SUMMARY REPORT

Adapting the EU Regulatory Framework to the Developing Multimedia Environment

A Study for the European Commission
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Analysys

Study on Adapting the EU Regulatory Framework to the Developing Multimedia Environment

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

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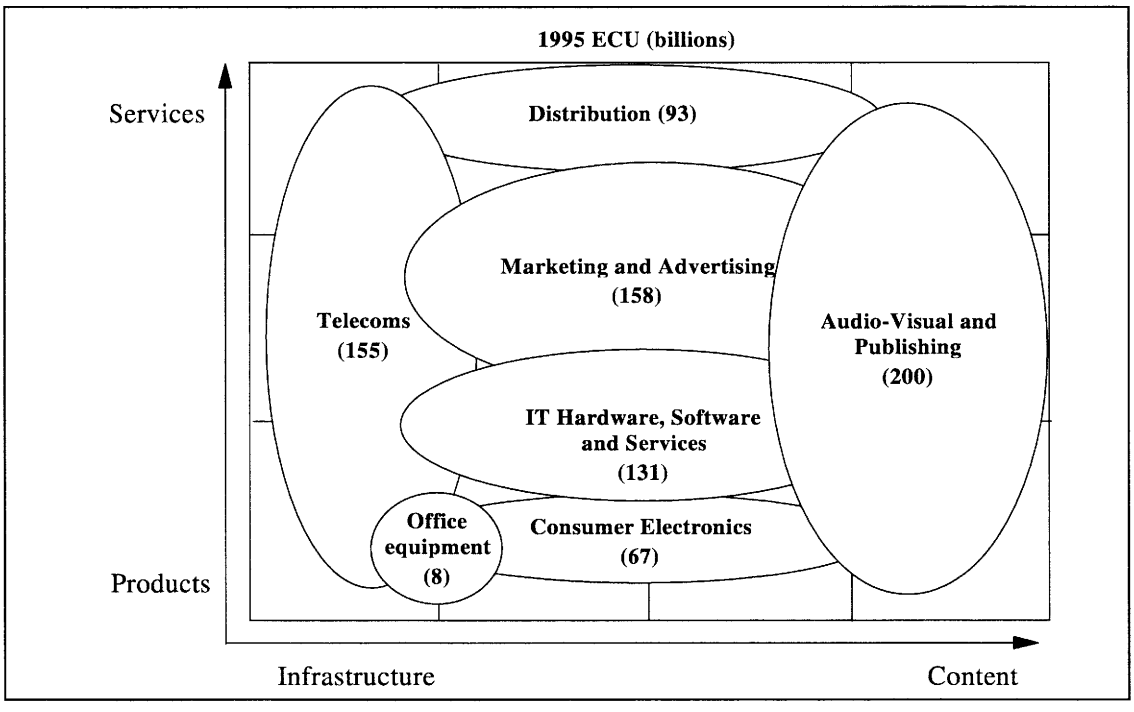
I Introduction

This Study, entitled "*Adapting the EU Telecommunications Regulatory Framework to the Developing Multimedia Environment*", presents an analysis of the legal and regulatory issues surrounding the development of a multimedia market in the European Union. In 1995, that multimedia market was calculated to be worth 812 billion ECU, as illustrated in Exhibit A below.[1]

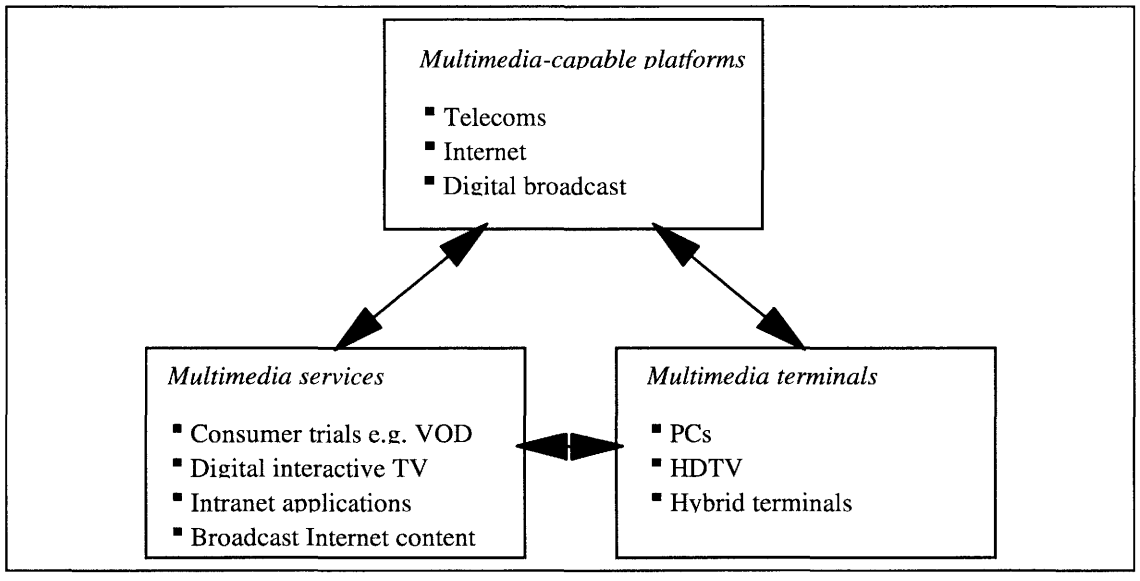
EXHIBIT A: *Turnover in the Converging IT, Telecoms and Broadcasting Sectors, 1995 [Source: EITO]*



The beginnings of a multimedia market in the European Union and the United States have become much more visible with the emergence of the Internet and, more particularly, the World-Wide Web ("WWW"). Estimates of the number of Internet users world-wide vary between 35 and 60 million, and the *Internet* market including networks and services may be worth 100 billion ECU by the year 2000. Digital broadcasting has also been launched during the past year and many players are now exploring the delivery of multimedia services over digital broadcast networks.

1 "Multimedia" is understood by the Study Team to include information (*e.g.*, text, sound, fixed and moving images and data) made available by the same medium, with which the user can interact. By "interactivity", we mean the ability of the user to alter, in real-time, the content he or she receives.

EXHIBIT B: Elements of the Multimedia Market [Source:Analysys]



The convergence of the IT, telecoms, broadcasting and publishing industries is also driving the development of a multimedia market. Although convergence has been taking place for at least the past fifteen years, the multimedia market has developed, until recently, very slowly. The explanation for this recent growth lies partly in the influence of the Internet and partly in the fact that convergence is taking place on related levels:

- At the ***technological level*** where convergence began, digitalisation has led to a convergence in the ability of networks to transmit all types of information. A telecoms network now has the ability to transmit broadcast services (and *vice versa*) and the products of the publishing sector, both audio and visual, can now be delivered electronically by a variety of networks. For example, some of the major record companies have started to allow CDs to be downloaded over the Internet.

- The development of a multimedia market has also been spurred by convergence at the ***market level***. Companies in previously separate markets have recognised the need for new skills to take advantage of the access to new markets made possible by technological convergence. This market level convergence is evident in the alliances and mergers that have recently taken place, *e.g. Deutsche Telekom's* investment in Internet telephony supplier *VocalTec* and *Microsoft's* take-over of a company, *WebTV*, offering Internet via television receivers or its investment in *Comcast*, the US cable operator.

- Technological and market convergence have made convergence at the ***service level*** possible. This convergence will help create a multimedia market where new

and existing services can be delivered by new means and provide more functionality to users. For example, *Progressive Networks* have recently launched a RealVideo software which enables video to be transmitted to a user on a 28.8 kbit/s modem in real-time, whereas several European digital broadcast companies, including *Canal Plus* and *BSkyB*, are developing interactive services such as home banking as the next stage of development for their digital broadcast platforms.

