Commission for
Communications Regulation

Response to Consultation

Future Delivery of Broadband in Ireland - Responses to Consultation

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1 Foreword

On behalf of ComReg, I am pleased to present the results of the consultation on the paper issued last September on the Future Delivery of Broadband. I wish to thank the 12 respondents who provided a wide range of views. A summary of the responses is presented in this paper, together with additional ComReg commentary on the issues. We hope in this way to help clarify and develop further the debate and action in respect of broadband development in Ireland. The more that all interested parties understand the issues, challenges and each others' perspectives on them, the better they can focus their attention on developing responses and implementing them. In this context I am disappointed that there was no *eircom* response.

Many of the respondents concentrated on low pricing as the means to achieve widespread take up of broadband services and market experience here and abroad has clearly shown that high pricing has not achieved results. On this issue it is good to note that EsatBT now has an entry level ADSL product (256kbit/s) available from some exchanges at a price below €50. The Commission supports this move and believes that such lower priced 'step-up' packages may provide a convenient, attractive means for many micro business and residential users to get on to broadband. An early response from *eircom* to the market in respect of DSL pricing would be most welcome. Current price levels are not attracting significant numbers of customers, creating the danger that Ireland will slip further behind in the take-up of broadband by SMEs and residential users. On the face on it, there would appear to be more than sufficient grounds for *eircom* to now introduce a more reasonably priced product.

As also noted in this paper, there are still other constraints, and in particular the Commission is concerned to hear reports of a disproportionate level of line test failures. In addition, the demand side also needs attention, and identifying measures that can help potential users to bridge the PC, skill and information gaps, may further serve to increase broadband adoption.

The Commission notes that in many other countries, the competitive catalyst to roll-out of broadband has generally been the cable companies. In Ireland, lack of investment over many years, combined with major financial difficulties after a very brief period of high investment, has meant that apart from a few pockets, our cable networks are still not able to offer full telephony/Internet/TV services. However, it should also be noted that the position is improving with NTL out of Chapter 11 and showing a strong performance by the Irish subsidiary in its last available quarterly results. We would wish to see this reflected in renewed interest in direct provision of Internet services.

Regulatory measures by their nature operate generally on the supply side, and as outlined in this consultation paper, there are a series of measures being undertaken which should assist the delivery of competitive broadband services. Of these, the one which may have the biggest impact in developing competition is the introduction of partial private circuits. This product should significantly reduce the cost of leased lines and backhaul to OLOs, which in turn has the potential to result in price reductions to end-users across a wide range of Internet and data services. Elsewhere, for dial-up users FRIACO – the flat rate narrowband wholesale product – should stimulate additional flat-rate products in the market, and hopefully in time encourage a greater desire amongst these users to move to broadband.

Unlike the fixed broadband market, where the incumbent is still central to all service delivery – both direct and via the other fixed operators, in the mobile market there are several independent operators providing services to over 80% of the population. There are lessons to be learned from the rapid penetration of mobile in Ireland in just a few short years – namely, the identification of the key supply and demand side gaps by the new entrants and the incumbent response. This competitive environment has spurred the development of simple, innovative and user-friendly services, which have contributed to mobile's position as the communications tool with which Irish consumers are most familiar with. With the second highest SMS usage in the world, and 3G now about to become a reality in the Irish market and elsewhere within 2003, mobile's usefulness as a means for the delivery of e-business and e-government with innovative data services at a range of bandwidth capacities looks set to increase rapidly.

ComReg believes that in addition to mobile, other radio-based services can play a greater part in the delivery of broadband and notes that there is increasing interest in satellite, FWA and W-LANs. In late 2002, the regulator requested the consent of the Minister to introduce a scheme for base station by base station FWA licensing, and hopes it will be possible to move forward shortly. We are also anxious to modernise the legislative basis for spectrum licensing in Ireland and have suggested moving to spectrum rights of use only for the licences covered by the new EU Directives. This would provide greater flexibility, reduce the otherwise enormous administrative burden of combining spectrum rights, and equipment licensing under the Wireless Telegraph Acts, and in particular help underpin convergence between technologies which should encourage further broadband opportunities. ComReg expects to issue a consultation paper shortly on first steps towards technological convergence.

Regulatory measures underpinning broadband development are a key theme for ComReg in 2003, and we welcome further comments and debate about these and the delivery of broadband generally.

Etain Doyle

Chairperson, Commission for Communications Regulation

2 Background

In September 2002, the ODTR issued a consultation on the prospects for the broadband market entitled 'Future Delivery of Broadband in Ireland' (02/79). The objective of this consultation was to help inform the ongoing broadband debate by providing new research on broadband delivery and new data on the demand for broadband in Ireland. Interested parties were invited to submit their comments on a number of questions posed at the end of the paper. This document summarises the responses received, coupled with brief outlines of ComReg's position on the various issues raised.

