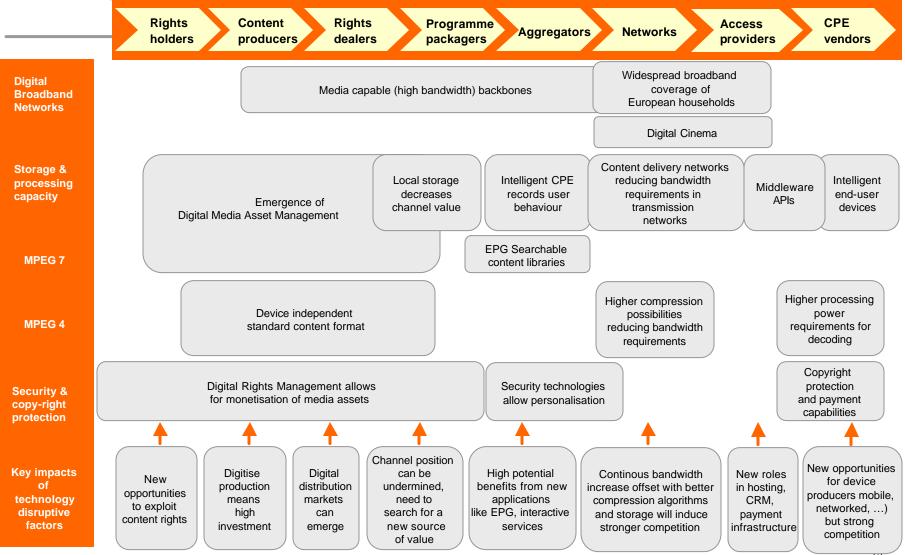
- Subscriptions and other revenues, the second source of revenue after advertising, are gradually gaining in importance
- This growth in importance also implies a shift in the balance of power towards access providers, traditionally the main beneficiaries of subscription revenues



Source: Public funding: Compilation by Andersen based on EAO, Statistical Yearbook 2001, 1999 figures; Subscriptions and advertising: Zenith Media, 1999 figures

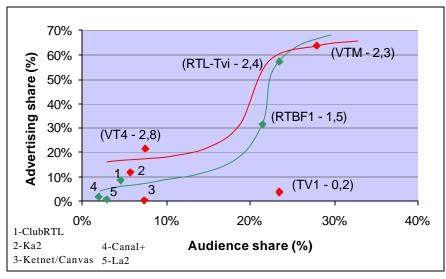
Note 1: "Other broadcaster income" include pay-TV subscriptions, tele-shopping, merchandising and various revenues coming from new multimedia applications such as SMS commissions, etc. Note 2: In some countries, public funding is also provided through direct public subsidies, governmentsecured loans, etc. These amounts have not always been taken into account resulting in the understatement of the importance of public funding in some countries 17 Some technology and economic disruptive factors are challenging the status quo

Combined technology advances are expected to enable new forms of consumption of broadcast media



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

- Subscriptions and consumer spending, as a source of revenues for the audio-visual industry, are expected to grow in the future. The importance of subscriptions in the total revenue sources of the industry is likely to grow from 35% in 2000 to 55% in 2010.
- New ways of advertising emerge, old ways become defective
 - New measurement systems will remove the traditional 3-5% audience threshold
 - The power ratio (advertising share divided by audience share) will tend towards 1



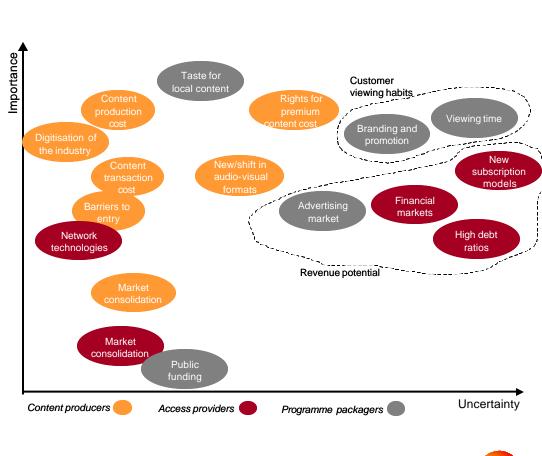
Competition for the consumers' time increases

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

Overview of the scenarios

Scenario choice based on significant but uncertain key trends

- Based on the questionnaires and interviews, a number of key trends that will drive the industry evolution have been identified. These key trends have been ranked according to the importance and uncertainty of their potential impacts
- These main trends relate to customer viewing habits and revenue potential, which are used as the two axes for the scenarios.
 Based on this, three scenarios were developed ("Business-as-usual", "Interactivity" and "Personalisation")
- These scenarios were tested in two economic environments: recession (-1% GDP growth) and growth (+2,5% GDP growth)



