Digital Video Broadcasting

DVB RESPONSE TO THE COMMISSION GREEN PAPER ON THE CONVERGENCE OF THE TELECOMMUNICATIONS, MEDIA AND INFORMATION TECHNOLOGY SECTORS AND THE IMPLICATION FOR REGULATION

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COMMISSION GREEN PAPER ON THE CONVERGENCE OF THE TELECOMMUNICATIONS, MEDIA AND INFORMATION TECHNOLOGY SECTORS AND THE IMPLICATION FOR REGULATION

I am pleased to submit for your consideration the response of the Board of the Digital Video Broadcasting (DVB) Project. The Digital Video Broadcasting Project is an informal standards making body that has pioneered the technical specifications on which all of Europe's future digital video broadcasting networks are based.

The DVB is uniquely qualified for the job it has been performing. It has sitting around its table all the relevant economic players in the market, including public and private broadcasters, public telecommunications operators, cable TV operators, consumer electronic companies and computer companies. Its circle also includes Regulatory and Government officials from the Member States and officials from the European Commission. The DVB Board has advising it an Ad Hoc Group on Regulatory Matters that draws upon this unique and diverse expertise. This group has applied itself to preparing the DVB response to the Commission Green paper on convergence and the result has been unanimously endorsed by the Board at its meeting on 23rd April.

This DVB response is not a collective response that somehow tries to amalgamate the views of all its members. This was neither feasible nor contemplated. The DVB members who are commercial organisations face a complex set of investment decisions and no two organisations have identical circumstances. Thus this response in no way constrains any member from the individual views they may wish to present to the Commission. We are sure the Commission will consider the response from each individual DVB member on its merits.

Instead the DVB response is of a quite different and complementary nature:

- the DVB, in preparing this response, has leapt over the current concerns and debates and focused on the situation 4-5 years hence - the time when any new regulatory changes arising from the Green paper will first have any effect on the market

- it has used the unique diversity of its membership to produce new insights into the convergence process and provided a vision of the best regulatory framework to work towards in order to put Europe in the very forefront of world developments in the convergent markets

The response is in two parts. Part 1 is an Executive Summary that sets out our vision of the future regulatory environment and highlights the key points the DVB Board wishes to stress. Part 2 is a detailed response to the questions set down in the Commission Green Paper. It is the hope of the DVB Board that this unique response offers some valuable navigational beacons for the Commission, the Council of Ministers and the European Parliament as well as to the actors of the convergent market, including its own membership.

T. Peek
Chairman of the Board

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PART 1 - EXECUTIVE SUMMARY - KEY POINTS

Introduction

1. Convergence should not be seen as an objective in its own right but as a technologically driven trend that is in process of defining a new environment in which the general objectives of public and private institutions will have to be accommodated. Its time-scale is indeterminate but will be decided by the reactions of consumers to the various products and services brought the market. Consumers will only *"push the convergence button"* if it brings them new and compelling content and convenient services.

Regulation

2 One of the chief effects of convergence on regulatory bodies is to significantly blur definition of responsibilities and make it less clear to the economic players where they should seek regulatory guidance. There is evidence that the blurring effect is leading to multiple jeopardy. This will slow-up the development of the new markets in Europe.

3 There should be a market-led step-by-step evolution, building upon existing structures, towards a new regulatory structure that meets the needs of the convergent market. Our vision is of a new structure that would be based upon three distinct *horizontal* strands:

- **Regulations relating to the Functioning Market**
- **Regulations on content provision (including media pluralism)**
- **Regulations concerning Infrastructures and Terminals**

The temptation to create a brand new set of regulatory definitions should be avoided. The instability this process would create for industry is not worth the end result. The preferred solution is to build upon existing definitions and approaches and where needed to apply them in a way to take into account the specific characteristics of new services.

The three horizontal regulatory strands mentioned do not automatically equate to three regulatory bodies. However the regulatory institutions are organised, there will be

interfaces between them. It is important to the economic players that those interfaces should be well defined and well understood.

4 In respect of **Regulations relating to the Functioning Market** there should be a primacy of position of competition law. The process should be transparent and deliver decisions promptly.

5 Any pre-emptive regulatory action should be governed by the test of "proportionality". In other words if the consequence of abuse would be so serious for the market, a realistic likelihood of it arising and its effect difficult to reverse then there may be a case for "pre-emptive" regulation but such regulation should be the exception.

6 Increasing power is shifting to new entrants with huge purchasing resources and to the relatively small number of owners and creators of premium content. Access to premium content is a key driver. Any regulatory action to limit exclusive ownership or exploitation of premium content rights must balance the needs of encouraging investment in infrastructures and the development of new services with ensuring markets are not foreclosed or viewers access unreasonably restricted. Such regulatory action must also take into account the need to encourage the creation of new content.

7 Whilst the principles of normal competition law are well established and understood, their application to particular problems arising in the convergent markets are likely to be highly complex. It is therefore essential that the "Regulator" builds-up a body of expertise that fully understands the new technologies and their commercialisation.

8 **Regulation relating to provision of Content**, whether negative or positive or relating to media pluralism, is of a quite different character to competition regulation. The success of content regulation depends upon being close to the consensus of the local population, where local in this case can mean national or regional. The "regulator" dealing with provision of content level, whilst having the necessary impartiality, has to be connected into the democratic process at the appropriate level and has also to be able to continuously adapt to the local consensus.

9 When there are many more services available to the mass of consumers, and as the degree of viewer control over those channels and services increases, *there may be a case for moving towards a lighter touch approach to content regulation.* Our vision is that the degree of content regulation should not depend on whether the service was offered on a broadcasting, IT, or telecommunications network, but rather graduated according to:

- extent of its impact ie its availability and "publicness"
- degree of consumer control and
- consciousness of the choice that is made to receive the service.

The aim must be to move towards greater neutrality between delivery methods, so that comparable circumstances leads to the comparable application of content regulation.

10 Public interest objectives for the communications sector will remain valid under convergence, but there will be scope to re-examine the ways in which they may be secured most effectively. The definition, funding and remit of public service broadcasting in this regard should, most appropriately, be made at the level of Member States. It would be wrong to place artificial limits on the extension of activity of public service broadcasters resulting from convergence. However, full transparency of accounting between public service and commercial activities, that provide assurance to the competition authorities of no undue distortion, needs to go hand in hand with such developments.

11 Fragmented *Intellectual Property Rights* is a barrier to convergent market development. A particular problem arises with regard to the use by service providers of existing content in new ways made possible by convergence where rights have not previously been negotiated for such exploitation. These are issues that should be addressed in the context of the ongoing review of intellectual property rights and in particular copyright legislation.

12 There will be a need for specific **Regulations concerning Infrastructures and Terminals**

13 The major role in respect of *infrastructures* is concerned with the migration of infrastructure provision from that by a monopoly utility to one where there is a fully competitive market in infrastructure. Such competition is essential if the convergent market is to be supported by reasonably priced means of delivery of new services (eg broadband digital access networks). This requires rules to ensure that new entrants can establish themselves and successfully grow. This has to be achieved in a way that also allows the ex-monopoly to develop its business as the new digital technologies advance. Experience of those Member States who have begun this process early demonstrates that it may be a long process, additional sector specific regulations are essential and a sector specific regulator may be required in the period of transition to the point where the application of normal competition law can take over.

14 It is important that sector specific regulation recognises the difference between an established dominant utility and an emerging infrastructure by a relatively new start-up in the market. Putting the same or similar obligations on both is to tilt the playing field against the start-up and in some cases in favour of further entrenching the dominant ex-utility. This will damage the prospects of a competitive market in infrastructure.

15 Convergence will create new user *terminals* and set top boxes that will greatly increase choice of services and channels for both consumers and third party service providers. However, some network operators and service providers may seek to employ new access technologies, including conditional access, APIs and EPGs together with memory management tools, in ways that could create new gateway issues, of which regulators will need to be aware.