Convergence at the technological, market and services levels need not result in an identical degree of regulatory convergence. Indeed, the theoretical possibilities of convergence may be counterbalanced by a marketplace which is characterised by divergence in terms of the range of services offered. Consistency in regulation, however, will have a major impact on investment and business planning. The transformation of today's telecoms regulatory framework into one which reflects tomorrow's multimedia environment will therefore require a cross-sectoral evaluation of the policies which underpin existing regulation in the markets most immediately affected by convergence -- the telecoms, broadcasting and publishing sectors. Our "horizontal" analysis extends, wherever appropriate parallels exist, to the IT sector. The lessons learned in one sector may find application in other sectors, with certain issues requiring either a full cross-sectoral response or at least one which promotes parallel approaches across sectors.

II Industry Relations and Roles

The structure of the multimedia market is changing from a series of vertically separate sectors (reflecting both regulation and delivery platforms), each with its own separate value chain, to a vertically integrated, but horizontally converging market, in which the barriers between the former sectors will disappear. The new value chain is set out in Exhibit C (overleaf), whilst the positioning of current players in the converging market segments is set out in Exhibit D (overleaf).

Infrastructure and, to a lesser extent, service provision will be the most concentrated segments of the value chain. Margins will be low in these areas because of the commoditisation of basic infrastructure and connectivity services. Content provision and packaging will provide the highest margins (*e.g.*, *Bertelsmann* and *BSkyB*) and many firms will try to enter these areas. Barriers to entry for content and packaging will initially be low (*e.g.*, *Amazon.com*), and very small players may co-exist with large ones. Network operators are likely to move up the value chain. Such migration may constrain the growth of the multimedia market if operators abuse their monopoly in infrastructure provision to prevent competitors from competing in service provision or packaging. Within this new value chain we believe that two distinct types of players will emerge, namely: (i) service and connectivity providers; and (ii) packagers/integrators.

EXHIBIT C: *The Value Chain in the Mature Multimedia Market [Source: Analysys]*

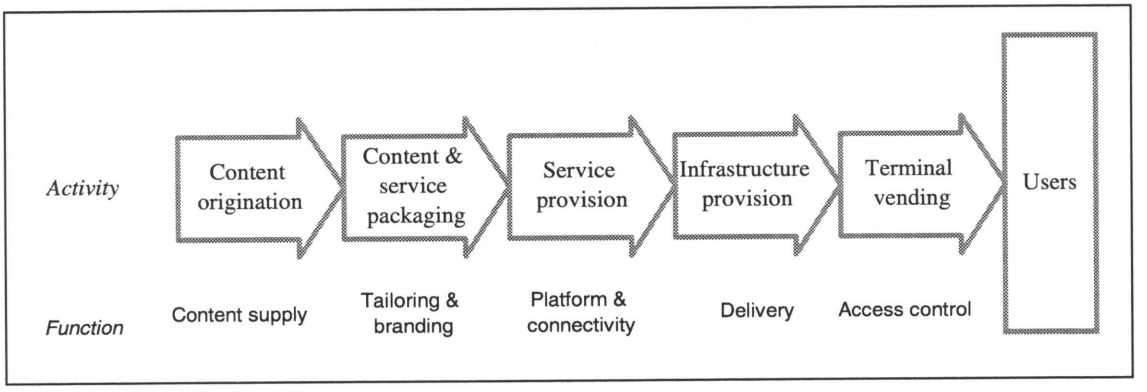
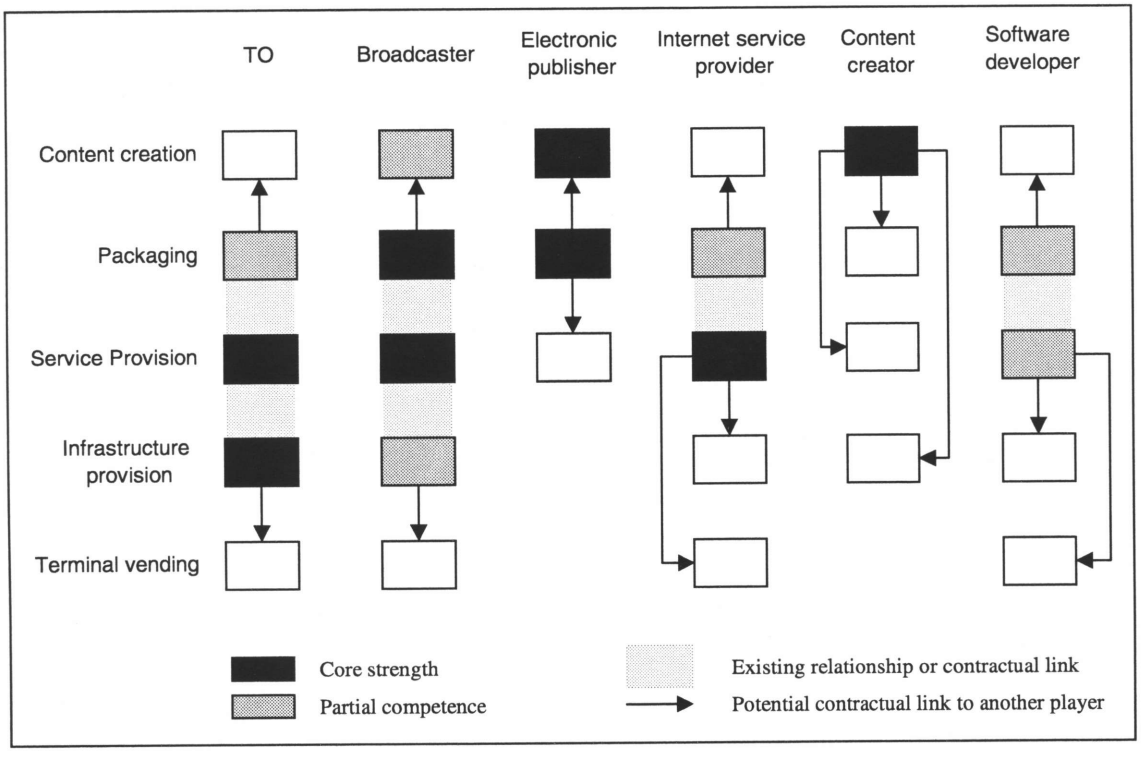


EXHIBIT D: *Locations of the Major Players in the Value Chain and Relationships between Them [Source: Analysys]*



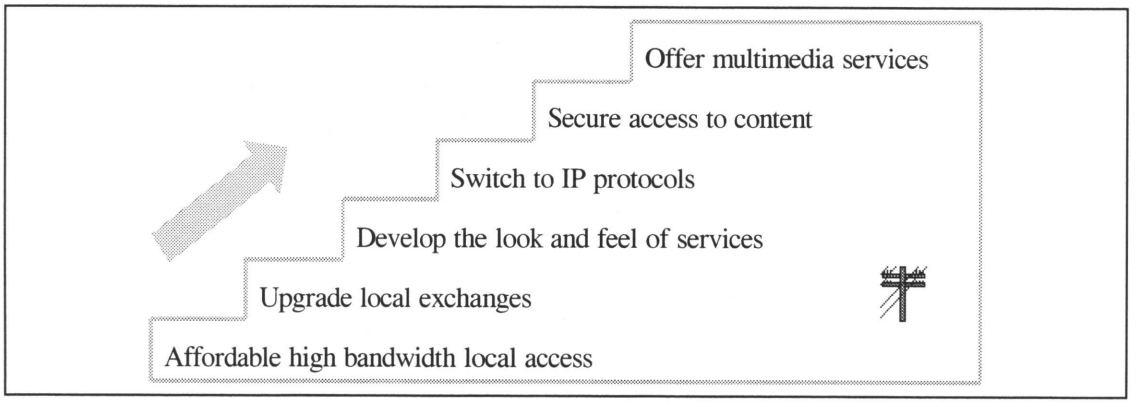
New functions are emerging within each of these new segments, such as information organisation and navigation by companies like *Firefly* (a personal information agent) and *Yahoo* in the content/information packaging segment.

The most radical consequence of the development of a multimedia market is the marginalisation of monopoly network operators, such as incumbent telecoms operators ("TOs") and broadcasters, which before liberalisation exercised monopoly

control over access to customers. The success of open networks and delivery channels such as the Internet is enabling content providers, packagers and service providers to access customers directly without any intermediaries. This means that flows of money in the future multimedia market will be fundamentally different than they are today. Moreover, content will become increasingly important in the new emerging market structure.