Reflecting the broad nature of the subject matter, a wide range of comments was received from a varied group of respondents. All responses are very welcome, giving ComReg a range of views - from large and small users, to representatives of various regional groups, to both fixed and mobile operators. The written comments of all respondents are available for inspection at ComReg's offices in Dublin.

This report is intended as an update of the initial paper in the light of comments received, and some additional information on the market generally. ComReg has received much useful input and it hopes that the publication of these views, along with clarification of ComReg's own position, will facilitate a better understanding of the issues involved in the future delivery of broadband in Ireland.

2.1 List of Respondents

In total there were 12 responses received. ComReg would like to thank all the respondents for their time and effort and for the valuable information provided.

Respondents:

- Axia
- Digital Messenger
- Eircomtribunal.com
- EsatBT
- Ireland Offline
- Irish Broadband
- Kineticspc
- North East Strategic Regional Partnership
- Shannon Development
- Sligo County Council
- Southern and Eastern Regional Assembly
- Vodafone

Note: In addition to the above responses, *eircom* also submitted a letter stating that only when critical regulatory issues such as Price Cap and the pricing of *eircom's* access network were concluded would the company be in a position to make a fully informed judgement on the future of broadband investment and service demand.

(See foreword to the last price cap consultation – ODTR 02/96 for an outline of the broader issues involved in the price cap).

3 Future Delivery of Broadband – Consultation Issues

In its concluding chapter, the 'Future Delivery of Broadband' consultation invited comments from interested parties on issues raised in the paper. A number of specific questions were posed and in this section respondents' views are addressed under these question headings.

As well as comments relating to the questions posed, some respondents also submitted more general comments. These comments are addressed separately towards the end of this section.

3.1 Current State of Irish Broadband Market

3.1.1 Summary of the Consultation Topic

Chapter 4 of the report provided an outline of the current size and structure of the Irish broadband market. In brief, the market was characterised as being "something of a dichotomy" – with a small number of high bandwidth corporate and business users, juxtaposed against a relatively large number of dial-up SME and residential users. It was noted that leased lines and DSL were the two main access technologies used to deliver broadband, but that both these markets were still dominated by *eircom*. Cable broadband was seen as potentially a major challenger to *eircom*'s dominance, although it was acknowledged that the expense involved in upgrading the cable networks would likely delay the widespread roll-out of services. Elsewhere, deployments of FWA, satellite, FSO[1] and WLAN services were all still seen as being quite limited, although it was felt that future technical developments could create significant future growth opportunities for these solutions. Finally mobile's ubiquity and high level of acceptance by users was seen as potentially a key advantage as the mobile operators prepared to roll-out their high-speed 3G networks.

1. Do you agree with the ODTR's analysis of the current state of the Ireland's broadband market as presented in chapter 4?

3.1.2 Respondent Views

Overall, a wide range of views were expressed in response to numerous issues raised in this chapter. In relation to the access market, a number of respondents were dismissive of the competitive threat presented to *eircom*/EsatBT by the other access technologies (i.e. cable modem, FWA, satellite, 3G). In particular, there was widespread belief that the cable operators were unlikely to present an imminent threat to *eircom*, with the relatively high cost of upgrading Irish cable

[1] Free Space Optics

networks cited as the principle reason. Elsewhere, a number of respondents felt that while wireless solutions such as FWA/WLAN and 3G were not going to bridge the broadband gap on their own, that over the longer term they had potential to make an important contribution. Some respondents felt that this overall lack of an immediate competitive threat to the fixed line operators had led to delays in their broadband investment, with more than one respondent attributing this to the desire of these operators to protect existing revenues.

Elsewhere, several respondents expressed concerns about the provision of reasonably priced backhaul – particularly outside the Dublin region. These respondents felt that there was little competition to *eircom*/EsatBT and that this market still exhibited 'monopolistic characteristics'. On this subject there were also some comments about the NDP and the Government's metropolitan area networks (MAN) initiative. One of the respondents voiced their support for the MAN initiative, but also called for positive discrimination policies for MAN towns with only one backbone provider. It said at least 2 if not 3 backbone providers to each MAN town was necessary to ensure vibrant competition in the backhaul market. Another respondent felt that many decision makers have unreasonable expectations for the NDP - believing that it will bring high-speed Internet into small businesses and homes. This respondent believes that this is unrealistic and that the MAN initiative will only succeed in bringing broadband to the towns, it will not complete the link to homes and small businesses. It bases this belief on the experience in Dublin where despite the development of several competiting MANs, they are, in this respondent's opinion, relevant only for the biggest telecom customers and the telephone companies themselves.