Radio Frequencies

16 The indiscriminate application of spectrum pricing may lead to two undesirable outcomes: Less efficient national digital broadcasting infrastructures may emerge. Pricing spectrum would also push up the cost of wireless means of local access for new market entrants and deny EU countries the market growth of convergent services that depend upon competitive pricing of telecommunications local access.

17 Digital technology makes much more efficient use of the frequency spectrum than analogue technology. Thus there is significant benefit in completing the transition to fully digital broadcasting networks. However before analogue TV networks can be switched-off every consumer in each Member State must be in a position to have affordable access to digital services. The year 2006 (the US Government target) is quite unrealistic as a switch-off date for analogue TV services in a European context. The dispersion time between the earliest (>15 years) and latest (>25 years) practical date by different Member States makes a co-ordinated EU strategy unrealistic and the analogue TV switch-off is more appropriately left to individual Member States co-ordinating their actions via international frequency clearance. Setting a *realistic* switch-off date could be one useful element to assist the process of migrating to all digital broadcasting networks.

Technical Standards

18 The development of industry driven global interoperable standards will be critical to the creation of a competitive environment for convergent services and information applications. The role of the Commission and Governments should be to encourage rapid industry convergence on such standards or implementation agreements. DVB in association with ETSI and CENELEC has achieved positive results in its own field of interest. There may be occasions when public authorities may need to intervene to create the conditions for interoperability to the benefit of consumers and the industry alike but this always has to be on the basis of wide industry support for such measures.

19. There will emerge a range of multimedia home platform terminals extending from low cost set top boxes to the very top of the range PCs. It is clearly desirable for the same "content" to be received across this entire range of terminals. For this to happen scalable content specifications will need to be developed. A technologically neutral approach is needed in their preparation if lock-in to any proprietary format or vendor is to be avoided. In addition there is also a need for a stable core to maintain backward compatibility between different generations of such terminals.

20 Not all new infrastructures will be of the same importance in the convergent market. Some will be marginal. For the more important inter-operability should be a matter of public policy concern. The Regulator will need to recognise the various degrees of interoperability and which are the essential interfaces. Common and open technical standards are just one of several means of achieving inter-operability and where they are well judged and well timed, are usually the most economic solution. In this regard cases may arise where consideration might need to be given to licensing technology for such essential interfaces using the regulatory precedent in the current television standards directive for conditional access.

Other Issues with Economic Implications

21 The take-up of electronic transactions will be one of the main enablers for convergent markets. Regulators should acknowledge that consumer confidence requires sufficiently strong security for electronic transactions. This in turn requires the availability of the appropriate electronic signatures and encryption technologies.

22 In defining the content of the EU 5th framework R&D programme due account needs to be taken of the key role telecommunications and broadcasting technology and services play in convergence. The emphasis should be on the development of innovative applications and services supported by infrastructures using DVB standards and to the on-going work of the DVB areas related to the home platform.

23 The combination of digital television, Internet and the PC offers enormous potential for education and training in the European Union. Television can get concepts across and motivate, the PC is a very patient teacher and the information retrieval capacity of the Internet is almost without limit. The extent to which all of these new technologies are harnessed and put seamlessly to work in Europe will be a key factor in Europe's future competitiveness.

PART 2 - DETAILED DVB RESPONSE TO THE QUESTIONS SET OUT IN THE COMMISSION GREEN PAPER

Question 1: The nature and impact of convergence today

Chapter I highlights the nature of the convergence phenomenon, the technological and market developments and the underlying political stakes for Europe.
(A)Whilst convergence is occurring at the technology level, to what extent and at what speed is this happening at the industry, service and market levels?
(B)Are the effects of convergence already being felt in the business world and in our everyday lives, and if so, in what way?

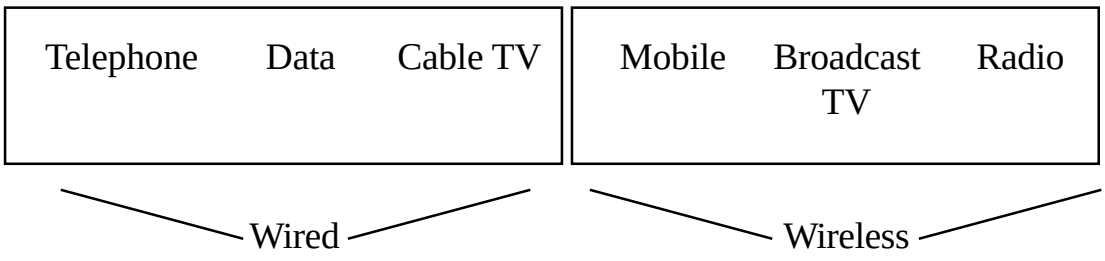
DVB RESPONSE

1.1 Nature of the Convergence Phenomenon

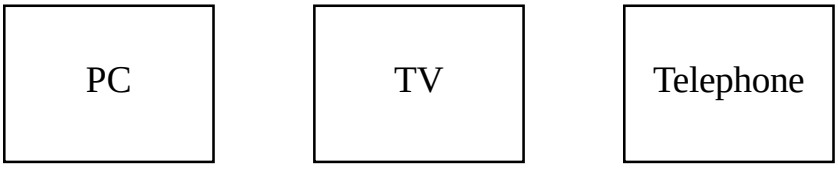
The DVB would first like to comment on the nature of the convergence phenomenon. It is helpful to look at the convergence effects at three levels, the services, networks and terminals:

Services

Networks



Terminals



At the terminal level there is a very strong underlying technology convergence. Whereas in the past a semiconductor chip would be made specifically for a TV set, more and more the same chip will be used in a multiplicity of terminals, with software controlling its final application.

The history of where each of the terminals has come from will have an influence on the future convergence process.

The PC evolution has been very technology driven. Consumers expect the terminals to cost relatively large sums of money and accept that rapid changes in technology will make the life time of that investment relatively short. Many consumers seem prepared to invest a lot of their own time in loading software and accepting, be it on rare occasions, some frustration to get it functioning properly. Early adopters of some PC software technology would not view occasional bugs as abnormal.

In contrast consumers have a very low expectation of what a telephone terminal should cost. They expect their investment in a terminal to last for a very long time. Their tolerance of complexity and faults is exceedingly low.

The TV set falls between the two in respect of price expectation. There is both a high end market and highly competitive low end market. In both products, the lifetime of the product is seen as relatively long. Often a high end set will finish in a bedroom or study when it comes to the time to replace the main TV set. The consumer has very high expectations for the quality and reliability of the product.

As products converge each industry will have something to learn from the traditional business model of the other.

At the network level a number of key developments are taking place. Perhaps the most significant from the convergence viewpoint is the move within telecommunications from circuit switching to routing technology. In the past voice and data had separate networks. Progress has been made in some EU countries in rolling out the Integrated Services Digital Network. But data over switched voice circuits using modems has been the primary means, so far, for connecting consumers to the Internet. Within the Internet itself routing technology dominates. If, as expected, a significant slice of international telephone traffic comes to be carried over the Internet, then this will accelerate the deployment of routing technology. *Why this is significant for convergence is that mapping a broadcasting application onto routing technology is considerably easier than onto circuit switching technology*. This has longer term implications for telecommunications/broadcasting convergence. More immediately cable TV companies are rolling out networks, where a significant part of the local network is common between data, telephone and TV services.

At the service level a notable development is the more cost effective way the service provider can mix data with TV pictures and provide interactivity.

1.2 To what extent and at what speed is convergence happening at the industry level?

A visible manifestation of convergence at the industry level over this last few years has been a flood of announcements of alliances, not all of whom may be stable in the long term.

Many DVB members have turned their thoughts on convergence into concrete actions and are investing considerable sums of money into new products, networks and services that relate to convergence in various ways. For example companies in the content business, including producer-broadcasters, are generally viewing convergence as a new way of making their content available to customers but there has been no basic shift from their core business.

A trend is well underway of greater dependency by broadcasters on others to reach their customers. “Interdependence” between companies is likely to be a growing feature of the convergent market.