Exhibit E illustrates the steps which current broadcasters and telecommunications operators must follow as they attempt to enter the multimedia market.

EXHIBIT E: *Telecoms and Broadcasting Companies' Steps Towards Multimedia [Source: Analysys]*



The changing relationships and roles within this multimedia market must be examined in relation to a number of factors:

- Multimedia alliances
- Network technologies
- Evolution of multimedia services and their impact in the home and the workplace
- Pricing of multimedia services, and
- Standardisation

II.1 MULTIMEDIA ALLIANCES

The mergers and alliances that have taken place during the 1990s demonstrate that industry players believe in the potential of the multimedia market and that market level convergence is, in fact, happening. The volume of such activity has grown tremendously over the past three years. In the first six months of 1996, the value of multimedia mergers and alliances in Europe quadrupled to 11.5 billion ECU, with

Internet-related transactions mergers and acquisitions representing approximately half of that total.

In addition to an increase in volume, there has been another more subtle shift in multimedia merger and alliance activity from within sectors to across sectors (*i.e.*, vertically) within different parts of the value chain. With this shift, we can infer that the motivations behind mergers and alliances have changed. Horizontal mergers and alliances tended to be short term and opportunistic in outlook, for example, *Canal Plus* and *Nethold* in cable TV, and the *Atlas* alliance in telecoms. Vertical mergers and alliances, by contrast, are intended to exploit the potential of convergence and multimedia, for example, *America Online* and *Bertelsmann's AOL Europe* joint venture, and the *WorldCom-MFS-UUNet* merger. The proposed merger between *America Online* and *CompuServe* and the agreement with *WorldCom* for the handling of the merged company's traffic illustrates the increased importance of positioning in the new multimedia value chain. Additionally, horizontal joint ventures will be subject to intense pressure to proceed to full merger, particularly in the wake of *BT's* bid to turn its *Concert* alliance with *MCI* into a full merger, which has now been superseded by *WorldCom's* proposed, and accepted by *MCI*, takeover.

II.2 NETWORK TECHNOLOGIES

Technology both in the network and in terminals is playing a key role in the development of multimedia services. The potential and demand for such services, however, are influencing different parts of the network in different ways. The principal difference is between the core and the access networks.

As regards the core and backbone networks, there is some degree of consensus in the telecoms and broadcast sectors regarding the technologies that will be used to deliver multimedia services. Moreover, most of the technological problems associated with networks which can carry a variety of different service platforms have been solved. Development is turning towards performance and quality of service, rather than overall functionality. There is still, however, no certainty as to which telecoms technologies (such as the Internet Protocol ("IP") and Asynchronous Transfer Mode ("ATM") transmission) should co-exist with digital cable TV, satellite and terrestrial broadcast networks. The situation is further complicated by attempts to create switching platforms which combine the benefits of ATM with the simplicity of Internet routing by companies such as *Cisco, 3Com* and *Ipsilon*. In the PSTN, many TOs are currently stalling the deployment of ATM backbones and the substantial amounts of investment that this would entail. In contrast, capacity is being installed at breakneck pace for the Internet, particularly on trans-Atlantic routes, *e.g.*,

WorldCom's allocation of half of a planned 20 Gbit/s trans-Atlantic link to Internet traffic.

In the access network, competition is becoming more intense in providing access to multimedia services. In the past two years there have been three significant developments. *Firstly*, basic rate ISDN, which provides users with relatively high rate access to multimedia services, has begun to take off. *Secondly*, TOs such as *TeleDanmark* have made major investments in Asymmetric Digital Subscriber Loop ("ADSL") technology, which is capable of delivering information at speeds up to 2Mbit/s to subscribers over copper local loops (which comprise the vast majority of existing TO local access networks). *Thirdly*, cable TV operators, such as *TCI* in the *United States* with the *@home* network, are investing substantial amounts of money in cable modems which can provide similar capabilities.

Despite uncertainty with regard to market developments and demand, interviews and our analysis suggest that the deployment of key technologies between now and the year 2005 will evolve as indicated in Exhibit F.

EXHIBIT F: *Projected Evolution of Technologies Needed for the Development of Multimedia Capability [Source: Analysys]*

	Units	1996	1998	2000	2002	2005
Basic Digitalisation	% of all lines	80		90		100
ATM (cell) Switching	% of Public Datacomms	2	10	20	40	60
ATM (cell) Switching	% of Private Datacomms	5	15	30	50	80
FITL (Bus & Res)	% of interactive accesses	10	15	20	25	30
X-DSL	% of interactive accesses		1	2	3	5
ATM LANs	% of LAN ports	2	6	20	50	80

The trade-off between price and capability will determine which technologies are most successful. Exhibit G below shows the current trade-offs for a range of access technologies. On this evidence, ADSL and cable modems are the leading candidates to be the high-speed access technologies of the near future.

EXHIBIT G: Current Annualised Unit Costs and Typical Access Speeds for Alternative Technologies [Source: Analysys]

Technology	*Unit Costs (ECU)*	*Typical User*	*Typical Access Speed*
Optical fibre	1000-1500	Business and residential	2Mbit/s and above
Satellite	1000-1200	Residential, SME	128-384kbit/s
Cable TV modems	500-700	Residential	2Mbit/s to 10Mbit/s (one-way)
ADSL	400-600	Business	2Mbit/s to 6Mbit/s (one-way)
BR-ISDN	350-450	Business and residential	64kbit/s to 128kbit/s
Dial-up PSTN + modem	100-200	Residential	9.6kbit/s to 56kbit/s
Wireless Local Loop (WLL)	400-500	Residential/small business	144kbit/s (Ionica proximity claim)
GSM	300-400	Business and residential	9.6kbit/s

II.3 THE EVOLUTION OF MULTIMEDIA SERVICES

The growth of multimedia services has been characterised by "technology and service- push" from the supply-side resulting from the development of new technologies such as the Internet, and by innovation on the part of service providers and packagers.

Although it is difficult to predict with any degree of certainty which applications will be the most successful, some key demand trends can be identified. There are distinct differences between the business and residential multimedia markets. Although the residential market is growing faster than the business market in terms of users (*e.g.* growth from 1995-2000 is forecast to be four times faster in the residential market than the business market), the business multimedia market is leading the development of multimedia technologies and applications. For example, the business-to-business electronic commerce (electronic transactions) market is estimated at 12 billion ECU in 1996, compared to 600 million ECU for the consumer market. This is attributable to the greater purchasing power and access to high-speed connections and multimedia capable terminals of the business community. As a consequence, developers are concentrating on creating new applications for the business market. There is also a clear trend towards application sharing and company information management systems using multimedia tools, particularly in the fast developing intranet market. In the future, however, services such as home banking and retail electronic commerce, which reduce the cost of services and give users

greater control over purchasing, should become major multimedia services and help close the gap between the residential and business market segments.

II.4 MULTIMEDIA TECHNOLOGY IN THE HOME AND WORKPLACE

Insofar as terminal equipment is concerned, multi-purpose terminals such as the PC have had a limited impact on the market. In general, convergence has been gradual. Set-top boxes, however, are being endowed with ever greater computing power and PCs are capable of displaying broadcast video and often possess communications capabilities.

The current penetration of multimedia-capable terminal equipment reflects the disparity in the sizes of the respective business and residential markets. In the business sector, PC usage is fairly widespread in all types of business (though not in all job functions) and a relatively high proportion of the working population has access to the Internet.

In the residential market, the situation is different. PC penetration in Europe averaged 24% in 1995 and low levels of penetration are the largest impediment to the development of the residential market. Alternatives such as digital set-top boxes, multimedia game terminals, and mobile multimedia terminals are all in their infancy. Moreover, multimedia service development is closely linked to the demand for multimedia terminals; the lack of one has constrained the growth of the other in the residential market. If set-top box costs can be brought down to a low level, WWW access via television could be a major factor in making the Internet a mass market service for residential users.