Overview of the scenarios Key dimensions of the scenarios

Scenario 1: Business-as-usual scenario

- Technology disruptive factors will not impact service offerings and consumer behaviour
- Economic and market trends that have been identified between 1995 and 2000 will continue

Scenario 2 : Interactivity

 The television screen will be used to access more and new entertainment services Consequently, viewing time will be fragmented over television's different uses

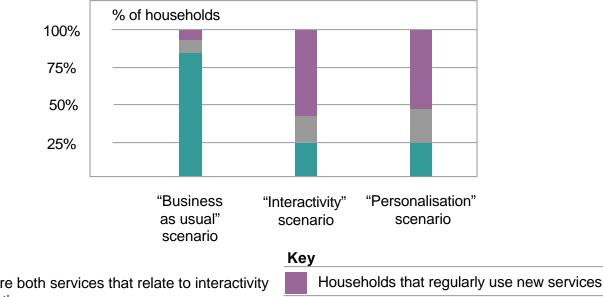
Scenario 3 : Personalisation

- A paradigm shift will occur from channel-based viewing to programme-based viewing:
 - Simultaneous TV viewing at the time it is broadcast will be reduced
 - Most content will be pre-recorded and accessed "on demand"

Overview of the scenarios

Disruptive factors will interact with different levels of intensity in each scenario

- Consumers will embrace the new services differently:
 - Some will fully embrace the new services and radically change their behaviour
 - Other will have access to the new services but will only partly make use of them
 - Finally, a third category of consumers will not subscribe or not have access to these services

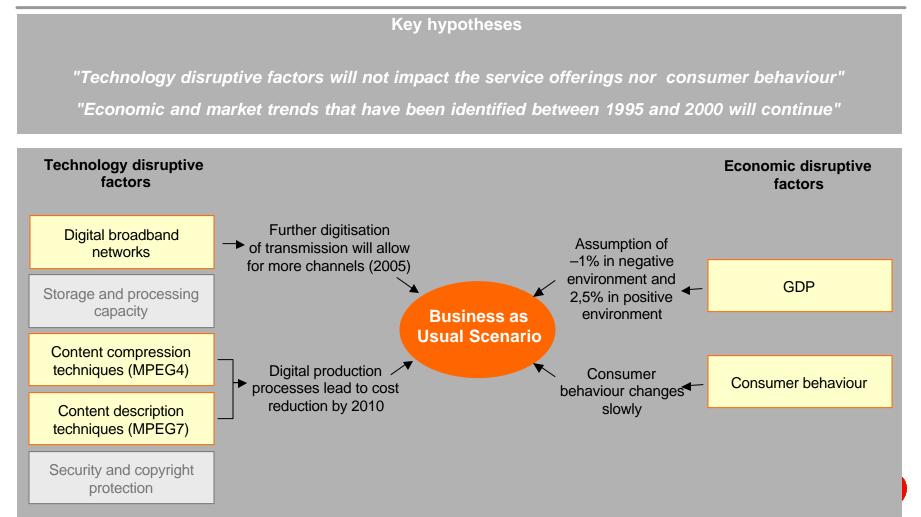


- New services are both services that relate to interactivity and personalisation
- The relative importance of "interactivity" or "personalisation" will depend on the scenario

Households that have access to new services but don't use them

Households that don't have access to new services

1. The 'Business-as-usual' scenario Key hypotheses for a 'business-as-usual' scenario



1. 'Business-as-usual' scenario Enablers / Barriers

Economic slowdown favours the "Business-as-usual" scenario

Enablers

 71% of Delphi study respondents believe that consumers will still prefer local content, 51% of the respondents believe that TV viewing time will not significantly change

So, consistent consumer behaviour and hence consumer spend will favour continuation of the current model

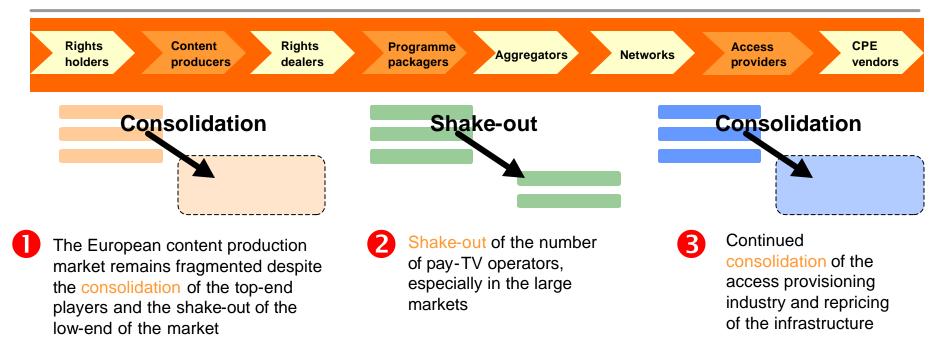
Digitisation is a slow process both for the industry players and in consumer acceptance (~ penetration). Most players indicate that 2010-2015 is the deadline