1.3 To what extent and at what speed is convergence happening at the service and market level ?

A rapid expansion is taking place in the number of TV channels available in the market as a result of DVB compliant broadcasting systems being brought to market. It is estimated that by early Spring 1998 there will be over 2 million European Union viewers connected to digital television services and most with transactional capability.

Internet connections are expanding rapidly via connection to the telephone networks. 1998 will see the introduction of digital broadcasting systems by both satellite and cable TV that support both e-mail and access to the Internet (or a selected sub-set of most popular World Wide Web sites). This may well be a significant juncture whereby the Internet is given further impetus by making it more accessible to sections of society that may not be key board literate or own a PC.
E-mail now finds itself at the point of critical mass that fax found itself some 10-15 years ago. That is the point where businesses feel pressure to join so as to become part of the already connected community and e-mail looks far more significant for the residential market than fax was at the similar point in its market development.

A start is being made by a number of mobile operators in extending Internet over GSM networks. The short messaging service and data over GSM is accelerating the mobile/computer convergence.

Many cable TV companies are driving forward with telephone/TV convergence. At the network level this takes the form of quite extensive penetration of fibre into the local network that carries both telephone and televisions services. The final drop still remains on separate wires. The commercial presentation of both services may be considered as a form of service convergence. Mobile services are likely to be added to this service mix over the next few years.

Even before all the new digital networks have been rolled out it is clear that not every home will be connected to every network, some may be connected to more than one and a number may stay behind with only analogue connections. This fragmentation of the broadcasting distribution system will put pressure on many broadcasters to use all the means of distribution. The extent that they don't may affect the penetration of different networks and there are clearly far reaching implications in all this for the advertising world.

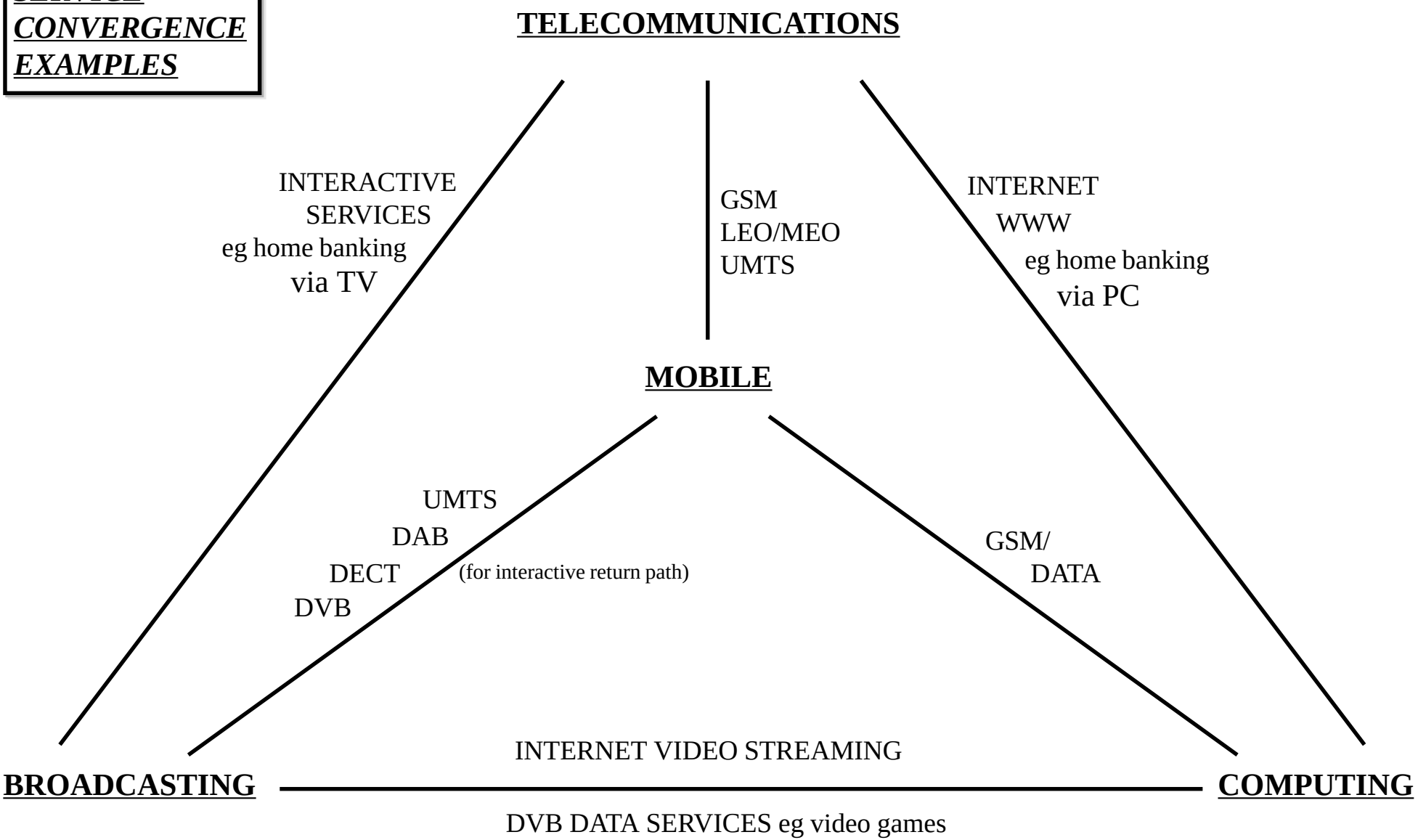
The speed of the convergent process is being governed by a number of factors. The speed of roll out of networks is one of them. The extent of network connections, be it digital broadcasting or Internet, will have an influence on the resources put into content creation and hence the speed with which new content emerges.

An important factor for the innovation of services is the time-delay of the market experience feedback process. Ideas are being tried out both on the Internet and on television networks. One may note that within the Internet culture things are tried and if they are not working in a matter of months they are often dumped. This provides a fast feedback of what is acceptable to consumers. The TV industry, whilst no less creative, generally allows things to run-on for a "season" before less successful products are dumped. This relative speed of the incubation process may well influence the main source of innovation and through this the up-take of convergent services, network connections and terminals. Thus if the broadcasting industry is to keep up with the Internet world in terms of innovation it may have to find ways of speeding up the innovation cycle and near video on demand and interactive services comes to mind as a possible vehicle for this to be achieved.

At the manufacturing level the emphasis is on flexibility of the hardware. The point has already been made of the growing use of common integrated circuits for a multiplicity of platforms. In respect of manufacturing technology the fight goes on in respect of reduction of product size, weight and power consumption.

One of the features of convergence is the way it is eroding the definition of industries and markets.. Yet without definitions it is difficult to analyse what is happening and measure what the trends are. The following illustration is provided as a reference point and it maps well with the Green Paper definitions. However, the answers to later questions will show just how quickly even this relatively comprehensive picture is perhaps already out of date.

NETWORK & SERVICE CONVERGENCE EXAMPLES



1.4 Are the effects of convergence already being felt in the business world and in our everyday lives, and if so, in what way ?

One evident effect of convergence felt in business and in out everyday lives is the huge media propaganda on all the various aspects of it. This is understandable. It's new and has the potential to lead to huge changes. The actual impact on the ground might best be described as the start of the emergent phase. There has been huge growth of the Internet but from a very small base largely in the academic community. The first digital television broadcast in the EU began only in 1996. A number of consumer electronic companies have brought convergent products to market, for example the PC/TV with mixed success. It seems that the jury is still out on the best means of persuading an individual consumer to push the convergence button in this market area. There are some indications that the prospect of new and exciting digital services may just be starting to generate a market overhang effect on existing analogue products.

Question 2: The socio-economic, business and consumer impact of convergence

Chapter II of the Commission Paper highlights the potential for' convergence to have a significant impact on society, on employment, growth and competitiveness of businesses in Europe, and on the way we access a range of services, information, entertainment and culture.