II.5 PRICING OF MULTIMEDIA SERVICES

It is appropriate that, where markets are competitive, pricing should be left to the market. Only where there is the potential for the abuse of market power should regulation be needed. At the same time, in the multimedia market, pricing is likely to require new approaches by service providers if the widespread take up of on-line and other services is to be encouraged. This is not just an issue of absolute price levels, but also of the need to take account of the balance between fixed and variable price elements (*e.g.*, the costs of equipment rental, service subscription, service usage charges and telecoms costs). Over the past twelve months many Internet service providers have re-examined their tariff structures in this way. There has been a marked change among those providers who previously were the most expensive.

Most ISPs now employ flat-rate charging, and usage charges have almost disappeared.

The greatest potential for abuse of market power in pricing is likely to arise where players are active in different parts of the value chain, particularly where services are bundled together. As is true of the Internet, we may see a separation of payments for content and/or packaging, connectivity and the delivery mechanism. Alternatively, as in the case of the *Microsoft Network*, we may see the pricing of content packaging and connectivity bundled, even if the connectivity is provided by another company. Providers may also want to bundle service and infrastructure provision, terminal equipment and navigation tools to stimulate the overall market, particularly in the early life of new services. Cross-subsidisation is clearly an issue of concern, but only if profits from a monopoly activity are used to cross-subsidise a competitive activity.

II.6 STANDARDISATION

Solutions already exist for nearly all of the interoperability problems which have arisen at the infrastructure level. The focus of future standardisation will be at the service creation or platform level.

Standardisation in a multimedia environment is becoming much more oriented to industry-controlled standards, *e.g.*, through the Internet Engineering Task Force, rather than through traditional telecoms and broadcasting standards. This is particularly likely to be the case in activities relating to content and service packaging, such as software tools, which are characterised by innovation and high risk (though low cost) investment.

Regulatory bodies should monitor the development of standards in multimedia, but, given the rapid pace of innovation in the industry, there is little scope for regulators to become actively involved in developing standards. The risk is that several leading players will launch competing approaches and fragment the market, but this has to be balanced against the significant slowdown in the rate of innovation to which a more formal standardisation process would lead. We believe, therefore, that intervention should focus on resolving competition issues such as the facilitating role played by *OFTEL* in securing open access to the set-top-box specifications used by *BSkyB*, the leading player in the *United Kingdom* digital television market.

III Overview of the Current Regulatory Environment for Telecoms and Broadcasting, and Its Impact for Multimedia

A comparison of national approaches to regulation of the converging sectors, within the overall framework of Community law, suggests five key areas in which the current regulatory environment creates potential barriers to the rapid development of a multimedia market:

- Conditions for market entry
- Regulatory definitions
- Conditions for market behaviour
- Access to scarce resources
- Multiple regulatory bodies

III.1 Conditions For Market Entry

For many key players in the multimedia market, particularly those with origins in the IT, software or publishing industries, strict rules controlling market entry or governing market behaviour are anathema. Nevertheless, all Member States (and Community legislation) acknowledge a continuing role for such controls for both telecoms and broadcasting activities.

The **telecoms sector** is witnessing a radical shift from the monopoly provision of voice services to open competition across a full range of telecoms services, which is being facilitated by the introduction of harmonised licensing principles pursuant to the *1997 Licensing Directive*. Licensing in the **broadcasting sector** is less open and remains regulated primarily at the Member State level, except insofar as Community competition rules may apply or the limited range of content-related issues harmonised under the *1989 Television Without Frontiers Directive* are at issue.

- On the basis of our empirical research, licensing along traditional "vertical" sectoral lines displays widespread disparities in the ways in which Member States value and approach licences. These disparities occur both as between Member States (within the same sectors) and within Member States (across different sectors). Potential providers of multimedia services (especially on a pan-European basis) therefore face a range of regulatory entry barriers.

Across sectors, important differences exist in the licensing of voice services, Value Added Services, mobile communications services, satellite communications services, infrastructure provision, and broadcasting services (including digital broadcasting services). For example, in relation to fees charged, in *Germany*: a national telecoms infrastructure licence can cost up to 5.3 million ECU (total fees); a national voice

licence can cost up to 1.5 million ECU; a typical private regional broadcasting licence may be valued at 10,000 ECU; the D2mobile licence in Germany costs 4 million ECU annually (plus frequency fees); cable TV operators are subject to individually negotiated fees; and "multimedia" services and Value Added Services are not subject to licensing at all.

The fragmented licensing regime among Member States is even more pronounced when one compares regulatory approaches **within sectors**. For example:

- ***Voice services and infrastructure provision*** are subject to detailed individual licensing requirements in most Member States (*contra Denmark* and *Finland* at present, and *The Netherlands* by 1 January 1998, where minimal formalities exist).

- The *licensing of* ***Value Added Services*** in Member States displays no consistent pattern. Near-Video-on-Demand services are regulated as Value Added Services in most Member States, but as broadcasting in *France*. Internet Service Providers ("ISPs") may require no licence in certain Member States, must satisfy a simple authorisation procedure in others (*i.e.*, as Value Added Services), and are subject to an individual licence requirement in others (*e.g.*, *Portugal*).

- ***"Multimedia" service or "teleservice",*** a new regulatory category that was introduced in *Germany* on 1 August 1997, falls outside the licensing requirements of telecoms and broadcasting. This *sui generis* regulatory category is not reflected in the laws of any other Member State.

- ***Mobile communications systems*** licences vary from Member State to Member State as to their duration and economic value. Member States have also taken differing regulatory approaches to a number of issues, such as the migration of dominant operators into neighbouring sectors, the extent of permissible vertical integration and the subsidisation of terminal equipment. As a general rule, the Scandinavian countries have not been concerned about pro-competitive safeguards, yet both the level of penetration and the level of price competition in those countries is the highest in the European Union.

- ***Satellite communications systems*** which provide mobile personal communications ("MPCS") are in the process of establishing a global communications infrastructure. The creation of a pan-European system will require licensees to obtain multiple and varied licences except where a system of mutual recognition may apply (*e.g.*, mutual recognition rules have been agreed for certain data services provided by VSAT among the *United Kingdom*, *The Netherlands*, *Germany*, *France* and *Belgium)*. It may also be necessary to obtain licences at multiple levels (*e.g.*, for the operation of the satellite system, for the access links which interconnect satellites to terrestrial networks, and for service suppliers - who are usually local operators - and for the use of terminals).

- ***Broadcast networks and services*** are subject to a very broad range of detailed licensing procedures at different levels (national, regional and municipal) which are characterised by a high degree of regulatory involvement and a lack of uniformity, in large part due to the relative importance of public interest regulation and content controls in the broadcasting sector. Moreover, different licensing requirements usually apply depending on the nature of the broadcast transmission facility being licensed (*e.g.*, cable TV and broadcast satellites). Public broadcasters are rarely treated in the same manner as private broadcasters in most material respects. The licensing of broadcast networks and services is rarely undertaken by the same regulatory authorities responsible for licensing in the telecoms sector (except for *Finland*, *The Netherlands* and, most recently, *Italy*).

- ***Line-of-business restrictions*** are in place in a number of forms in different Member States, where they are seen as a necessary control on the behaviour of an incumbent telephone operator or as an incentive for competitive entry by newcomers (*e.g.*, the ban in the *United Kingdom* on BT providing "entertainment services" over its telecoms network until the year 2001). With the exception of a number of Member States which, until recently prohibited cable TV operators from producing their own content, outright line-of-business restrictions are not commonplace. The territorial limits on most cable TV franchises can be overcome if cable TV operators are allowed to cooperate or merge with one another (*e.g.*, *Telenet* in *Belgium*, *C&W Communications* in the *United Kingdom*). On the other hand, ***media cross-ownership rules*** are both commonplace and widely divergent in their scope and application both within and across different media, and do not therefore facilitate convergence across media sectors.