Barriers

- Stakeholders expect major changes, especially around:
 - Networks and access providers that already invested heavily in broadband digital networks enabling new media services
 - Large content producers are already starting to produce their first interactive content (SMS, Internet,...)
 - CPE vendors and associated software vendors are moving to the entertainment market as the current PC market stagnates
- In some advanced countries (i.e.the UK), consumer behaviour and consumer spend are already changing rapidly in response to digital TV products being launched on the market



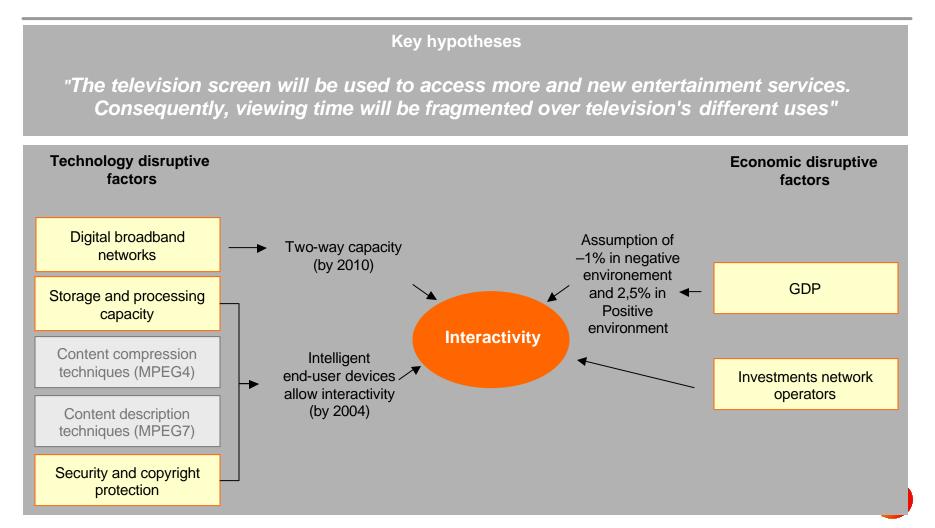
1. 'Business-as-usual' scenario The likely impact on key stakeholders



Increase of costs of rights will be limited, partly due to the slowing down of advertising market and the fact that subscription revenues are still limited.

Profitability will further decrease

2. 'Interactivity' scenario The combination of disruptive factors that produces "Interactivity"



2. 'Interactivity' scenario Enablers / Barriers

Enablers

- Access providers will stimulate use of non-broadcast content as they stand to gain from the revenue streams created. It mainly relates to:
 - On-line publishing (magazines,...)
 - Games (most cited item by industry experts)
 - T-Commerce
- Programme packagers will want to maximise their audience share and will offer interactive functionality in programmes
- Advertisers will push for more active audiences and one-to-one interactivity in order to increase the attention span of audiences and therefore the effectiveness of the ads
- Some technology disruptive factors will lead to :
 - High penetration of digital broadband networks
 - Intelligent end-user devices being widely spread
- A new generation of interactive consumers will emerge

Barriers

- Penetration and standardisation of digital television platforms by 2010
- Possible strong increase in production costs of interactive content
- Change of consumer behaviour is slower than expected as majority of consumers are still in a "leanback" viewing mode
- New business and advertising models are unproven and past Internet experience has been disappointing for advertisers. They will be cautious before investing large advertising budgets on these new formats

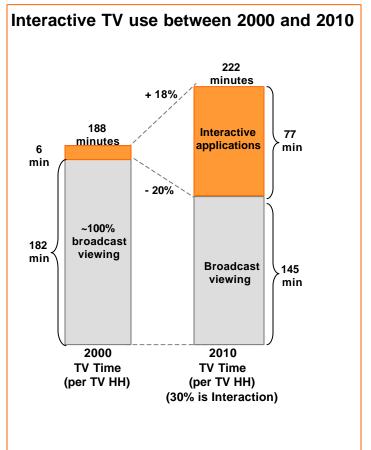


2. 'Interactivity' scenario New functionalities available to the consumer

Interactivity in broadcast stream		Interactivity outside broadcast stream		
User level of interactivity User has ad-hoc intera with broadcast cont		User participates in events related to broadcast stream	User asks for his content in non- linear way and leaves the broadcast stream	User creates own content (peer- to- peer)
angles Play	ion oting Enhanced / along television ames	Betting Programme – related chats	Walled gardens Open Internet Online games	E-mail E-cards Instant Messaging
 Impact on traditional broadcasting TV viewing time is unchanged because integrated interactivity attracts the viewers 			 Decreased TV v Programme page 	kagers do not
 Advertising value of a programme increases as audience is more actively involved 			benefit from new advertising models	