(A)Will convergence have a significant impact on job creation, as well as on education and training in the European Union? How is convergence likely to impact the way in which we work? Will its effects be spread evenly throughout the European Community?

(B)What effect are current developments likely to have on telecommunications, media and IT sectors, in terms of the underlying economics of those sectors, the services offered and the likely service providers?

(C) What evidence is there of changes in Europe in the way services, information, entertainment and culture is being accessed in the home and in the office? What are the implications of current levels of PC penetration, lnternet use and TV penetration for the take up of new services? What action (if any) is needed to overcome low levels of multimedia computer .penetration and lnternet use?

(D) In the light of the positions put forward in the Commission Working Paper on the Fifth Framework Programme, what kinds of Community RTD projects should be launched in the context of convergence?

Question 2 is very wide ranging in its nature and the DVB would not pretend to be expert on all the issues raised. Thus the points set out below are one or two general remarks intended to show that the DVB is aware of the wider social implications of the technologies it has had a significant role in helping to bring about.

2.1 Will convergence have a significant impact on jobs ? How is convergence likely to impact the way in which we work? Will its effects be spread evenly throughout the European Community?

Technology advances in general can create some jobs, destroy others or merely displace them and it would be surprising if "convergence" was any exception.

The most hopeful dimension in terms of job creation is that of content creation and particularly niche market opportunities. This is not without its problems. The proliferation of TV channels will inevitably lead to small potential audiences for many channels and programmes. Thus a key problem will be making those programmes or channels commercially viable. One answer lies in the direction of reducing the cost of production. Advances in technology have led to a rapid fall in the price of good quality camera and studio equipment. This is helpful as far as it goes. The European Union may be an important dimension on the other side of the business viability equation and that is in enhancing the size of the potential audience for specialist products. A fishing channel that appeals to fishermen in Scotland may well also appeal to fishermen in Austria or Sweden. Bringing the single market benefits to SMEs is not a new problem for the EU. Content creation, with all the linguistic issues, is an extended form of it and may warrant Commission attention.

Another positive element will be the provision of a more powerful inter-mediation between employers with vacancies and those looking for work. Television has enormous power to sell jobs and motivate people to go after them. The Internet is huge information engine, the largest ever built by mankind. But both advances will only generate value for Europe if they are exploited in the right way. The Commission and Member State Governments have a role to play in stimulating action, publishing best practice and setting role models for the rest of the economy to follow.

The area having significant potential for job displacement is that of home shopping. There are various views on the speed of up-take and ultimate market size of home shopping. Services that do not involve shifting of material products seem likely to move very quickly across to the new media, such as home banking and home insurance. A sizeable shift from printed mail order catalogues to digital television and Internet is likely to prove inevitable. The video hire shop cannot be immune to upcoming pay per view and near video on demand television services being currently introduced. Some products may succeed simply by being well matched to the medium, who it is attracting and how they are using it. The sale of software and books on the

Internet is a good example of this. More open to question is what will happen to the rest and whether the shift is more probable with lifestyle products or household inventory items. The cost of transport, road congestion and street crime will all have its influence. If an immensely strong market trend does emerge for home shopping the loss of trade in the traditional high street is unlikely to take place without the high streets fighting back to attract customers for example by the provision of more street entertainment. Only two conclusions can be drawn at this stage. First that a number of highly credible companies believe strongly enough that this shift in market will occur to invest significant sums of money in the necessary infrastructure. Second, policy makers and the business community can neither depend upon pre-destination of it happening on a large scale or the converse.

To the extent that European society does take to all forms of electronic commerce in a big way, a danger facing huge numbers of companies and employees is that there is no guarantee that the goods and services bought will be supplied form inside the European Union or use the traditional distribution chains. *Some jobs and services are highly "displaceable"*. Software is a good example. Migrating jobs into the European Union and maximising the resistance of jobs flowing out will depend upon competitiveness and skills.

A positive aspect of this displacement is that it will facilitate jobs moving from offices to the home, or many more people doing at least part of their job from home. This expansion of the home/office will lead to more convergence between the telecommunications services available in the office and those in the home.

There are likely to be considerable disparities in the access to various networks and services not only between European Union Countries but within any one country. However, such disparities may not follow quite on traditional lines. Digital satellite means of delivery for example have a leapfrogging potential.

2.2 Will convergence have a significant impact on education and training in the European Union?

The combination of digital television, Internet and the PC offers enormous potential for education and training in the European Union:

- Television can get concepts across, engage interest and motivate
- the PC is a very patient teacher and
- the information retrieval capacity of the Internet is almost without limit.

However getting good quality content, the right marketing and distribution and sorting out of standards issues in a timely way are issues that have to be got right if that potential is to be realised. The technologies have got to be made to work together in a

seamless way. Early signs are that a lot of effort and resources are going into the Internet in its educational role but the important complementary nature of digital television is not perhaps yet receiving sufficient attention and resources.

It has been said that the half life of relevant knowledge in some technical fields is now only 3 years. This means that when somebody with the right skills leaves the work force for 6 years (for example to raise a family) they are almost of no value when they return in respect of their expertise. Whilst such precise numbers may be open to question, the demand for re-training and re-training again of the workforce will certainly grow to massive proportions over the coming years in many industries and this will include the convergent industries covered in the Green Paper. The extent to which distance learning using the new technologies can be harnessed and put to work in the European Community may well be a key factor in Europe's future competitiveness.

2.3 *What effect are current developments likely to have on telecommunications, media and IT sectors, in terms of the underlying economics of those sectors, the services offered and the likely service providers?*

The direct result of the current developments is a substantial investment by all the companies affected. Some of that investment is driven by the desire to seize new market opportunities and make a reality of new visions. The competitive threat should also not be underestimated as a significant driver of much of this investment. Some of this fear concerns being left behind and in some cases being left with the low value added services ie commodity providers.

The change of economic relationship between network operators and service providers is being felt. On the one hand the greater dependency of the service provider on others for the delivery of content to the end customer has already been noted. But there has been a counter tendency towards vertical integration.

The rise of satellite networks and to a slightly lessor extent cable TV networks have de-emphasised the role access to radio spectrum plays to market entry (although not entirely eliminating it). Conditional Access and more recently Electronic Programme Guides have been the centre of concerns in some quarters. Recent regulatory action has had the objective of reducing concerns over conditional access.

Europe is seeing a complex restructuring of its consumer electronics industry as those companies face the challenge of the PC industry.

For all players the economies of scale and scope seem to be increasing with the new technologies.

2.4 *What evidence is there of changes in Europe in the way services, information, entertainment and culture is being accessed in the home and in the office? What are the implications of current levels of PC penetration, lnternet use and TV penetration for the take up of new services? What action (if any) is needed to overcome low levels of multimedia computer penetration and lnternet use?*

The rapid rise of Internet, both in business and private situations, is leading to significant shifts in Europe in how information is being accessed (some have said that the rest of Europe is catching up with France with its Minitel !), the new means of accessing entertainment are only just emerging and there are a few notable examples, perhaps too few, of imaginative uses of the new technology being harnessed to extend the access to culture.

Clearly the up-take of PC's, Internet connection and digital televisions (or set top boxes) will affect the up-take of new services over those media. The availability of desirable new services and low equipment prices are central to drive the up-take of these new services.

It is to misunderstand the dynamics of convergence to single out the penetration of multimedia computers for any special attention. Their penetration is relatively low because they are currently positioned at the very top end of the market in respect of flexibility and price/performance and are complex to operate for the average person who is not key-board literate. These factors affect penetration and are currently being addressed by PC industry, the digital television service providers and manufacturers of digital set top boxes in a variety of ways.

Today the user of the Internet services for information retrieval is relatively sophisticated and more to the point enjoys the vast (and sometimes confusing) opportunities that the Internet provides. As a new generation of more computer literate young people work their way through to becoming tomorrow's consumers, so penetration of Internet users may be expected to rise.