Finally, one of the respondents felt that in the current investment climate it was vital that competition was given a lead role and that regulatory intervention was kept to a minimum. Nevertheless, this respondent did recognise that in certain areas, such as funding of broadband deployment, some intervention may be necessary. In these instances it was felt that customers would only benefit if this funding was applied consistently across the various industry sectors (i.e. fixed, mobile, etc...).

3.1.3 ComReg's Position

ComReg recognises the concerns raised by several respondents regarding the level of competition in the Irish broadband market. In particular, ComReg notes the reservations expressed by a number of respondents as to the likelihood of the Irish cable sector acting as a strong competitive force in delivering broadband. Much of the reason for these reservations is based on the fact that the majority of the cable networks in Ireland were laid in the 1960s and 1970s with the sole purpose of re-distributing TV signals. The level of investment required to enable Irish networks to deliver broadband services, therefore, is likely to be higher than that required for many, more recently

installed, European cable networks[2]. Given the general downturn in the economy and the impact this has had on funding in the telecommunications sector in particular, ComReg would still be of the view that it could be some time before a significant proportion of cable TV households (with the exception of households in Dungarvan and South West Dublin) are in a position to subscribe to broadband cable modem services.

However, whilst recognising the current difficulties facing the cable operators, ComReg would also highlight recent improvements in their operating environment. NTL, in particular, has shown some signs of a turnaround recently with the parent group's emergence from Chapter 11 protection, and a strong performance by the Irish subsidiary in its last quarterly results[3]. In addition ComReg would also highlight on-going developments in VOIP technologies which, over the longer term, have the potential to offer cable operators significant savings in the roll-out of their 'triple play' of services[4]. Developments such as these should encourage the cable operators to re-visit the business case for broadband-enabling their networks and ComReg would strongly encourage moves by the operators in this regard.

ComReg also notes the comments made by respondents in relation to wireless solutions such as FWA/WLAN and 3G. ComReg believes these technologies can make an important contribution to Ireland's broadband future and it would see opportunities for these technologies to both compete and complement traditional fixed broadband solutions. In particular, ComReg feels that 3G, with its potential to provide broadband services on the move, offers a unique value proposition and it looks forward to the launch of these services later this year. ComReg supports the roll-out of networks by all wireless providers and through its licensing process has sought to facilitate the continued entry of new players. In addition to the 3G operators and the MVNO services that are required to be supported on the A network, the existing FWA licensees should be joined by new ones under the planned scheme for local FWA licensing. ComReg would also highlight the growing popularity of WLANs in Ireland, which have benefited from a simple regulatory regime governing their use.

However, over the short term at least, it would appear increasingly likely that broadband services in Ireland will predominantly be available over traditional copper-based networks. Such a move would be in line with the general trend across Europe, where increases in DSL supply has grown rapidly to become

[2] Whilst a significant amount of fibre has been installed in Irish cable networks in recent years, it is necessary to bring this fibre closer to the user. Currently, Irish cable networks service on average approximately 500-1,500 households per node compared to averages of 250–500 households elsewhere. For Irish cable operators to provide high-speed services to users, it will be necessary to reduce the number of households served by each node or to 'break-out' fibre at more points in the network. As the capacity on the network is shared between all of the households on each node, then for higher speed services the number of households on each node must be reduced. In addition to this, much of the Irish cabling has been mounted on roofs and on the fronts of houses rather than buried underground as is the case in more modern cable networks.

[3] Revenues for the three months to September 2002 increased by over 45%, while EBITDA was up almost 100%. Source: Irish Times, 14th November 2002.

[4] This relates to the bundled service of TV, high-speed Internet and telephony.

the prevalent broadband technology in most markets. This DSL momentum is gathering pace on the supply side in Ireland with the technology now available from over 100 exchanges nationwide, covering almost 50% of all telephone lines. Competitive offerings are also becoming more widely available, with EsatBT now offering services over unbundled loops from many of their 40 DSL locations. This increased availability is being accompanied by a growing interest in increasing the range of broadband packages available to end-users. Since the publication of the ODTR's report, EsatBT has introduced an entry level ADSL product (256kbit/s) at a price below €50. ComReg supports this move and believes that such lower priced 'step-up' packages may provide a convenient, attractive means for many micro business and residential users to get on to broadband. ComReg notes that low price points have been instrumental in building up initial subscriber bases in both the UK and US, with many of these subscribers upgrading to higher-value subscriptions once they become familiar and accustomed to broadband.