2. 'Interactivity' scenario Impact on consumer behaviour

- Between 1995 and 2000, TV viewing time has only slightly increased while the number of TV channels has exploded
- Time spent using services provided on the television, will increase while TV viewing time is expected to decrease (Andersen estimate)
- The current online behaviour provides some indication on the future iTV killer applications
 - Community and communication activities such as e-mail, chat and IMS are the most important activities online.
 - Entertainment sites are the second largest sites, with betting and gaming taking the lead
 - News and information sites are the third largest sites in terms of visits

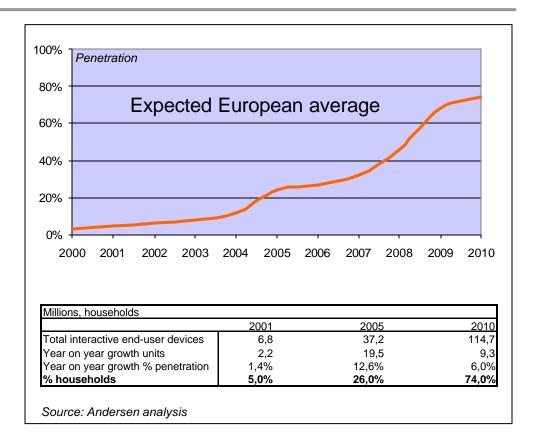


Source: Andersen analysis

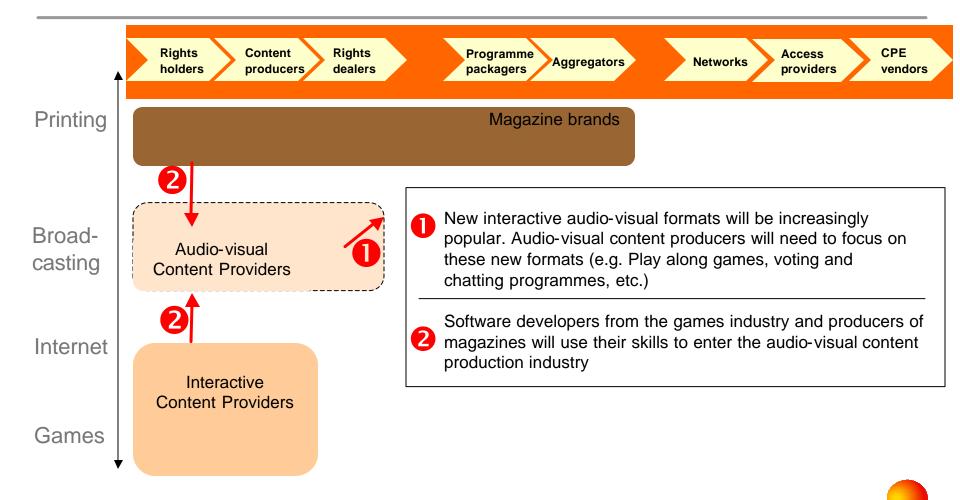
Note: Current online use relates only to broadband (2001 data)

2. 'Interactivity' scenario Market penetration of iTV services

- Cable platforms will quickly make the transition to interactive services as their technology is inherently better suited to offer interactive services (Andersen expects high growth for 2000 – 2005)
- Satellite and digital terrestrial services will depend on the evolution of broadband platforms (e.g. xDSL) to offer the return path in order to have true interactive media capabilities (Andersen expects growth after 2005)



2. 'Interactivity' scenario - Likely impact on key stakeholders The content production industry is expected to focus on new interactive formats