However, there is likely to remain a significant numbers of consumers for whom convenience and simplicity of use will be the key to their migration to the Internet. For these users a multiplicity of new terminals and simplified service options will become available in due time. As an example World Wide Web browsers installed in digital set-top boxes taken together with carousel servers hosting walled gardens of the most popular Internet content could be one of the routes by which a wider public come to experience some of the benefits of the Internet. Other solutions are in prospect. The computer industry are coming forward with lower cost/complexity/performance products that will address new sections of the markets. Devices solely for WEB browsing are emerging.

Altogether these trends show that we are fast moving towards digital set top boxes and PC's becoming a continuum in terms of future product. As a wider spectrum of convergent products arrive in the market to suit the requirement and pocket of all sections of the market, so penetrations of appliances for accessing the Internet, digital broadcasting and telecommunications networks will rise accordingly.

2.5 *In the light of the positions put forward in the Commission Working Paper on the Fifth Framework Programme, what kinds of Community RTD projects should be launched in the context of convergence?*

Due account needs to be taken of the components of technological convergence in defining the key actions in the Community RTD projects.

A challenge for the 5th framework programme is to have actions that go hand in hand with the on-going work of the DVB in the areas of the multimedia home platform and home local area networks.

The emerging infrastructures based upon DVB standards offer new opportunities for innovative application and service experiments and particularly where these networks are combined with return channels and access to other networks such as Internet.

Account will need to be taken of new coding schemes such as MPEG4 and MPEG7 and any further improvements that can be brought to DVB based networks for example digital terrestrial television.

Question 3: Barriers to convergence

Chapter III highlights both actual and potential barriers to convergence.

What is the likely impact of the barriers identified and are there other barriers or factors which may have a significant impact on the convergence process in Europe?

3.1 It is essential to approach this question with a certain degree of neutrality. The use of the word "barrier" carries with it an implication of something that desirably should be removed. Substituting words like "safeguard" or "inertia" would give the question a quite different spin.

3.2 The factors affecting the speed at which convergence will take place are:

Access to content
Access to capital

Expertise (within largely pre-converged organisations)
Consumer demand to converged products and services
Consumer reaction to the new interfaces to such products and services
Historic price structures in the market (eg cost of local telephone calls)
Consumer access to affordable 2-way broadband communications
Rate of deployment of new infrastructures

3.3 “Content” and its availability will be a significant factor in the convergent process.

Creating compelling content is not an industrial process that can be simply ramped-up to meet a rising demand with the injection of enough capital. As a result, increasing power is shifting to new entrants with huge purchasing resources and to the relatively small number of owners and creators of premium content. Access to premium content is a key driver. Any regulatory action to limit exclusive ownership or exploitation of premium content rights must balance the needs of encouraging investment in infrastructures and the development of new services with ensuring markets are not foreclosed or viewers access unreasonably restricted. Such regulatory action must also take into account the need to encourage the creation of new content.

The indications are that rights owners are acting creatively in defining new “windows” and “specific to access medium” rights.

3.4 One aspect of content that can properly be described as a “barrier” concerns fragmented Intellectual Property Rights and particularly for archive material held by many broadcasting organisations. In a number of EU countries the law restricted the broadcasters to the “broadcasting rights” only. Use by these service providers of this existing content in new ways made possible by convergence is blocked by virtue of those rights not having previously been negotiated for such exploitation It is so onerous to track down who currently owns the different rights and negotiate terms for the new access medium that the cost of the transactions doesn’t match the rewards at the end of the day . This means that nobody, consumers, broadcasters/packagers or the rights holders themselves will get any benefit from the exploitation of this “content” in the convergent world. Another case of where the transaction cost is high is the mere transmission by cable of satellite broadcasts where this requires the cable operator to negotiate with a multiplicity of collecting societies.

These are issues that should be addressed in the context of the ongoing review of intellectual property rights and in particular copyright legislation.

3.5 There is a trend towards “collage” material that the Internet may well accentuate. This may well generate new issues. The transaction cost of sorting out the splintered

IPR issues may well not balance the reward from the sales of the programme. There is also the author's rights not to see their original creativity used in this way.

3.6 High communication costs, particularly in broadband, are significant barriers to some new services that could be a part of the convergence process. Greater availability of competing telecommunications broadband infrastructures will lead to more affordable prices and is needed for the acceleration of convergence. Such competing networks will only happen if the right conditions for investment are created in the face of established dominant/monopoly telecommunications operators.

3.7 Another important barrier relating to electronic commerce is access to security tools such as cryptography and electronic signatures applied to electronic banking, retailing and other services. Regulators should acknowledge that consumer confidence requires sufficiently strong security for electronic transactions. This in turn requires the availability of the appropriate electronic signatures and encryption technologies.

Question 4: The impact of convergence on current regulation

Chapter IV.1 examines the challenges which current developments pose to the balance between regulation, competition rules and reliance on market forces. It also considers how the convergence process may impact on the principles underpinning current regulation in the telecommunications, media and IT sectors.

(A)Do current developments require more or less regulation in the sectors affected by convergence, more or less reliance on competition rules, and more or less reliance on market forces to achieve the objectives identified in earlier Chapters?

(B)Whether and if so, to what extent convergence challenges the principles underpinning existing regulatory approaches in the telecommunications, media and IT sectors?

(A) More or Less Regulation ?

4a.1 Asking whether convergence requires more or less regulation, reliance on competition rules, and on market forces may not be the most helpful way to pose the question. The aims and extent of regulation are not directly related to the convergence process itself. Other objectives beyond the convergence process have to be accommodated. Instead one could start by separating out the main areas for regulatory intervention and then asking to what extent intervention in these will become more or less important? We would suggest that, in addition to the functioning market (ie the framework of normal competition rules), there are three broad areas where regulation may intervene:

- Content Provision
- Network (Infrastructure) Provision
- Terminals eg set top boxes, multimedia PCs etc

As a first step it is convenient for the telecommunications, broadcasting and computer markets to be examined separately in respect to the need for more or less regulation:

4a.2 Telecommunications

A successful convergent market requires telecommunications charges that are cost related and this is best assured by a competitive market. Europe as a whole is just entering upon the road towards full competition of telecommunications infrastructure and services (a few countries, of course, are well down the road of this necessary development). But the starting point in the majority of EU countries is a PTT monopoly. Inevitably the early stages of this transition are characterised by new regulation to encourage new market entry by creating conditions of fair competition for the new players. Governments and the Commission should work to enable the best regulatory environment for such competing infrastructures to develop.

4a.3 Broadcasting

The approach that separates the regulation of content from the regulation of the means of delivery (ie the infrastructure) is essential. The regulatory environment for the terminal device eg set-top box, PC, has to be considered quite separately from both the content and the means of delivery.

4a3.1 Content Provision

There will continue to be strong public policy reasons to regulate some content provision under convergence, but the approaches that are used may evolve and the balance between negative regulation - ie the prohibition of the undesirable and the illegal, and the positive promotion of public goods, may change. Positive regulation - consists of two forms of regulatory intervention; public service broadcasters (which will be discussed in response to a later question) and obligations imposed on broadcasters and other content suppliers.

When there are many more services and channels available to the mass of consumers, and as the degree of viewer control over those channels and services increases, *there may be a case for moving towards a lighter touch approach to content regulation.* Our vision is that the degree of content regulation should not depend on whether the service was offered on a broadcasting, IT, or telecommunications network, but rather graduated according to:

- extent of its impact (ie its availability and "publicness")
- degree of consumer control and
- consciousness of the choice that is made to receive the service.

The aim must be to move towards greater neutrality between delivery methods, so that comparable circumstances lead to the comparable application of content regulation.

Such a more graduated approach towards negative regulation would not affect the importance of positive regulation.