Recommendations on Market Entry:

1.	**It should be a regulatory priority to ensure that a"light" approach to the licensing of multimedia services is adopted.** *At best, multimedia services should not be subject to licensing requirements. At worst, they should be subject to a simple notification or "class licence" procedure.*

2.	**Efforts should be made to harmonise the essential market entry criteria for licences across the multimedia sector (especially licence duration and licence fees).** *In the absence of such harmonisation, fragmentation of the market along national lines is likely to occur; the spread of pan-European services may be impeded; and the process of fixed-mobile integration may be delayed.*

3. **In the medium term, a system of mutual recognition by Member States of similar regulatory categories of services would be the most appropriate regulatory response to the growth of pan-European multimedia services.** *Of course, mutual recognition presupposes a high degree of harmonisation among Member State laws. Mutual recognition would not extend to licences which rely on local rights-of-way or on national spectrum allocations. However, the value of such scarce resources should be appraised in an equivalent manner. It may be necessary to supplement a system of mutual recognition with an increased level of self-regulation by industry members.*

4. **The concentration of certain types of licensing functions in the same regulatory body will facilitate convergence (e.g., licensing the provision of all transmission facilities and services).** *A "horizontal" approach to regulatory issues cutting across sectors is best achieved if regulatory functions are also concentrated across sectors.*

5. **Line-of-business restrictions should not be extended, as they run counter to the phenomenon of convergence.** *The only justifications for line-of-business restrictions in a multimedia world lie in the desire to foster new network investments (e.g., greenfield cable TV networks) or to prevent the leveraging of market power into new developing product markets (e.g., existing GSM operators prevented from bidding for DCS-1800 licences). Preventing network operators from engaging in content production, because it denies them the right to enter the most valuable part of the multimedia chain, raises particular concerns.*

6. **Competition rules can be used on a case-by-case basis to prevent market players with market power from stifling competition in the provision of alternative distribution media.** *This can be achieved through a variety of regulatory options, including separate accounting requirements, structural separation, the promotion of local loop unbundling and, in extreme cases, divestiture. The application of these policy options is very fact-specific.*

7. **At least a minimum degree of harmonisation of media cross-ownership rules is required across the European Union.** *Current media cross-ownership rules do not take into account the phenomenon of convergence. Although each Member State is clearly in the best position to judge the extent to which pluralism and diversity should be protected consistent with its own cultural traditions, the methodology used to determine whether cross-media links are potentially anti-competitive or contrary to pluralism should display similar characteristics in a converged environment.*

III.2 REGULATORY DEFINITIONS

A key task in adapting the current telecoms regulatory framework to tomorrow's multimedia market will be a reappraisal and, if warranted, a realignment of the definitional boundaries between the "telecoms" and "broadcasting" sectors. The reasons for such a regulatory reappraisal stem largely from the following technological and commercial factors:

- The licensing frameworks in all the Member States of the European Union treat mobile, fixed and broadcasting communications networks separately. Moreover, Community Law often refers to "telecoms networks" as the jurisdictional basis for its legislative involvement in the sector, which is in turn reflected in virtually all Member State legal systems (a notable exception is *Italy*, where a telecoms network is broadly defined in a Regulation of September 1997 to "encompass any switching systems..."). However, **individual delivery platforms**, once associated with the transmission of a particular type of message or signal, are now capable of carrying all manner of messages. As a consequence, the existing conceptual dividing line between "telecoms" and "broadcasting" will no longer be valid in a multimedia environment.

- Definitional boundaries predicated on the ***distinction between "private" (telecoms) and "public" (broadcasting) messages,*** which continue to serve as the principal basis upon which all Member States define "broadcasting" services, can no longer be regarded as foolproof. The Internet has blurred the distinction between private and public communications and between "one-to-one" and "one-to-many" communications; the dissemination of communications over the Internet is often at the cross-roads of these two forms of communication.

- Distinctions based on the ***essential character of the messages*** transmitted (*e.g.*, "audio-visual communications", as occurs in *France*) are also becoming obsolete because, in a digital multimedia environment, it may be impractical to separate individual streams of data, voice and images and to regulate them differently.

- The physical ***equipment or technology*** used to record, transmit and receive messages (*e.g.*, "television", computers and CDs) will no longer be relevant in distinguishing between telecoms and broadcasting services because terminal equipment will become increasingly multi-purpose. Consequently, the ability to watch programming or listen to music (or even to conduct a voice conversation) on a computer will be matched by the ability of a television to provide interactive entertainment and business needs.

Both the Community legal order and the regulatory traditions of the Member States distinguish between broadcasting and telecoms by reference to one or more of the foregoing concepts. These concepts, however, are being rendered largely obsolete by convergence. In a converged environment, we will need to adopt regulatory definitions that are not only sensitive to technological convergence but also accord due weight to consumer choice in a competitive market, similar to (if not identical with) the approach taken in *Germany* under its recently enacted *Teleservices Law*.

Recommendations on Regulatory Definitions:

8.	**Current regulatory definitions should be reviewed to ensure a consistent, technology-neutral approach to the regulatory framework for multimedia and communications services.** *The obsolescence of current regulatory definitions in the face of convergence requires that traditional (and inconsistent) definitions under existing Community law, which have been traditionally directed towards sector-specific issues, be reviewed and harmonised.*

9.	**A functional approach is required which is both market-oriented and best corresponds to the phenomenon of convergence.** *A regulatory distinction might initially be drawn between "**communications**" services and "**broadcasting**" services on the basis of the contractual ("on demand") and/or the interactive nature of the former, and the scheduled programming nature of the latter. Moreover, by initially allowing distinctions between communications services and broadcasting activities, it may allow a more gradual adaptation of the latter to new market conditions. In the alternative, the maintenance of the status quo or the development of a concept of "new digital services" or "multimedia services" that coexist with the current definitions of telecoms or broadcasting may be a second best option in the long term.*

10. In order to promote the flourishing of multimedia services, the concept of "broadcasting" should be interpreted narrowly. *The onerous licensing conditions usually associated with individual telecoms licences or with broadcasting should be limited, rather than expanded, in a multimedia world.*

III.3 CONDITIONS OF MARKET BEHAVIOUR

In a competitive multimedia environment, the key operational issue for all market players will be the terms and conditions pursuant to which they can obtain interconnection and access to one another's networks and/or to one another's customers. "Interconnection" is generally understood to mean the physical linking of separate networks. "Access", on the other hand, is a broader concept which embraces the full range of requests by market players to obtain access to a network operator's assets or its customers.

In the **telecoms** sector, empirical research indicates that the concept of "access" has become blurred both under existing Community legal instruments and especially under various Member State laws (*e.g.*, in *Germany,* where the concept of interconnection is regarded as being a form of "access"). Interconnect pricing follows the principles of Community law, with regulation acting as a surrogate for competitive pressures in bringing prices towards cost.

Existing discrepancies in the level of interconnect charges among Member States (*e.g.*, traditionally set at significantly lower rates in countries such as *Denmark* and the *United Kingdom*, as compared to other Member States) are being minimised in light of the recent prescription of interconnect charges in countries such as *Germany*, *France* and *Spain*. Relying on Community legislation, certain Member States have also specified that the interconnect charges offered to different operators may differ if the charges are justified on the basis of the different regulatory status of operators and/or demonstrable cost savings (*e.g.*, *The Netherlands, France* and *Belgium*). The adoption of such a policy is generally considered to favour the development of infrastructure-based competition. In addition, the harmonised interconnection rules introduced by the *1997 Interconnection Directive* allow, in line with subsidiarity, for different approaches at the Member State level with respect to the choice of underlying costing principles, and non-price issues, such as the degree of unbundling, co-location and so forth. For example, *Finland* and *Germany* mandate unbundling down to the level of local loop, with most other Member States specifying that unbundling occur down to the level of the local or regional switch.

In the **broadcasting** sector, by way of contrast, the concept of interconnection has been essentially irrelevant from a regulatory viewpoint, with independent networks having direct access to consumers without cooperating with other market players (unlike the world of telecoms). At the same time, the concept of access has a number of regulatory implications, related primarily to the goals of preserving pluralism and diversity of choice. The clearest application of this principle is reflected in the wide variety of "must-carry" obligations usually imposed upon cable TV operators (and presumably digital broadcasters in the near future) by the vast majority of Member States (with the notable exceptions of *Greece* and *Italy).* More recently, the issue has arisen in various Member States whether telecoms-style ONP rules should apply so as to require cable TV operators to provide satellite TV broadcasters with access to their networks (especially in *The Netherlands*).