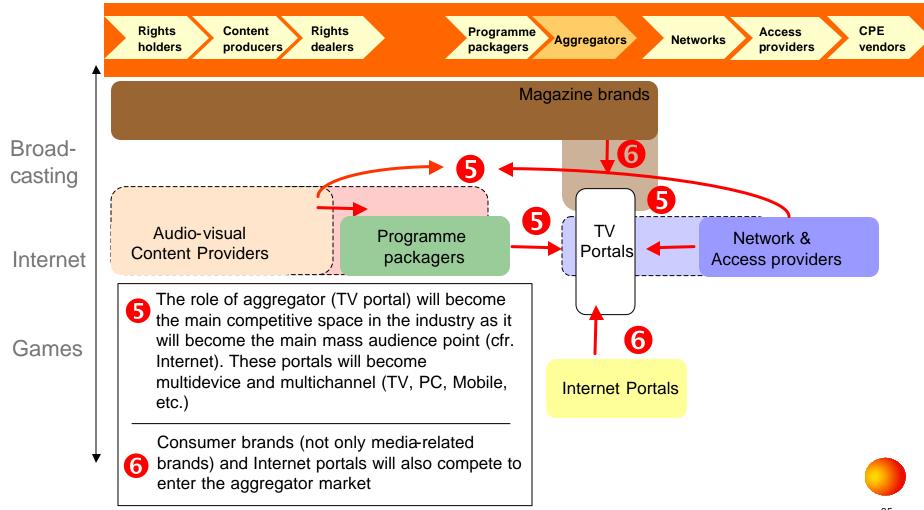




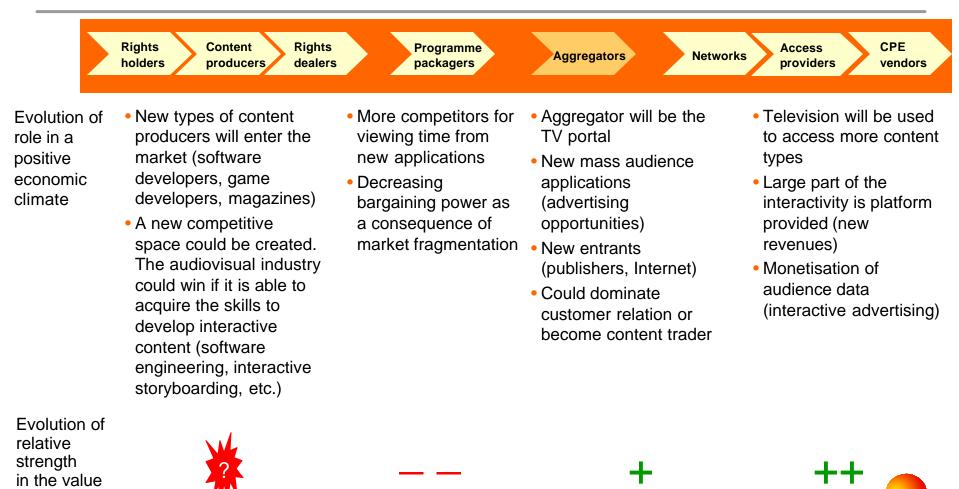
2. 'Interactivity' scenario - Likely impact on key stakeholders Technological convergence will likely occur between broadcast networks and broadband distribution channels

4	Rights Content Rights holders Programme Aggregators packagers	Networks Access CPE providers vendors
Printing	Broadband networks (such as xDSL networks deployed by European PTO's) are gradually becoming media-capable. They will enlarge their broadcasting distribution capacities and enable the games industry to distribute games online	
Broad- casting	Conversely, broadcasting distribution networks and access providers such as terrestrial television, satellite and cable operators will also provide access to Internet and online games	Network & Access providers
Internet		Broadband distribution channels
Games		

2. 'Interactivity' scenario - Likely impact on key stakeholders Aggregation becomes a viable stand-alone position



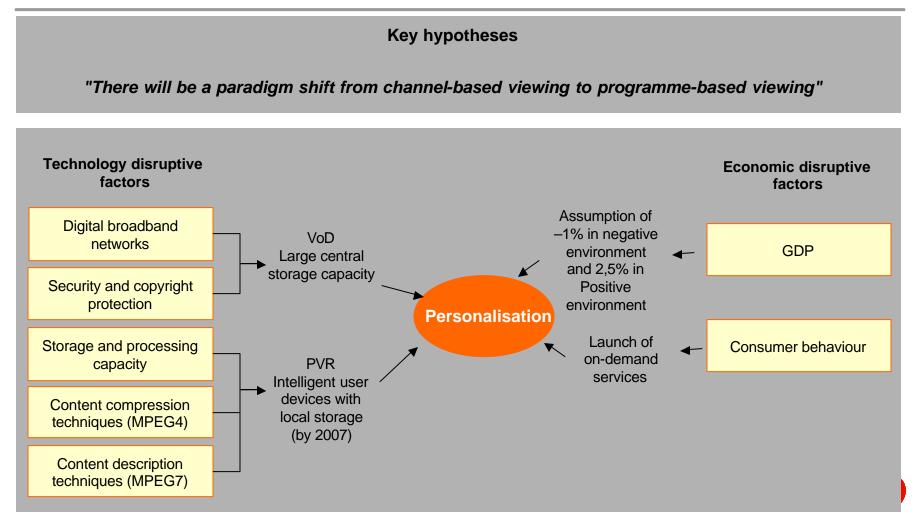
2. 'Interactivity' scenario - Likely impact on key stakeholders Overview of the likely evolution in market strength of the key stakeholders



chain

3.'Personalisation' scenario

The combination of disruptive factors that produces "Personalisation"