It is worth noting that the globalisation of networks will generate a new problem in respect to both the policy and enforcement of content regulations. The computer/on-line industry, not just in Europe but globally, do not support shifting broadcasting regulations on taste and decency to the on-line world. Their preferred approach on taste and decency issues related to content is:

- Self - regulation should be the rule (technology-based filtering and rating systems would be far more effective and flexible than regulation).
- Consumers should be empowered to manage questions of content
- Policy makers should rely on existing laws to address criminal activity on the Internet

This has to be reconciled with the fact that content provided to the general public (as opposed to private communications between two individuals) has to be subject to some form of editorial and legal responsibility as well as arriving eventually at a purely horizontal approach that is technologically neutral. The graduated approach described earlier provides the bridge between the different approaches seen today in the broadcasting and on-line worlds.

4a.3.2 Network Distribution

The emerging digital technology offers a new opportunity to promote competition in the means of broadcasting delivery.
However, there are risks that the market could move in other directions. The traditional role of network operators as "commodity digital transport provider" having few competitive differences may lead them in search of content related activities to increase value and differentiate themselves from other providers. This in turn may lead to concentration of the whole value chain in a few hands and present the main challenge to a new regulatory framework for the convergent market where this turns into significant market power. Even with competitive delivery systems, an individual household may have a greater dependency on that delivery system for a greater range of their services than before.

The role of premium material in driving the development of new digital infrastructures and the newly emergent competition between different infrastructures for delivering digital content may also lead to outcomes where consumers have to buy more than one means of delivery in order to gain access to all the material they might want. From the consumer perspective it would be preferable if there was either the greatest possible range of services available through a single delivery system, or sufficient interoperability between user terminals for them to access different delivery systems. However, the very fact of having a choice may be a prerequisite for competitively priced delivery systems and content is amongst the few means of differentiation between distributors/service providers.

4a.3.3 Terminals

The terminals for digital video broadcasting are at the leading edge of the convergent process between broadcasting and computing. A number of fears have been expressed in this area, including on Conditional Access, Applications Programming Interfaces (APIs) and Electronic Programme Guides (EPGs).

4a.3.3.1 Conditional Access

It would not be right to say that all the concerns recently expressed on Conditional Access have been fully assuaged by the recent EU Regulations and the follow-up national legislation. In some cases the national legislation seems to have successfully averted some of the risks referred to in the Green Paper. There may be a case for the Commission to review the other cases where national implementations have been patchy.

4a.3.3.2 Application Programme Interface

The Application Programme Interface is the vital piece of software that links the hardware platform and the software application programmes.

The DVB believes that a solution which enables multiple service providers to operate through a compatible cost-effective receiver in the home may be the most important way of promoting a competitive convergent market. To this end DVB is supporting an initiative to define a Multimedia Home Platform. It is a matter for debate the extent to which Regulators facilitate the implementation of the concepts being developed by the DVB in the light of market developments.

The *options for a regulatory intervention* are examined with reference to precedence set in some existing Directives :

Option 1 would be to legally enforce a single standard but at this stage it would be quite inappropriate to try to enforce such a single standard for the API. The market is far too immature, the technology in state of too rapid change and even the definition of the exact boundaries of the API would be too difficult to tie down.

Option 2 might be to use the model in the current broadcasting standards directive that is applied to the scrambling algorithm. That is that the market is free to use any API but must also use one that comprises a common sub-set language. This could be attractive to broadcasters who want to have access to the widest range of infrastructures and consumers. The views of infrastructure providers would depend upon where they were in their procurement cycle. Such an imposition would not be the least bit welcome where they had already committed themselves to a large installed base of set top boxes that may not have the capacity to accommodate a second API. The software industry would be likely to oppose a regulatory intervention in their traditional business model. (It may be noted that the DVB tries to ensure maximum operational compatibility between the common language and the languages already in use in Europe).

Option 3 might be to use the model in the current broadcasting standards directive that is applied to the conditional access technology. This requires that where the technology is supplied to third parties then it should be available to all on fair, reasonable and non discriminatory terms and conditions. Regulators will need to recognise the various degrees of interoperability and which are the essential interfaces. A measure based upon this option could help maintain competitive conditions in the market where an interface becomes both significant and essential.

4a.3.3.3 Electronic Programming Guides

There are many concerns surrounding Electronic Programming Guides that range from the treatment of the stand alone channel in the world of bouquets to involuntary re-branding of third party programmes. It is worth at this stage identifying two quite distinct functions of Electronic Programme Guides. The first is navigating around the services and applications eg channel programme line-up. The second is the supply of much more information about programmes and the look and feel in general of the medium.

One suggestion is for multiple Electronic Programme Guides to be accommodated in set-top boxes. This would enable anyone to offer EPG services and for users to pick the one that suits them best. The technical possibility for this to happen is built into the specification defined by the DVB. However, to try to regulate for this poses a number of practical problems, not least is the availability of transmission bandwidth and set top box memory to make this possible.

It is important that the default settings for the EPG's present channels in an neutral way. Consumers will of course always be able to over ride the default channel line-up and to impose their own preference. Beyond this there is not an adequate basis of experience to suggest that specific regulation at the European level in the area of Electronic Programme Guides would be useful. Meanwhile oversight at the national level can deal with any isolated abuses.

4a.4 Computer (IT) Industry

4a.4.1 Content Provision

Compared to broadcasting and telecommunications industries, the IT industry has lived in a largely regulation free zone. It has relied on the application of general law. In this environment the computer industry has demonstrated an exemplary record of substantial innovation from which consumers have benefited greatly.

4a.4.2 Terminals

There will emerge a range of multimedia home platform terminals extending from low cost set top boxes to the very top of the range PCs. It is clearly desirable for the same "content" to be received across this entire range of terminals. For this to happen scalable content specifications will need to be developed. A technologically neutral approach is needed in the preparation of these specifications if lock-in to any proprietary format or vendor is to be avoided.

The high rate of innovation of the computer industry introduced into the broadcasting environment carries with it the risk of rapid obsolescence. The influence of this on the business models currently prevailing in the broadcasting industry (eg amortisation life-times of set-top boxes) needs to be carefully considered. Thus in addition to scalability there is also a need for a "stable core" of software to maintain backward compatibility between different generations of terminals used in a broadcasting environment.

4a.5 General Summary of Content Regulation for a Convergent World

If one applied the graduated approach to content regulation above, the degree of regulation would not depend on whether the service was offered on a broadcasting, IT, or telecommunications network, but rather on the availability/universality of the service, the degree of user control, and the consciousness of the choice made to receive it. New digital technology has the potential to provide greater and greater degrees of user control. The aim would be to move towards greater neutrality between delivery methods, so that comparable circumstances might lead to the comparable application of regulation. The consequence could be that some broadcasting content might be more lightly regulated, and some telecommunications or on-line services could see a degree of content regulation for the first time. This would apply only where such systems were as pervasive and thus having the wide public impact as comparable broadcasting systems. Once again, the focus of regulation would not be on the nature of the delivery system, but rather on the impact, 'publicness', and degree of consumer control over the content. A similar approach could be applied to the regulation of network infrastructure and terminals. In each case there may be a transfer of regulatory practices derived from one sector to another, where similar circumstances prevail.

4B Challenge of Convergence to existing Regulatory Approaches

In general the expectation must be for convergence to lead to an equalisation of regulation across the playing within a graduated approach.

Question 5: Overcoming the barriers —Getting the right regulatory framework for business and for consumers

Chapter IV.3 examines in a number of key areas where regulatory solutions may be needed to overcome barriers and to safeguard competition.

(A) Are the definitions in the telecommunications, media and IT sectors in national and/or Community legislation adapted to the convergence process?

(B) Will the convergence phenomenon require adaptation of existing approaches or the adoption of new approaches to be applied to issues of market entry and licensing; access to networks, customers (including conditional access systems), content; and pricing?

(C) Will convergence require changes in the approaches to the award and pricing of frequency spectrum, and in particular what approach should be taken, in the light of convergence, to the issue of completing the transition from analogue to digital services, including the need for a timetable for analogue switch-off?

(D) What should be the objectives of standardisation in the light of convergence and what should be the relationship between regional and international standardisation?