Recommendations on Market Behaviour:

11. In the short term, the concepts of "interconnection" and "access" should be clearly distinguished, because their respective roles in a future multimedia environment are likely to be different. *The public policy priority behind "interconnection" is to ensure any-to-any communications among citizens of the European Union. A concept of "access", on the other hand, potentially refers to a very broad range of purely commercial relationships between market players.*

12. The concept of "access" should embrace all requests by an operator or service provider to other network operators and/or service providers for access to their resources or to their customers (this would include the origination of communications). *Requests for commercial access should be assessed in the context of European competition rules, especially in terms of Article 86 of the EC Treaty or its national equivalents (i.e., the abuse of market power). Measures designed to increase transparency will assist regulators in the detection of abusive pricing practices. Requests for access based on public policy reasons would fall outside this framework because of their non-economic character.*

13. **The concept of "interconnection" should be restricted to the termination of communications on the network of an operator.** *Unlike the concept of "access", whose terms should in principle reflect a competitive marketplace (i.e., a contestable market), there is an overriding public policy goal in mandating that the termination of communications should occur at a price close to cost in order to ensure "any to any" communications. The policy rationale for such an approach derives from the fact that a given telephone number (or even an e-mail address) is a unique type of bottleneck. To this end, Community legislation could prescribe that termination to a bottleneck be provided on the basis of cost (preferably under a LRAIC formula).*

14. **The use of Article 86 to determine the terms and conditions upon which access will be granted may, in the long term, require a determination as to what constitutes an "*essential*" or "*bottleneck*" facility for access purposes.** *It may be necessary to provide a statutory definition of such facilities in order to enhance enforcement (as has been done recently in Australia). It would be premature to do so, however, until the multimedia market is given time to mature.*

15. **Until the multimedia market matures further, it would be premature to extend the concept of the ONP beyond traditionaltelecoms-related areas.** *For example, in the context of the cable TV industry, the application of ONP rules to cable TV providers would probably have a negative impact on their investment decisions (i.e., it is a low margin business which is subject to competition from a variety of sources, and it is not characterised by a significant degree of vertical integration in the multimedia value chain). Moreover, the application of ONP rules has been premised on the existence of a vertically integrated monopoly network provider and, in a liberalised environment, on the enduring nature of market power held by that former monopolist.*

16. **Aside from the application of Article 86 on a case-by-case basis, mandated access to content should be avoided in the absence of strong public policy reasons justifying intervention.** *Although access on fair and reasonable terms may be appropriate for programmes which are "perishable" in certain circumstances (i.e., of short commercial life, such as large sporting events), the ability of Member States under the revised 1989 Television Without Frontiers Directive of 30 June 1997 to prevent broadcasters from obtaining exclusive access to events of "major importance to society" appears to provide adequate protection in the short term against the abuse of market power over content.*

17. **Mandated access to certain types of content may be necessaryin exceptional cases of vertical integration by entities which span content creation, packaging and distribution functions.** *The presence of such a vertically integrated entity in a gatekeeping capacity (e.g., through the use of a proprietary conditional access system) may be determinative in evaluating whether such extreme regulatory action should be taken.* In such circumstances, there may be an argument for applying the non-discrimination and reasonableness requirement currently used in telecoms sector regulation.

18. **In a mature multimedia market, "must carry" obligations may no longer be necessary.** *An abundance of content may mean that such an obligation no longer serves the social goal it once sought to satisfy. Moreover, in a world of multiple digital channels, carrying other channels may become an economic, rather than a legal, necessity.*

III.4 Access to Scarce Resources

Notwithstanding the popular belief that digitalisation and compression techniques will mean the end of "scarcity" as a reason to restrict market entry or subject market players to regulatory supervision, there are many ***resources*** of both a ***public*** and ***private*** nature whose scarcity will continue to impede the ability of all potential players to participate in the multimedia market.

(a) Public Resources

The use of scarce public resources, such as rights-of-way and frequencies, is regulated at the Member State level, pursuant to general principles set forth in Community law.

As regards ***rights-of-way***, there exist significant practical difficulties both in terms of the delay and expense incurred by new entrants in obtaining rights-of-way across public and private land. These difficulties vary significantly from Member State to Member State and even within Member States themselves (given that they are usually administered by local authorities). For example, although the federal government in *Germany* has specified that rights-of-way for telecoms infrastructure be available at no cost, local authorities are challenging this law, which is said to deprive them of their legal rights over local property. In *The Netherlands*, different rules applied until recently for public domain regulation depending on whether the public domain was to be used: (a) in the "public interest" (*e.g.*, public broadcasters); (b) in cases where its use had to be tolerated (*e.g.*, new telecoms licensees such as *Telfort* and *Enertel* which are granted "digging rights"); and (c) for a "commercial activity" (other telecoms licensees, which are subject to an annual charge based on the extent of the public domain traversed). Only *France* has adopted a detailed legal regime within the context of telecoms for the granting of rights-of-way by all local authorities within prescribed ranges of fees. The provisions of the *1996 Full Competition Directive*, however, require that rights-of-way must be administered in a non-discriminatory manner and that physical facilities may need to be shared by competitors.

Frequencies are the key scarce resource of today's telecoms and broadcasting environments, and will continue to be so in a future multimedia environment. Most GSM operators are already experiencing congestion in the frequency bands used by them throughout the European Union. A number of countries such as *Italy* and *Ireland* have already delayed their award of DCS-1800 licences until a system is concluded for the equitable sharing of spectrum among existing GSM operators and new DCS-1800 operators. The inefficient use of important spectrum bands by civil authorities and the armed services in many Member States continues to result in the uneconomical use of spectrum. In *France*, 44.1% of the 30-960 MHz band is used for civil aviation/home affairs/defence purposes, 40.9% for broadcasting, and only 15% for public telecoms services. In the *United Kingdom*, public authorities are outsourcing their telecoms needs in a bid to conserve valuable spectrum.

Future multimedia services will require increasing amounts of bandwidth. This suggests that spectrum management will play a crucial role in a multimedia world to the extent that such services are delivered in whole or in part by wireless links (*e.g.*, UMTS). Consequently, significant regulatory efforts will be needed to ensure that frequencies are both allocated and valued in a manner which promotes their efficient use. This will require a fundamental reappraisal of the traditional "first-come, first-served" approach to spectrum allocation. It will also require a reconsideration of the current approach of charging administrative fees for spectrum use, to be replaced by a more market-driven approach in valuing frequencies. Already, Member States such as the *United Kingdom, France* and *Germany* are re-appraising their evaluation

techniques for frequencies. Going one step further, *The Netherlands* has been a pioneer in the use of an open auction method to determine the value of spectrum. Other countries such as *Denmark*, however, consider that access to frequencies should only be made the subject of an administrative fee.