In relation to the levels of competition in the backhaul/leased lines market, ComReg notes these concerns and recognises that particularly in areas outside the Dublin region, end-users may often be limited in their choice of provider. The primary reason for this is the absence of vibrant competition between a number of competiting networks. Currently, outside of the Dublin area, most large regional centres have at most just two major network operators, while many of the smaller towns are still only served by the incumbent. ComReg notes that international experience has shown that following liberalisation most of the initial infrastructure tends to concentrate in urban areas and along the major inter-city routes, before over time extending out to more rural areas. In Ireland the short window for investment between the full opening up of the market in 1998 and the closing of the capital markets in 2000/01 offered little opportunity for the new entrants to develop infrastructure outside the major routes and centres. The continuing slowdown has limited possibilities for investment, although ComReg would highlight the potential for FWA services to offer a competitive backhaul alternative.

This downturn in investor sentiment towards the sector has heightened awareness of the important role that public funds can play in promoting investment in the industry. ComReg supports government investment in the sector and believes that the completion of a number of publicly assisted infrastructural projects should assist in developing competition. In particular, ComReg notes the coming into operation later this year of the ESB's national network[5], while it also notes that Aurora is also considering entering the market. ComReg would highlight that the competitive pressures created from the entry of new network players such as these, can not only benefit users located along the routes of these networks, but users nationwide may also benefit, as any reductions in *eircom*'s prices must, by law, apply nationally. Elsewhere, ComReg notes that the Government's metro-fibre ring initiative can further facilitate competition in the backhaul market with the provision of 'open-access' wholesale capacity in 19 cities and towns around the country,

[5] The ESB's entry into the market will not only provide for a third national network, but also its intention to act as a 'carriers' carrier' should open up the market to other service providers.

with links to other networks. In December 2002 the Government confirmed that its metro-fibre ring project would go ahead as planned with construction on the Cork MAN to begin immediately[6].

Without complementary measures to increase competition in the market for 'local tails', the scope for overall reductions in leased line prices is likely to be limited. This is because much of the cost of providing leased lines/backhaul is incurred in providing the local tails or 'last mile' connections at each end of the main link. Up until now service providers wishing to provide backhaul/leased line connectivity were required to purchase end to end leased lines. ComReg views this practice as unnecessarily restrictive and recently issued a Decision Notice (ComReg 02/110) mandating the provision of Private Partial Circuits (PPCs). PPCs are circuits charged at wholesale prices which connect a customer's premises to a point of interconnection between the incumbent and another operator's network. Currently, ComReg is working with industry to develop processes to facilitate the introduction of new lines and the migration of existing circuits to PPCs. From 15th February *eircom* will be required to offer PPCs to competing operators and it is hoped that this move will lead to reduced costs for the provisioning of leased lines for OLOs.

[6] Source: Department of Communications, Marine and Natural Resources; Press Release, 13th December 2002.

Selection of Access Speeds: 512kbit/s, 2Mbit/s and 5Mbit/s

3.1.4 Summary of the Consultation Topic

In the report it was noted that although numerous definitions of broadband currently exist, that the twin characteristics of 'a relatively high level of capacity' and an 'always-on' connection had become generally accepted principles. It was then further noted that, notwithstanding the fact that technological and market developments may make the specifying of a particular minimum bandwidth difficult, that for the purposes of the report broadband was defined as "capacities of 512kbit/s and above in the portion of a network that a customer uses to connect to a service provider – i.e. the access network". The speed of 512kbit/s was subsequently used as the base speed for Ovum's analysis on the costs of rolling out broadband networks, while access speeds of 2Mbit/s and 5Mbit/s were also selected as the data rates for the higher speed benchmarks.

2. Do you consider that alternative ranges 512kbit/s, 2Mbit/s and 5Mbit/s are appropriate and why?

3.1.5 Respondent Views

Most respondents were in broad agreement in terms of the range of speeds chosen, although distinct differences did emerge in terms of emphasis placed on the relative speeds.

One group of respondents thought that 512kbit/s was just on the edge of broadband and that more consideration should have been given to sophisticated users who may need access as high as 34Mbit/s and 155 Mbit/s. A number of respondents in this group also believed that all speeds should be symmetrical - with one respondent suggesting that this would make the difference between a passive broadband society and an interactive one. In contrast to this, another group of respondents emphasised broadband speeds lower than 512kbit/s. These respondents felt that technologies such as IDSL (144kbit/s) and RADSL (256kbit/s) could offer a relatively fast 'always-on' service, with the added benefit of a greater reach from the local exchange. Several respondents also highlighted that the fact that it was likely that contention ratios could affect the actual speed experienced.

One respondent felt it was important to place data rates in perspective and that at least as much emphasis should be placed on the applications and services delivered to end-users.

3.1.6 ComReg's Position

For the purposes of facilitating Ovum's modelling, ComReg felt it necessary to quantify broadband in terms of specific capacities and hence three nominal speeds were chosen. In selecting the three speeds, consideration was given to a number of benchmarking factors.