(E) What additional action (if any) is required to ensure that the interests of consumers and of users with disabilities are respected in the light of convergence?

5A Problems of Definitions

5a.1 The convergence process will undoubtedly challenge the definitions in the telecommunications, media and IT sectors in national and/or Community legislation. The effect of such changes on the competence of the various official bodies overseeing the different sectors may influence the timing of change in some Member States and turf wars cannot entirely be ruled out.

5a.2 The Commission Green Paper sets down three options to deal with the modernisation of the definitions in legislation to deal with convergence. The temptation is always there to want to start all over again and create a brand new set of definitions that, on the face of it, look to provide a more rational framework. This temptation should be avoided. The instability this process would create for industry is not worth

the end result. We still do not know where the convergence trend will lead and when. However good the end result, further technological progress will inevitably throw up new inconsistencies.

5a.3 The preferred solution is to build upon existing definitions and approaches and where needed to apply them in a way to take into account the specific characteristics of new services. Any extension of definitions should always be accompanied by a stringent review to see whether it is possible to narrow the scope of others.

5B Market Entry

Exchange of best practice between Member State regulators on creating the environment for new competitive entrants to the infrastructure market to enter and successfully establish themselves may well be of mutual benefit.

5C Radio Spectrum Issues

5c.1 In some parts of the world there is a trend towards pricing spectrum not least motivated by the desire of Finance Ministries to raise money. The indiscriminate application of spectrum pricing may lead to two undesirable outcomes:

i) Less efficient national digital broadcasting infrastructures may emerge. In particular digital terrestrial broadcasting is very efficient in-filler of gaps left by other medium.

ii) Wireless means of local access offers realistic means for new market entrants to take on wire-line incumbents. Pricing spectrum would push up the cost of such applications and would therefore further entrench the position of existing monopolies. This would deny EU countries the market growth of convergent services that depend upon competitive pricing of telecommunications local access. Wireless technology is also the means by which consumers in rural areas could gain access to many of the new services brought about by convergence.

5c.2 The switch-off of analogue TV services in the 900 MHz band on a European wide basis would represent a huge commercial and industrial opportunity, as we've seen with the GSM initiative that was built upon the availability of European wide spectrum allocations. Digital technology also makes much more efficient use of the frequency spectrum than analogue technology. The Commission is therefore right to raise the matter of analogue switch-off in their Green Paper. Whilst the goal is highly desirable careful attention has to be paid to the practical issues if industry is not to be misled with promises that can't be kept. There are two tests of practicability of an European dimension to analogue TV switch-off. The first is whether it is practical to set any sort of medium term date for analogue switch-off. The second is what the

likely dispersion would be around such a date between the most and least advanced Member State. If the dispersion is too wide then any sort of European wide introduction of a new generation of technology would be seriously impaired by frequencies not being available over large parts of the European market.

5c.3 A good test of the prospect of a medium term switch-off date for analogue TV services is to apply the USA Government objective of switching-off analogue TV services in 2006. Could this be achieved in the European Union where a far higher percentage of viewers receive their TV terrestrially ?

5c.4 The following factors work against such a date being achieved:

Growth of digital services in the market - Consumer electronics firms have had a lot of experience introducing new technology and their very best ideas have generally not done better than a 3% penetration after 3 years (3:3 rule). If we take one of Europe's most successful commercial satellite broadcasters, they have achieved a 28% penetration of their market (of homes) after 8 years. This provides two plot points against which to estimate digital TV penetration. Based upon these figures it is hard to imagine that even half the market will be receiving their broadcasting via digital means by 2006. Not a promising basis for switching-off analogue TV services in Parliamentary democracies.

Dual illumination of digital services - A strategy for switching-off analogue TV services must be based on present services being replicated in digital form. But not all countries that are introducing digital terrestrial services have the spare frequency channels to able to achieve coverage of better than 90%. This suggests that analogue switch-off may be a two-phase affair, where services are closed down in some areas to free up frequency channels that, with associated re-tuning, enable digital broadcasting coverage to be extended. Such a two phase approach will be quite impossible to implement by 2006.

The 2nd and 3rd TV set issue - The average period when households buy new TV sets is not a reliable guide to life-time of TV sets. When a new TV set is purchased by a household, often the old set moves into a bedroom or study. Thus the number of digital set-top boxes needed for conversion may be actually growing with time. Also a number of these older sets may not have SCART connectors to which digital set top boxes can be connected.

Public subsidy of digital set top boxes - Various ideas have been floated for some form of public subsidy being used to accelerate the date for switching off analogue TV services - perhaps paid for by the new users of the released spectrum. The risk of any sort of announced public subsidies not available from the outset, is that it may lead to consumers holding back from buying digital set top boxes to await the subsidies.

5c.5 One is forced to the conclusion that 2006 is a quite unrealistic as a switch-off date for analogue TV services in a European context. A date that may be somewhere between 2 to 3 times longer is more credible and this raises the second question of the dispersion time between the earliest and latest practical date by different Member States. If the fastest practical date is 15 years out and the slowest some 25 years out from now - this hardly provides a useful industrial opportunity for the co-ordinated introduction of a new generation of technology across Europe.

5c.6 This first analysis would indicate analogue switch-off as being more appropriately left to individual Member States. It goes without saying that to sustain universal access to broadcasting services, every consumer and citizen in each Member State must be in a position to have (affordable) access to digital services, before any analogue switch-off can take place.

5D Standards

5d.1 The convergent market does need timely standards to provide for inter-operability, protect consumers and provide industry with economies of scale. DVB in association with ETSI and CENELEC has achieved positive results in its own field of interest. Industry fora like the DVB are extremely important in creating market led standards. There will be occasion, however, when public authorities may need to intervene, to create the conditions for interoperability, to the benefit of consumers and the industry alike but this always has to be on the basis of wide industry support of such measures.

5d.2 It is worth noting that broadcasting, telecommunications and computing are all at different stages in the globalisation process. The computer industry tend towards a global presence. The leading European telecommunications operators are in a state of transition from European to Global presence . The European consumer electronics industry is well down the globalisation track. Most European broadcasters are certainly not global and in some cases still have only national roots. This affects their perspective on technical standards and where they are made.

5d.3 The development of industry driven, interoperable and global standards will be critical to the creation of a competitive environment for convergent services and information applications. The role of the Commission and Governments should be to encourage rapid industry convergence on such de facto standards or implementation agreements. Regional standards are not sufficient in the global converged environment. Work is therefore needed to develop international standards where industry is currently faced with a web of conflicting regional standards. However, the current state of play suggests that Europe's minimum ambition should be to start its standards work at least on a regional basis and move global when ever the opportunity presents itself. The longer term ambition should be to move directly to global standards.

Question 6: Securing public interest objectives in the light of convergence

Legislation at Community level meets a public interest objectives. This was examined in Chapter IV.3,Current developments may well result in new ways of achieving such objectives, Where such objectives are achieved today by placing obligations on one or more market actors, (such as universal service obligations in telecommunications or a public service mission vested in certain broadcasters) new technologies and services may enrich the services being offered.

(A) Does the convergence phenomenon support or challenge the way in which public interest objectives are achieved in the telecommunications, media and IT sectors?

(B) Should such objectives be more clearly identified and where they translate into particular obligations, should a wider group of actors be able to take on such obligations?

Public interest objectives for the communications sector will remain valid under convergence, but there will be scope to re-examine the ways in which they may be secured most effectively. The definition, funding and remit of public service broadcasting in this regard, should most appropriately, be made at the level of Member States. It would be wrong to place artificial limits on the extension of activity of public service broadcasters resulting from convergence. However, full transparency of accounting between public service and commercial activities, that provide assurance to the competition authorities of no undue distortion, needs to go hand in hand with such developments.

Question 7: The future shape of regulation

Chapter IV.1 raised the challenge of the convergence process to the principles underpinning current regulation, whilst Chapters IV.2 and IV.3 considered a range of substantive regulatory issues. Chapter IV.4 discusses how those principles may be applied in future, separately to each sector, or "horizontally" across different market sectors. It also raises related issues about the number of regulatory bodies and the balance between Community and national level action.