Recommendations on Public Resources:

19. Rights-of-way over the public domain should be valued in a uniform manner. The valuation process should not discriminate as between incumbent operators and new entrants *Within the limits set by the principle of subsidiarity, Member States should value the granting of rights-of-way in a similar manner. The timing and the formalities of such grants will clearly fall within the powers of local authorities.*

20. Consideration should be given to adopting acoordinated policy for the release of bandwidth, currently assigned for certain applications or for the use of certain entities, so that it can be used for more efficient or higher value activities. *For example, as certain broadcasters migrate from analogue to digital transmissions, or GSM operators extend their activities into new digital technologies, resulting capacity gains in analogue frequencies should benefit other market players.*

21. Member States should reallocate spectrum to commercial users, particularly where cost-effective alternatives are available to government users. *The traditional means of allocating spectrum for certain types of public use such as the military and police have resulted in the inefficient use of bandwidth. The reallocation of that bandwidth would be facilitated if it were the subject of commercial valuation.*

22. The Member States should be encouraged to establish firm timetables for the "refarming" of spectrum. *The introduction of digital broadcasting over the course of 1997-1999, the licensing of DCS-1800 systems by the start of 1998 and the introduction of UMTS in 1999 suggests that the pressures for a new approach to spectrum refarming will mount over the new few years. Accordingly, it may be necessary for each Member State to establish its own timetable for the refarming of spectrum, commencing in 1999.*

23. **Where appropriate, the commercial pricing of spectrum should be encouraged to promote its more efficient use in a multimedia environment.** *There may be situations, however, when the importance of satisfying universal service obligations, as well as other public interest and consumer interest goals, suggests that purely commercial approaches are not appropriate.*

24. **The accumulation of spectrum which is not used effectively should be discouraged by the Member States.** *In this regard, particular attention should be paid to incumbent mobile telecoms operators and broadcasters, whose historical access to significant amounts of bandwidth may no longer be justified in a fully competitive market (or, at least, access of such market players to future spectrum allocations should be restricted).*

25. **Regulators should take immediate action to review the various spectrum sharing options which may be available for UMTS.** *The inevitable movement towards fixed-mobile integration brought about by UMTS may require a radical review by Member States of existing spectrum coordination policies. The promise of wireless mobility, coupled with the use of different types of networks on a pan-European basis, may require spectrum sharing, rather than today's system of technology-specific bandwidth allocations.*

(b) Private Resources

The ownership of proprietary rights to a key technology by one or a small number of entities may enable those owners to act as "gatekeepers" for other industry participants wishing to participate in the multimedia value chain. This gatekeeping function may create what is tantamount to an essential facility or bottleneck that may be used to foreclose competition, unless access to such ***private resources*** is administered in an objective, proportional and non-discriminatory manner. Most Member States are only beginning to come to grips with these sorts of issues under their national legal regimes. Particular "gatekeeping" functions which are already proving to be problematic and likely to be the focus of a future multimedia regulatory framework are:

- **The control of conditional access systems for digital services.**

The ongoing adoption into national law of the *1995 Television Standards Directive* means that a relatively harmonised system of "conditional access" is being adopted

for digital television services throughout the European Union. The principal regulatory obligation under the Directive is that decoders (also known as "set-top boxes") must receive and display digital signals, regardless of whether these signals are transmitted by cable, satellite, or terrestrial broadcasters. Access to this set-top box must be made available to all broadcasters on the basis of "*fair, reasonable and non-discriminatory*" terms.

Of those Member States which have already implemented the Directive (*e.g.*, *Sweden*, *Germany*, the *United Kingdom*, *Denmark*, *Spain* and *Luxembourg*), the general tendency has been to transpose the operative provisions of the Directive *verbatim* into national law. The *United Kingdom* has sought to develop a flexible competition-based approach in order to ensure the access of broadcasters on fair, reasonable and non-discriminatory terms; in addition, it has extended its conditional access regime to all digital services (including multimedia services). By way of contrast, *Spain* initially mandated that a fully open conditional access system be adopted. However, because such a sweeping approach denied the owners of set-top boxes their proprietary rights over the equipment (which is permitted under the terms of the 1995 Directive), such an approach was deemed to be contrary to Community rules on the free movement of goods and to its competition rules. The legislation has now been modified to reflect the terms of the Directive.

Most Member States which have addressed the issue have granted their telecoms regulatory authority responsibility for conditional access issues (*e.g.*, *Spain*, *The Netherlands*, the *United Kingdom*; *contra Germany*); other Member States, however, have not yet made a definitive decision in this regard.

- **Directory services in the telecoms field and so-called "navigation" systems or Electronic Programme Guides ("EPGs") in the new multimedia market.**

Access to directory services in today's telecoms world and access to navigation systems or EPGs in the emerging multimedia world present particular competition law concerns; lessons learned in the regulation of the former should serve as a precedent for the appropriate regulatory response regarding the latter.

Access to directory services is governed at the Community level by ONP principles, and by competition law-based principles which characterise such services as "essential facilities". The application of such principles culminated in the resolution in 1997 of a longstanding dispute between *ITT Promedia* and *Belgacom* before the courts in *Belgium* and before the European Commission's Competition Directorate. Aside from the Scandinavian markets and the *United Kingdom*, directory services in most Member States have not been opened to any significant degree of competition in practice. In 1996, *France* and *Germany* became notable exceptions to this general

rule. Moreover, the prices charged for access to subscriber information, even in the more liberalised Member States, is often considered to be unreasonable. The approach taken in *France* to ensure the availability of directory information is to have such information administered by a party which is independent of all market actors (*i.e.*, a statutory-based "essential facilities" rule).

Navigation systems and EPGs are destined to play a key role in a content-rich society, because they allow viewers to obtain easy access to information from a broad range of available services. The telecoms regulator in the *United Kingdom* views the control of EPGs as giving rise to the potential for the restriction of competition between broadcasters. Although envisaging that regulatory solutions may need to change over time in the light of market developments, the *United Kingdom* regulatory regime seeks to promote competition through the following cumulative measures: (i) ensuring the independence and impartiality of a comprehensive EPG; (ii) ensuring equal access to the underlying information in programme schedules; and (iii) encouraging the use of separate EPGs for the competing programme "bouquets" of broadcasters.

- **The control of the "inside wire" of telecoms companies in private premises.**

In a majority of Member States, the ownership of the so-called "inside wire" running through a residence or business premises resides in the incumbent telecoms operator. The ownership of the inside wire vests either by way of an implied covenant (*e.g.*, as occurs in *Spain*), by contract (*e.g.*, in *Belgium*) or by practice (*e.g.*, in *Germany*). The exceptions to this general rule are the *United Kingdom* and the Scandinavian countries, where the full liberalisation of telecoms services has been underway for a number of years.

The ownership of inside wire by anyone other than the householder or business proprietor creates practical hurdles for new market entrants wishing to obtain direct access to the customer, because of the need to receive prior approval from the telecoms incumbent before using the wiring. Where the incumbent telecoms operator owns both the telephony and cable TV inside wire (*e.g.*, as occurs in *Germany*), market foreclosure concerns are magnified.

- **Other "Gateway" Issues**

"Gateway" issues may also arise with respect to the ownership of intangibles such as intellectual property rights. In the context of multimedia, these intellectual property rights might result in the abuse of a dominant position with respect to: (i) the provision and packaging of content, where market dominance resulting from intellectual property ownership can be leveraged into other levels of the multimedia

value chain; and (ii) private proprietary standards. There is little experience at the national level in dealing with these types of issues. The current trend towards the aggressive use of national competition rules in the telecoms sector suggests that the adjudication of such issues will no doubt arise often in the near future.

Recommendations on Private Resources:

26. Competition rules, especially Article 86 of the EC Treaty and its national equivalents, provide the most appropriate regulatory vehicle to address gatekeeping issues in key parts of the multimedia value chain. *Clear but flexible rules for the operation of conditional access systems are important in order to ensure platform independence and consumer choice. In applying competition rules, however, the key regulatory issue will be whether the "relevant market" which is the subject of the allegedly abusive conduct should be confined solely to the "gateway" equipment or software itself (or whether it should embrace a broader notion of a relevant market based on the relationship of the affected parties to the "gateway").*

27. In the context of conditional access systems (*e.g.*, set-top boxes), competition law concerns are most pronounced where the party acting as gatekeeper is vertically integrated, especially in terms of both the acquisition and distribution of content. *Regulation must balance the rights to receive a return on investment and innovation with the need to avoid bottlenecks. In such situations, an initial regulatory desire to promote investment in set-top boxes by allowing the use of proprietary systems (and possibly a degree of equipment subsidisation) may need to give way to a system of common interfaces in the event of market failure.*

28. As the multimedia market matures, the resolution of "gatekeeping" issues may require a more *ex ante* competition law approach. *Later generation gatekeeping concerns may need to be resolved by means of specific legal instruments such as Block Exemption Regulations or statutory definitions of an "essential facility" or "bottleneck", which would ensure that navigation systems (such as EPGs) are used in a competitively neutral manner.*

III.5 CONVERGENCE OF REGULATORY FUNCTIONS AND RESPONSIBILITIES

There is currently a highly fragmented and inconsistent pattern of regulatory responsibilities among the Member States for telecoms, broadcasting and publishing matters. This regulatory fragmentation is particularly prevalent in the broadcasting sector, where the importance of a wide range of content-related issues adds a number of regulatory layers not found in the telecoms sector. This pattern of regulation is ill-suited to the multimedia environment. Recent actions by a number of Member States, however, indicate a recognition that converged services should be regulated in a common or at least a consistent manner. In particular, the resolution of jurisdictional disputes regarding the enforcement of regulatory policy with respect to conditional access issues is bringing into sharp focus the need for some degree of regulatory overlap or convergence.