- For the lowest access speed scenario – 512kbit/s, this choice was influenced by the fact that 512kbit/s is one of the most popular speeds provided by European cable and DSL providers in their subscription packages[7]. In addition, an upstream path of 128kbit/s was assumed. This reflects the upstream capacity used by the OECD in their definition of broadband.

- For the median access speed scenario - 2Mbit/s, this choice was shaped by the fact that many organisations (incl. the ITU) recognise 2Mbit/s are being the approximate level for broadband. In addition 2Mbit/s is generally recognised as the cut-off point between 'lower range' broadband capacities and the higher capacities possible with fibre-based technologies (e.g. optical fibre, VDSL). An upstream path of 128k was assumed by Ovum in their modelling.

- For the highest access speed scenario - 5Mbit/s, this choice was influenced by the fact that 5Mbit/s is the Government's objective for the minimum speed to the home within the next 10-15 years. In this scenario no particular assumptions were made regarding the upstream path.

As outlined in the report, ComReg recognises that the defining of a minimum speed as 'broadband' is necessarily an arbitrary decision. Technological and market developments are likely to see end-users' expectations of broadband evolve, as the size and sophistication of applications develop. In this respect ComReg notes that several respondents highlighted capacity rates both above and below the nominal speeds chosen. ComReg would fully encourage operators to offer as wide a range of broadband packages as possible and believes that increased choice is the best way to meet users' differing needs.

[7] As with each of the three nominal access speeds, it is important to note that this is the modal speed and hence users are presumed to adopt a range of access speeds centred around the modal 512kbit/s speed. For example, in the 2Mbit/s case some users would still be using 512kbit/s and other users, typically business users, would require 5Mbit/s.

3.2 International initiatives

3.2.1 Summary of the Consultation Topic

Chapter 7 of the report provided brief overviews of a number of broadband initiatives adopted by policy makers from around the world. Both supply and demand side initiatives were reviewed with the focus largely on countries considered to be most advanced in terms of broadband deployment as measured by the OECD in June 2001.

3. Do you agree with the analysis of initiatives adopted internationally and presented in chapter 7? Which, if any, do you consider may have relevance for Ireland?

3.2.2 Respondents Views

Overall there was a wide divergence of views as to which broadband policies and initiatives have particular relevance for Ireland.

In terms of general policy approaches, one respondent argued that it was necessary to widen the debate from one centred on the direct economic return on investment in the infrastructure to consider the potential social returns that could accrue from the widespread availability of broadband. It was contended that broadband would be a key enabler of the Information Society and as such it was critical that there was public ownership of infrastructure in a manner similar to the Stokab model in Stockholm. In contrast to this, another respondent advocated a minimalist approach to intervention in broadband, with only limited support justified in some neglected areas such as the BMW regions. This respondent thought that public ownership of infrastructure would be a retrograde step and that any support should only be on a non-discriminatory basis across both the fixed and wireless sectors.

On more specific initiatives, other respondents focused on issues such as demand aggregation initiatives and the interplay of pricing and demand. Two respondents highlighted the potential of demand aggregation initiatives with one focusing in particular on the potential for the Government to aggregate its current spending to create a market for a new high-speed IP based network similar to Alberta's SuperNet.

Elsewhere, two other respondents focused very much on the issue of pricing. Both of these respondents felt that the key to demand was pricing and they contended that the wide availability of cheap 'always-on' broadband Internet access for a price of €30-€40 a month would see a dramatic increase in demand. Neither of these respondents was convinced about the 'compelling content' argument and one of them questioned the effectiveness of many recent demand-side initiatives. They said that if people have cheap Internet access fresh and relevant content will naturally spring up. In support of their

arguments, both respondents pointed to the experience in the UK, indicating that broadband subscriptions only took off once BT reduced its ADSL prices to an affordable level. In relation to achieving price reductions, one respondent focused particularly on wholesale DSL pricing and questioned how *eircom*'s wholesale DSL pricing could be cost orientated if it was a multiple of wholesale prices in other countries.

3.2.3 ComReg's Position

In relation to the Government's role in supporting broadband roll-outs, ComReg would reiterate its continued support for government investment in the sector - particularly in this period where international markets are difficult. It notes that the relative levels of indebtedness of Irish operators generally and returns in the Irish market are such that companies can be expected to make some capital investment commitments also. However, whilst ComReg supports government intervention in the market, it would highlight the importance of ensuring the pre-eminence of competition in the marketplace. ComReg strongly believes that vibrant competition between multiple providers is essential to the provision of better quality services for users at reasonable prices, and to ensuring the supplier choice which large corporates and increasingly SMEs and residential customers insist on. It is also the most effective means of ensuring that any benefits/subsides offered by Government are efficiently passed on to consumers.