(A) Do current developments require reassessment of the way in which rules are applied to the telecommunications, broadcasting and IT sectors?

(B) Does the existence of different regulatory authorities or ministries responsible for different aspects of telecommunications, media and IT activities offer a workable structure for regulatory supervision in the light of convergence?

(C) Will convergence require a reassessment of regulatory responsibilities at a national, Community or international level, and, if so which areas?

7.1 The issues raised under this question raise a more fundamental question as what an ideal framework would look like to fully meet the challenges of a convergent world. After a period of transition (which may be a very long period) where should we ideally finish-up ? In the light of the available evidence the DVB offers the following vision for the long term objective:

At the end of a transition period it should be possible to identify three distinct horizontal strands in the new regulatory structure and process:

- Regulations relating to the Functioning Market
- Content Regulations
- Regulations concerning Infrastructures and Terminals

7.2 Regulations relating to the Functioning Market

Here there should be a primacy of position of normal competition law. The process should be transparent and deliver decisions promptly.

A very careful balance needs to be struck between "post facto" regulatory action taken in the light of evidence of abuse of the competition rules and "pre-emptive" regulatory action to avoid abuse arising in the first place. It would be wrong to suggest that pre-emptive regulatory action will never be appropriate in the convergent market but it should be the exception. It should be governed by the test of "proportionality". In other words if the consequence of abuse would be so serious for the market, a realistic likelihood of it arising and its effect difficult to reverse then the case would be strong for "pre-emptive" regulation.

The application of sector specific rules (or the existence of sector specific interpretation of general competition law) can provide greater investment certainty. However, this is another form of "pre-emptive" regulation and again the test of proportionality should be the test of their appropriateness.

Whilst the principles of normal competition law are well established and understood, their application to particular problems arising in the convergent markets are likely to be highly complex. It is therefore essential that the "Regulator" builds-up a body of expertise that fully understands the new technologies and their commercialisation. This is not necessarily making the case for a sector specific regulator. Such expertise could just as well be developed as a section within a general regulatory body. This

expertise is vital to minimise perverse effects of any “pre-emptive” regulation. It will also be essential for the regulatory authorities to be able spot promptly new bottlenecks emerging in the convergent market.

7.3 Content Regulations

Content regulations should be applied in the graduated approach discussed earlier in the response to question 4. They should be technologically neutral, applied across all medium of delivery and capable to adaptation to new markets.

Regulation relating to provision of Content, whether negative or positive or relating to media pluralism, is of a quite different character to competition regulation. The success of content regulation depends upon being close to the consensus of the local population, where local in this case can mean national or regional. The “regulator” dealing with provision of content level, whilst having the necessary impartiality, has to be connected into the democratic process at the appropriate level and has also to be able to continuously adapt to the local consensus.

Whilst the case is made for content regulation to remain at the Member State (or regional) level in this long term vision, there will be a need for some general rules at the European level to ensure that content regulation does not lead to any new barriers to trade.

7.4 Regulations concerning Infrastructures and Terminals

A major role of regulation of infrastructure is concerned with the migration of infrastructure provision from that by a monopoly utility to one where there is a fully competitive market in infrastructure. Such competition is essential if the convergent market is to be supported by reasonably priced means of delivery of new services (digital access networks). This requires rules to ensure that new entrants can establish themselves and successfully grow. This has to be achieved in a way that also allows the ex-monopoly to also develop its business as the new digital technologies advance. Experience of those Member States who have begun this process early demonstrates that it is a long process, additional sector specific regulations are essential and a sector specific regulator seems to be required in the period of transition to the point where the application of normal competition law can take over.

It is important that sector specific regulation recognises the difference between an established dominant utility and an emerging infrastructure by a relatively new start-up in the market. Putting the same or similar obligations on both is to tilt the playing field against the start-up and in favour of further entrenching the dominant ex-utility. This will damage the prospects of a competitive market in infrastructure.

Not all new infrastructures will be of the same importance in the convergent market. Some will be marginal. For the more important inter-operability should be a matter of public policy concern. The Regulator will need to recognise the various degrees of interoperability and which are the essential interfaces. Common technical standards are just one of several means of achieving inter-operability and where they are well judged and well timed, are usually the most economic solution.

Convergence will create new user *terminals* and set top boxes that will greatly increase choice of services and channels for both consumers and third party service providers. However, some network operators and service providers may seek to employ new access technologies, including conditional access, APIs and EPGs together with memory management tools, in ways that could create new gateway issues, of which regulators will need to be aware.

The issue at stake is not one which will affect the manufacture of computer hardware or software.

7.5 Some Overall Characteristics of the model regulatory framework

These three regulatory functions just discussed do not automatically equate to three regulatory bodies. However the regulatory institutions are organised, there will be interfaces between them. It is important to the economic players that those interfaces should be well defined, well understood and overlaps minimised. One of the chief negative effects of convergence on regulatory bodies is to blur definition of responsibilities, extend the overlaps significantly and make it less clear to the economic players where they should seek regulatory guidance. There is evidence even today that the blurring effect is leading to multiple jeopardy. This will lower investment confidence and slow-up the development of the new markets in Europe.

Question 8: The international aspects of convergence

Chapter IV.5 examines a range of international activities underway which are linked to convergence, as well as to Specific aspects impacting an it, such as the lnternet, Intellectual Property Rights, and Electronic Commerce. It also highlights the opportunities which convergence offers to our partners in Central and Eastern Europe, and more widely to the world's developing economies.

(A) Is further action required at an international level in the light of convergence?

(B)What additional steps (if any) are required to encourage other countries, particularly, in Central and Eastern Europe, to create conditions within which current developments can be exploited?

Time has not permitted this to be explored in the necessary depth to offer a meaningful contribution other than the comments on international standards.

However, it is appropriate to make an observations that the process of technological convergence is going hand in hand with the process of the globalisation of markets. There are obvious implications of a global electronic market place for the plurality of languages and cultures within the European Union. It is neither desirable or feasible to stem the flow of this globalisation process or even less to erect any new barriers to trade. However that is not to say that public interest objectives cannot be positively promoted at the Member State, Regional or local level to encourage an appropriate manifestation of Europe's rich diversity of languages and cultures in a new electronic medium.

Question 9: Principles and possible approaches in the light of convergence

Chapter V identifies a number of important policy principles which could underpin future regulatory approaches in the light of convergence. It also proposes three possible ways in which current regulatory approaches in the different sectors might be adapted in order to embrace on-going developments.

(A)What effect will convergence have on the principles for future regulation applied in the telecommunications, media and IT sectors, and should those principles be adapted in the light of convergence?

(B)If convergence requires adaptation of existing regulatory approaches, should that adaptation:

(i) seek to build on, and if appropriate, extend existing frameworks, rather than create new ones;

(ii) create a new framework for many on-line and interactive services, to co-exist with the those currently applied to traditional telecommunications and broadcasting activities, or

(iii) seek to create a comprehensive framework applying similar regulatory approaches to all three sectors.

In the answer to question 7 the DVB has set down a vision of the long term goal for a regulatory framework in Europe for the convergent world that will have three clearly identifiable horizontal strands.

- Regulations relating to the Functioning Market
- Content Regulations concerning standards
- Regulations concerning Infrastructures and Terminals

The DVB prefers to the option 9B(i) that will involve a step by step evolutionary change of Institutional structures and processes towards the horizontal model mentioned.

Membership of the DVB Regulatory AD Hoc Group

The following contributed to this response to the European Commission Green Paper on the convergence of the telecommunications, media and information technology sectors and the implication for regulation:

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Michael Wagner	EBU

Note: It is *not* the purpose of the DVB response to somehow amalgamate the views of all its members or even the members of the Steering Board or its Ad Hoc Group. As such it does not constrain the individual responses to the Green paper that the organisations represented on the Ad Hoc Group may wish to submit to the Commission.

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