Both *Finland* and *The Netherlands*, for example, regulate the licensing of infrastructure across the telecoms and broadcasting sectors through a single regulatory body. Similarly, most Member States regulate frequency allocations in the telecoms and broadcasting sectors through the same regulatory body. In the summer of 1997, *Italy* created a single regulatory body with responsibility for all telecoms and broadcasting matters. A similar approach is currently being considered by the government in the *United Kingdom* for all regulatory matters of an economic nature (*i.e.*, the creation of "OFCOM", possibly by 1999).

Most telecoms regulatory authorities have distinct regulatory powers which fall short of the implementation of general competition rules on a sector specific basis (*e.g. France*, *Germany*, *Sweden*). The application of competition rules to the broadcasting sector is more complicated, given that cross-media ownership restrictions are directed toward the protection of pluralism, rather than the preservation of an abstract notion of "competition".

Recommendations on Regulatory Functions and Responsibilities:

29.	**Common, or at least consistent, regulation across industry sectors will assist convergence.** *Regulatory convergence can and should occur with respect to licensing, the allocation of scarce resources and conditional access issues. All of these matters are, broadly speaking, matters of "economic" regulation; as such, they do not involve any significant degree of "public interest" analysis, nor do they raise any particular country-specific concerns.*

30. **Regulatory issues of a non-economic nature, which often directly reflect national cultural identity and specific public interest objectives (e.g., guaranteeing universal service), may not need to be subject to as strong a degree of regulatory convergence as areas relating to economic objectives.** *This holds true both for the regulation itself and for the possible reshaping of bodies responsible for applying such rules.*

31. **A liberalised multimedia marketplace requires the oversight of independent regulators.** *The creation of a competitive marketplace is accompanied by an even greater need for the creation of a truly independent regulator. This stems from the fact that regulation is itself shifting from the regulation of a monopolist to the regulation of an open market. Consequently, regulators in the broadcasting sector should in principle be as independent as their telecoms counterparts.*

32. **Competition rules should continue to be enforced by the general competition authorities, rather than by sector-specific regulators.** *There is an important public policy interest in avoiding the unnecessary concentration of regulatory power. Moreover, in the absence of the development of a multimedia "sector" at some point in time, there is no single regulator which can claim to be wholly responsible for economic activities affecting the consistent application of competition rules across all sectors.*

IV Emerging Issues and Regulatory Challenges in a Multimedia Environment

Our empirical research of the technological, market and regulatory drivers shaping the multimedia environment has led us to a series of working assumptions regarding the general structure of a future telecoms regulatory framework.

IV.1 The Structure of Regulation

Important policy goals which should shape any future multimedia regulatory environment include:

33. The need to adopt a **"light" regulatory touch** in order to facilitate the growth of multimedia services.

34. The recognition that **proportionality will be a key tool in assessing the need for and effectiveness of regulation** to achieve defined objectives. The level of market convergence may differ from the degree of technological convergence, and the need for regulatory convergence may be different again.

35. The need to **adapt** existing regulatory instruments, rather than creating new ones.

36. The **targeting** of any future legislation to those parts of the multimedia value chain most susceptible to the abuse of market power, especially with respect to "bottleneck" facilities and services.

37. The overriding importance of **competition policy** in a liberalised multimedia environment. However, reliance on competition policy should not be at the expense of a targeted *ex ante* sector-specific framework where enduring bottlenecks are likely to arise.

38. The importance of defining **"markets"** for competition law purposes in novel ways. This will probably require a re-evaluation of the existing "essential facilities" doctrine, of traditional demand and supply side notions of "substitutable" products and services, and the possible adoption of a *United States*-style "innovation markets" approach.

39. The recognition that **vertical integration** is an inevitable and often positive consequence of convergence, which will in many cases lead to the creation of economies of scope and the provision of consumer benefits. There must be, however, effective ways to ensure that a market player's involvement in multiple layers of the multimedia value chain does not stifle competition. Intervention on a case-by-case basis may need to give way over time to targeted regulation in the event of market failures, possibly in the form of *Block Exemption Regulations* which introduce transparency into the dealings of integrated market actors with other market actors.

40. The re-evaluation of **spectrum scarcity** as the basis for regulation, particularly of free-to-air and satellite broadcasters, in light of the fact that a digital environment now expands the capacity of the airwaves to permit the carriage of broadband data or the delivery of hundreds of channels of audio-visual programming.

41. The importance of adapting today's **"vertical"** approach to regulation, often linked to particular technologies, to accommodate a technological and commercial reality that is blurring rigid segmentation. This is likely to require a shift to a **"horizontal"** regulatory framework, organised along cross-sectoral lines.

This will inevitably lead to the conclusions that:

the existing regulatory definitions which set the boundaries of "telecommunications" and "broadcasting" must be re-appraised; and

the convergence of regulatory functions and responsibilities may play a key role in easing entry into a multimedia environment.

42. **Public interest regulation** will continue to be a key component of any future regulatory framework, especially as it relates to broadcasting and content issues. National cultural traditions, the role of communications in a democratic society and the goal of pluralism must be accorded their rightful role in a future regulatory framework. Rules, however, must take account of market and technological realities, including the ability in the case of new delivery platforms, of intermediaries to exercise control over the information and content accessed via their networks or services.

IV.2 THE CONDITIONS FOR OPERATING IN A MULTIMEDIA ENVIRONMENT

New market entry in a future multimedia environment will require, at a minimum, that the following issues be addressed:

43. The creation of appropriate conditions for market entry in terms of **licensing** requirements, especially in terms of the duration of licences and their valuation. Ideally, a system of mutual recognition of licences should be adopted to the greatest extent possible, supplemented by self-regulation by industry members.

44. The shift away from the narrow vertical segmentation of markets and market actors requires a fundamental re-appraisal of approaches which restrict market entry to certain players, apply structural safeguards or impose **line-of-business restrictions**. These types of restrictions should not be expanded in a marketplace characterised by convergence, and must be balanced against the objectives sought.

45. The development of workable rules governing **"interconnection"** and **"access"** which reflect the different roles which those concepts play in a multimedia environment.

46. The encouragement of **greater** flexibility and innovation in **pricing by market players.** Regulation should recognise that, for most services, prices should be market-led (rather than subject to regulatory obligations such as cost-orientation or affordability), whilst bundling should be seen as an important feature of new service strategies. The Internet is further disrupting traditional pricing models, which may tend increasingly towards capacity-based charges or flat-rate "access" fees for transmission and services in the future.

47. The gradual erosion in a content-rich world of the distinction between operators with a **"public mission"** and other market players, and the gradual symmetrical treatment of all players in the multimedia marketplace. Future regulation of public broadcasters should move away from treating them as the only operators with a public mission.

48. The shift in emphasis in the **role of the State** from a **regulator** of content in a restrictive regulatory environment to a **commissioner** of content in a fully liberalised environment (*e.g.*, in order to support the provision of "public service" goods or services).

49. The implementation of strong **transparency rules and accounting separation requirements** to prevent anti-competitive practices such as cross-subsidisation and discrimination by entities with significant market power.

The application of competition rules should be overlaid upon all three tiers of regulation outlined above.

Insofar as public policy issues might be considered to continue to play a role in the first two tiers of our proposed regulatory model, their importance is likely to be relatively minor; accordingly, a proportionate regulatory response may need to be adopted in the application of public policy regulation to the first two tiers of regulation.

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