In relation to demand aggregation initiatives, ComReg would hold a broadly similar view. By aggregating public sector demand, the Government can assist in creating a market sufficiently large to provide an incentive for the private sector to invest in. Tactically deployed, this measure can promote investment in regions where normally it may not be profitable for the private sector to do so. However, ComReg would advise caution when deploying this measure and would emphasise that needs to be used in a way that delivers competition. If implemented in the absence of competition, such initiatives have the potential to create local monopolies that may deter other providers from entering and competiting in that market/region.

ComReg notes the respondents' arguments in respect of price and demand stimulation and would restate its belief that price reductions are critical to increasing broadband demand. This viewpoint, ComReg feels, is supported by MRBI's research, which showed that a significant number of Irish households would be prepared to subscribe to broadband services at a price range of €30-€40 per month.

ComReg/ODTR has put considerable effort into influencing such elements of the price of broadband as it can in terms of wholesale costs and margin squeeze. Currently, ComReg is currently in discussions with the industry on the issues involved in developing a LRIC[8] model of the access network. These

[8] Long Run Incremental Costs

discussions are expected to draw to a close in January 2003 and with the advice given from the industry and *eircom* during this process, ComReg expects to be in a position around March 2003 to review a LRIC-based price submission from *eircom* for LLU. It is intended that any new prices from this review will become effective from 1st April 2003.

Across Europe wholesale bitstream and resale access have also been instrumental in developing much of the competition in the DSL market, with incumbents lowering these prices in the face of increased competition from alternative networks[9]. ComReg draws attention to the points raised in this document and elsewhere[10] on the successful roll-out of DSL across Europe and would encourage *eircom* to take such actions on prices that would stimulate wider access to these broadband services. Reductions in pricing can grow the market to everyone's benefit - incumbent, new entrants and end-users alike. It is of course a regulatory requirement that wholesale prices are adjusted as well as retail prices so that competition can be maintained.

Finally, ComReg would note that the MRBI research also highlighted a high desire for training, along with a relatively high number of people who felt that they did not have any need to increase their use of Internet[11]. Demand side issues should be examined in detail to identify what is necessary to remove disincentives to Internet use[12]. However, this is beyond the brief of ComReg and this particular paper.

[9] One of the best examples of this has been in the UK. In response to growing competition from the cable operators, in April 2002 BT decided to reduce its wholesale price by over 50%. In less than 6 months the number of DSL subscribers had doubled and as at November 2002 over 100 ISPs were offering competitive DSL packages.

[10] An August 2002 survey by Yankee Group asking dial-up customers why they were not upgrading to broadband networks found 72% of respondents complaining that broadband was "too expensive". *'Revamping High-Speed Access Strategies: Tiered Services Hold the Key to Broadband Adoption'*, Yankee Group, August 2002.

[11] 53% of respondents indicated that they would consider taking a training course to improve their Internet skills, while 48% of respondents said that they didn't stay online more either because they had 'no interest' (15%) or they 'did not need to use it more often' (33%).

[12] A study by the US Office of Technology Policy found that although that cost was the biggest factor limiting broadband demand, the other 3 Cs – Content, Convenience and Confidence were also significant, both for business and consumer users. *'Understanding Broadband Demand – A Review of Critical issues',* Office of Technology Policy, US Dept. of Commerce, September 2002. http://www.ta.doc.gov/reports/TechPolicy/Broadband_020921.pdf

3.3 Demand for Broadband in Ireland

3.3.1 Summary of the Consultation Topic

Chapter 8 of the report examined the demand for Internet and broadband services in Ireland and included analysis from TNS MRBI's surveys of the residential and SME markets. These analyses identified relatively high levels of Internet penetration in both markets, although there was evidence to suggest that many users have yet to fully engage in the Internet. Online usage was relatively low and for both SME and residential users; the principal benefits of the Internet were still being seen in terms of basic services such as sourcing information and email/file transfer. Cost and a lack of perceived benefit were cited as the main reasons for not going online more, although there was some evidence to suggest that a targeted broadband product emphasising its fast and unmetered nature may gain some appeal, with €30-€40 per month representing the upper price range amongst residential users. For SMEs, the research suggested that between 5 and 7 out of 10 of all SMEs would be extremely likely to subscribe to an 'always-on' high-speed service if it was priced €40 - €60 per month.

4. Do you agree with the conclusions of the TNS MRBI survey on demand for broadband in Ireland? Do you agree with the segmentation presented by MRBI? How important do you think demand stimulation is to the future delivery of broadband?