3. 'Personalisation' scenario Enablers / Barriers

Enablers

- The paradigm shift is made possible by the breakthrough of (a) intelligent user devices with local storage (PVR) or (b) central storage and on-demand networks (VoD). This is the result of the breakthrough of the key disruptive technologies:
 - Digital broadband networks
 - Security and copyright protection
 - Storage and processing capacity
 - Content compression techniques
 - Content description techniques
- Set-top box manufacturers and software providers can develop a new market opportunity
- Access providers have already invested in digital platforms and need to secure their return on investment
- New entrants (PVR: Tivo, ReplayTV, etc.; VoD) will enter in this market
- Consumer acceptance is very favourable

Barriers

- Rights owners still have doubts on security and copy protection issues
- Programme packagers will have a decreased role and could be reluctant to participate in this model (only 23% of respondents indicate programme packagers will gain control of the set-top box)
- The advertising market is relatively conservative, while new business models, enabled by PVR and VOD, are still not proven
- Current capacity of local storage is still a barrier to provide enough compelling content on a PVR
- Cost of deployment is still a barrier:
 - STB for PVR
 - VoD central systems

3. 'Personalisation' scenario

New functionalities available to the consumer

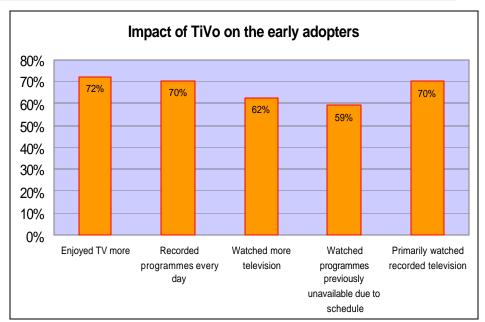
•	VOD services allow
	users to search and
	select programmes
	centrally stored

- A PVR (Personal Video Recorder) is a device that allows users to search, select, record and replay programmes
- These systems have following main characteristics:
 - They have a userfriendly on-screen interface
 - They (centrally or locally) store and interpret metadata

 Time shifting 	Pause live TV programsRewind live TV programs
 Channel schedule independence by easy recording of multiple programmes 	 Less live TV viewing Individual channel creation Availability of previously "unreachable" programmes because of timing Skipping inter-programme commercials
 New services 	 Electronic programme guide (EPG) Searchable content libraries (VoD) Real-time or "download" based VoD for specific content Virtual channels (aggregators using search engines and VoD solutions to create a channel)

3. 'Personalisation' scenario Impact on consumer behaviour

- 70% of early PVR adopters use the PVR daily to record programmes and watch the recordings afterwards:
 - For programme packagers, this decreases the importance of scheduling and the value of repeat scheduling
 - Niche programming becomes more popular while peak-time programming decreases in importance and therefore in revenue potential
- TV viewing time remains unchanged (compared to a decrease in viewing time in the interactive scenario)
- Lean back viewing remains dominant
- Consumer selection of platform is mainly based on the availability of VoD and PVR services