3.3.2 Respondents Views

MRBI's research was broadly welcomed by most respondents with various contributors describing it as realistic and in accordance with their experience of the market. Overall, the approach and segmentation presented by MRBI's was seen as reasonable, although one respondent felt that it would have been useful if the survey looked at a third category of users – multinational and their Irish suppliers. Elsewhere, another respondent made the point that the research concentrated to a large extent on the fixed market, and aside from some questions related to current use, mobile did not feature at all. This is despite this respondent's contention that mobile will play a major role in providing broadband access over the coming years.

Of the issues to attract particular attention, pricing featured strongly with numerous respondents arguing that widespread broadband demand would only emerge once an affordable, 'always-on' service became widely available. Some respondents felt that in advance of this happening, a flat-rate dial-up product could play a key role in stimulating demand, but ultimately it was felt that the pricing of broadband packages would be pivotal. Highlighting MRBI's research to support their point, one respondent said that the findings clearly show that Irish users already see broadband as desirable, even without any prior knowledge of pricing, contract lock-in, or other possible shortcomings.

This, they claimed, was clear evidence of latent demand in the Irish market for broadband. Finally, one other respondent also recognised the need for lower price points so as to stimulate mass market take-up, but unlike the other contributors, this respondent felt that the financial realities of the telecoms market would mean that it could be some time before the Irish market sees monthly subscription fees at the levels discussed in the report.

3.3.3 ComReg's Position

Overall, it would appear that most respondents were broadly supportive of the approach used by MRBI's in their research. ComReg notes respondents' comments in relation to the scope of the research and appreciates the importance of tracking developments in all market segments. ComReg would highlight that it intends to undertake research in the areas mentioned as part of its on-going market research programme that accompanies its Quarterly Market Reviews.

ComReg also notes that, amongst other factors[13], MRBI's research provided evidence of price, and flat-rate pricing in particular, being a key factor in stimulating Internet demand. ComReg supports this view and is currently working with the industry to introduce a wholesale flat-rate dial-up product, which it is hoped will facilitate the provision of a retail offering by operators no later than the end of June 2003. ComReg's intervention in this market follows several months of protracted private commercial negotiations between two interested parties and *eircom* and under the timetable recently issued by ComReg[14], operators should be able to order a wholesale FRIACO (Flat Rate Internet Access Call Origination) product by the end of February. ComReg believes that the introduction of a flat-rate product will go some way to assuage many of the cost concerns that users have when going online, and it hopes that it may also help to stimulate demand for future broadband services.

In relation to broadband services, ComReg recognises the point made by a number respondents regarding the key role played by pricing in driving broadband adoption. ComReg feels that current DSL pricing levels are still very much targeted at the business market - a point supported by the continued low levels of take-up despite the recent increases in coverage[15]. ComReg would repeat it belief that price reductions are critical to increasing broadband demand and will continue to work hard, within its powers, to examine the cost of broadband access over *eircom*'s network.

As noted in the last chapter, demand side measures also have a role to play.

[13] MRBI's research also highlighted a lack of familiarity and training as potential barriers to increasing broadband demand. 53% of households indicated that they would consider taking a training course to improve their Internet skills.

[14] See Decision Note D1/03 – Implementation of Flat-rate Internet Access Call Origination - FRIACO. 7th January 2003.

[15] Source: ComReg, Quarterly Market Key Data, December 2002 (02/106b).

3.5 Ovum Costing of Network Roll-outs

3.5.1 Summary of the Consultation Topic

To help inform the broadband debate, the regulator commissioned Ovum to conduct a high level costing study on broadband roll-out in Ireland. The Office was not aware of any previously published studies of this type and Ovum's research was therefore intended to provide a basis for debate and form a starting point to help orientate interested parties

The study focused on the incremental hardware or 'boxes and wires' costs involved in rolling out broadband networks to varying levels of population coverage. In their analysis, Ovum estimated that the incremental cost of making broadband services of 512kbit/s available to 85% of the population would be approximately €450million. At a nominal access speed of 2MBit/s, Ovum estimated that this cost would rise to €2billion, while at a speed of 5Mbit/s, the cost is estimated at €4.1billion. These costs relate to the incremental infrastructural and operational network management costs associated with building and operating a broadband infrastructure with a subscription take-up rate of 60%.

In arriving at their cost figures Ovum developed numerous demographic, technological and demand assumptions including a 'best-mix' of access delivery technologies. At the lower bandwidth speeds, Ovum assumed that DSL over existing copper and some FWA would be the predominant technologies, while at the higher access speeds, they assume greater use of fibre in the network.

5. What is your view of the Ovum work on network roll-out costs for broadband in Ireland? Do you agree with the assumptions, both demographic and technical, that Ovum has used to come to their cost conclusions? Are there alternatives you believe should be considered – please outline and give reasons?