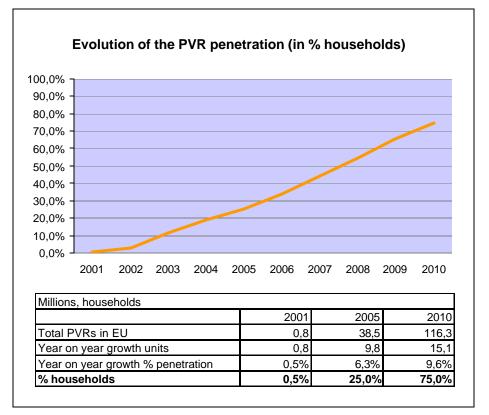


Source: BBC/TiVo & Magid associates, taken from Durlacher 2000



3. 'Personalisation' scenario Market penetration forecast

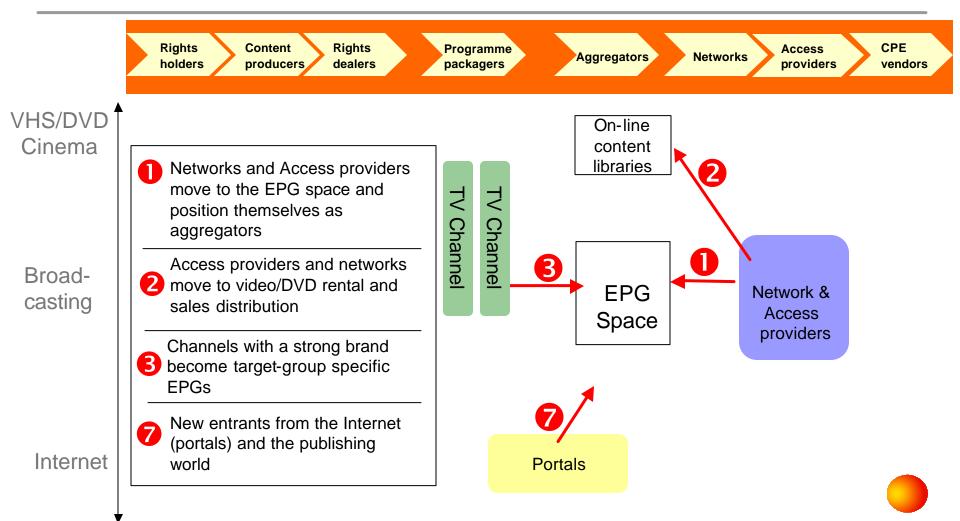
- Initial growth of PVR/VOD systems (calculation based on penetration forecasts of PVR's) is modest: ranging from 0,5% in 2001 to 7,6% in 2004.
- The growth rate is higher from 2006 onwards, ranging from 6,3% in 2005 to 9,6% in 2010
- Penetration rate grows towards 75% in 2010. This is slightly less than the current penetration rate of VCRs (80,1%)
- The acceleration in uptake is due to:
 - Falling prices
 - Mature technology
 - Switch to digital transmission
 - Instinctive of use compared to a VCR
 - Search for convenience



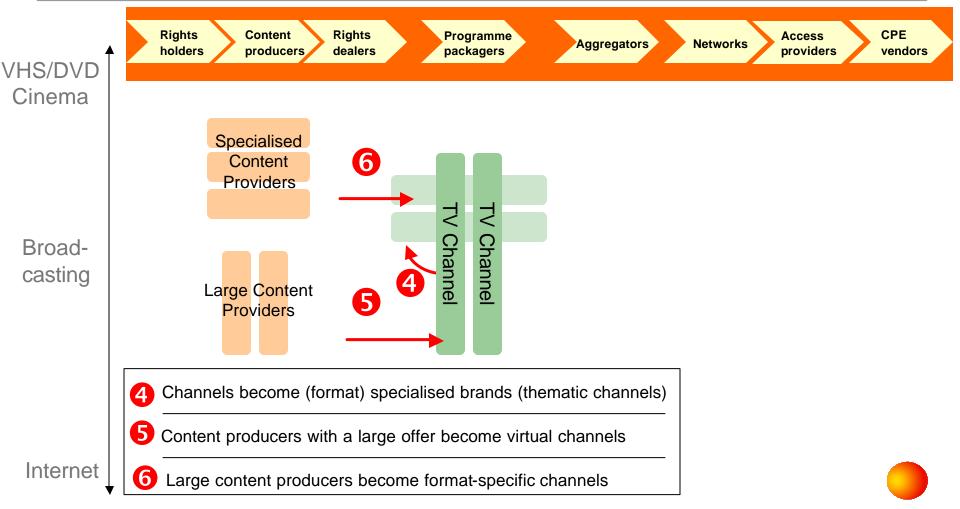
Source: Durlacher 2000

Note: In our scenario, PVR systems and VOD systems are considered to be substitutes. The choice between technologies will largely depend on the choice of network operators that want to optimize their networks

3. 'Personalisation' scenario - Likely impact on key stakeholders EPG's are likely to become the main competitive space



3. 'Personalisation' scenario - Likely impact on key stakeholders Specialised content providers and channels could become specialised brands and evolve towards niche channels



3. 'Personalisation' scenario - Likely impact on key stakeholders Overview of the likely evolution in market strength of the key stakeholders

	Rights Content holders producers	Rights Programme packagers	Aggregators Net	works Access CPE providers vendors
Evolution of role or of power in	 Will form direct links with the aggregators Market for content 	 Free commercial broadcasters lose revenue model 	 Stand-alone role sustainable 	 Develop new services around (download) VoD
the chain	will further expand (Pay-TV expansion)	 Pay-TV operators can expand further 	 Will gain advertising 	 Build on aggregator role
		 Role of public service broadcast is questioned 	revenue	
Evolution of relative strength in the value chain	+	-	+ +	+

How will the European audio-visual industry evolve?

Impact on the industry revenues

- The previous scenarios highlight extremes in the possible evolution of the future and do not predict the exact future. It is unclear at the moment in which direction the European audiovisual market will evolve
- The European audio-visual industry as a whole would mostly benefit from an evolution towards the interactivity scenario (in both economic environments)
- But individual industry stakeholders have other economic interests

Overview of the industry stakeholders revenues in 2010		Content		Packaging		Diffusion		Overall Industry Revenues	
		Bio Euro	Ranking	Bio Euro	Ranking	Bio Euro	Ranking	Bio Euro	Ranking
1999		14,5		37,9		14,5		52,5	
Positive Economic	Business as usual Scenario	21,8	1	52,8	1	28,4	3	81,3	2
Environment	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	Business as usual Scenario	16,3	1	40,6	1	20,1	3	60,7	2
Environment	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

Impact on the number of channels - quantitative analysis

- 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

		f the number of els in 2010	Public Service channels	Free Commercial channels	Pay TV channels	Total
	1999		90	151	233	474
	Positive	Business as usual Scenario	94	175	330	599
	Economic Environment	Personalisation Scenario	88	154	387	629
		Interactivity Scenario	86	142	379	607
e	Negative Economic Environment	Business as usual Scenario	82	117	185	384
		Personalisation Scenario	81	103	224	408
		Interactivity Scenario	80	95	217	392

- In general, 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.

Impact on the number of channels – qualitative analysis

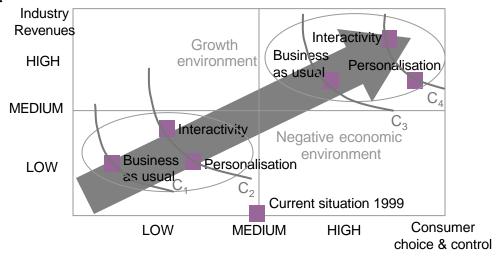
- The "business as usual" scenario will only have a minor impact on the way people watch television. The current TV channels features will remain prevalent: a passive way of watching programmes pushed by broadcasters, being public service broadcasters, free commercial broadcasters or pay-TV
- The "interactivity"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

Scenario conclusions Impact on the number of channels

- The following table provides an overview of the average number of channels that will be available to European households in the different scenarios and the different economic environments
- This table takes into account following assumptions:
 - Analogue terrestrial operators carry on average 4 channels
 - Digital terrestrial operators carry on average 18 channels
 - Cable operators carry on average 35 channels
 - Satellite operators carry on average 50 channels
- This table clearly indicates that on average the number of channels available to European housholds highly depend on the economic environment rather than on the scenario.
- However, the model also indicates that a number of households will still only access to analogue terrestrial networks if analogue switch-off is not enforced

Average number of channels available to European households			
1999		16	
Positive Economic	Business as usual Scenario	20	
Environment	Personalisation Scenario	21	
	Interactivity Scenario	21	
Negative	Business as usual Scenario	13	
Economic Environment	Personalisation Scenario	13	
	Interactivity Scenario	14	

- On the long-term, higher industry revenues should lead to the deployment of infrastructures and to the development of new services. This means that overall higher industry revenues lead to higher consumer choice and control
- In both economic environments, the interactivity scenario will lead to a consumer optimum and to an economic optimum for the industry as a whole

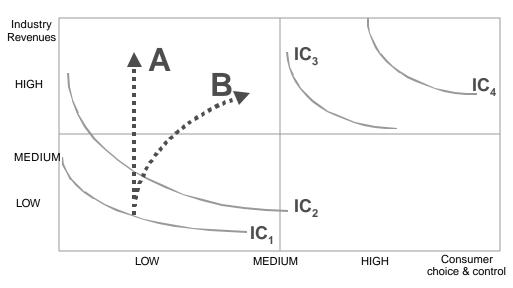


 However, in view of the different economic and general interests of the main stakeholders (industry operators and consumers), it is unlikely that the simple play of the market mechanism will favour optimal consumer choice and control and optimal industry revenues at the same time Conclusions and recommendations

Conclusions and recommendations

Stimulation of the audio-visual industry

- Regulators could stimulate the audiovisual industry by developing specific industrial policy measures in order to increase the global level of satisfaction
- Possible levers are:
 - Regulatory packages such as equal access to networks and associated services
 - European support mechanisms
 - Other mechanisms such as the "i2iaudio-visual" programme
 - Tax incentives
 - Establishment of a 'one-stop shopping procedure'
- The immediate impact of these levers would be to increase industry revenues (see arrow A). The longer-term impact would also to increase consumer choice and control (see arrow B)



Conclusions and recommendations

Balancing individual and general interests

- Regulators could interviene if consumer choice and control is inadequate. In a given economic context and on the short-term, this is often associated with increased pressure on industry revenues
- Possible regulatory levers are:
 - Must carry rules
 - The "major events" regulation
 - Quota's
 - Regulation relating to advertising, sponsorship and teleshopping