3.5.2 Respondent Views

Ovum's study attracted a considerable amount of comment, with some respondents welcoming it, some highlighting areas for further research and some questioning certain assumptions that Ovum made in conducting their analysis.

Of those respondents who welcomed it, the general consensus was that it was a reasonable and informative study whose assumptions appeared broadly plausible. It was noted that while a quite a number of assumptions were

necessary in order to frame the analysis, the study at least provided a basis for debate and that future research could be built on it.

Less enthusiastic in their support was another group of respondents who felt that while the report was interesting, its failure to take account of several important factors limited its usefulness. Three respondents highlighted the fact that the study did not consider market dynamics, particularly in relation to the backbone network. Reference was made to the fact that the analysis assumed only one backbone network entity which delivered all of the services. This, it was pointed out, meant that the study didn't take account of the need for competition and that in reality that there may be significant overbuild and inefficiencies as various operators overlay competiting backbone networks. Elsewhere, other issues that respondents felt could have been taken into account in Ovum's modelling included: (i) the potential increased efficiencies (traffic, housing, etc...) that could be experienced if broadband networks were rolled out; and (ii) comparisons of the cost of broadband initiatives undertaken in other countries.

Comments were also received from a number of respondents who questioned some of the assumptions made by Ovum in their research. Two respondents felt that Ovum did not did not fully appreciate the possibilities offered by some wireless technologies, most notably WLAN and 3G. Elsewhere another respondent felt that the statements about FWA capital costs were over simplified and it was unfair to compare the cost of DSL excluding terminal equipment with the cost of FWA including terminating equipment. Another respondent questioned a whole range of costings – including backhaul radio links, local authority imposed costs and *eircom*'s collocation and other LLU costs, which it believed were either overlooked or underestimated. Finally another respondent felt that it would be very unlikely that 85% of the population could be covered by ADSL without considerable further investment in the copper infrastructure. According to this respondent, this assertion was based on anecdotal evidence they had received which suggests that many of the lines – including those servicing modern apartments in the central Dublin area - are not suitable for ADSL.

3.5.3 ComReg's Position

ComReg notes that comments were received in relation to a wide range of issues - covering both the Ovum study and the cost of rolling-out broadband networks generally. Some of these comments, ComReg believes, go far beyond the scope of Ovum's research, but it recognises that this may be reflective of the fact that a study of this nature had not previously been conducted in Ireland. ComReg welcomes all comments, but feels it necessary to point out that Ovum's brief was *"to develop costings for the roll-out of new infrastructure and upgrade of existing systems, to provide broadband access to varying percentages of the Irish population"*. The study, therefore, is concerned only with the hardware or 'boxes and wires' costs, and as stated in the report, excludes some costs that would be incurred by a commercial venture in a competitive marketplace (e.g. marketing costs, interconnect,

SG&A expenses, etc…). These and other assumptions were necessary to frame the analysis, which essentially is a 'base case scenario' on the costs of rolling out broadband networks in Ireland. Considerations raised by respondents, such as the cost arising from the overlay of competiting networks, the potential savings in traffic or housing costs efficiencies, or the benchmarking of the cost of initiatives undertaken in other countries were not included in the analysis. Resource and data limitations constrained the study from examining such matters, although ComReg would welcome any research from other parties on these or related issues.

ComReg also notes comments made by respondents in relation to specific assumptions made by Ovum in their modelling. Some respondents felt that in selecting their 'best-mix' of access technologies that Ovum did not fully appreciate the possibilities offered by some wireless technologies, most notably WLAN and 3G. As stated in the report, Ovum's 'best-mix' is developed on what they see as the most cost-effective technologies based on reasonable assumptions about demand, technology developments and costs. Exclusion of a technology from the analysis does not imply that it will not be deployed in Ireland, only that, in Ovum's judgement, on the basis of information available at the time, other technologies are more likely to play a role in bringing broadband access to Ireland. ComReg recognises that the rate of development in many emerging technologies is often very rapid[16] and particularly in the case of 3G would highlight recent significant breakthroughs both in terms of networks and application development.

Elsewhere, ComReg notes that some respondents queried the methodology used by Ovum in estimating FWA costs. This issue was considered by Ovum in developing their model, but as stated in the report the cost of DSL modems was not included in the estimates because the trend is for this expense to be borne by the customer. Finally, a number of respondents queried several of the estimates used by Ovum for various equipment and deployment costs. Ovum indicate that all cost estimates in the study are based on a combination of their discussions with major vendors for prevailing equipment costs, along with their extensive knowledge base which has been developed through years of providing leading edge expertise in this field.

Overall, ComReg believes that the model has served its purpose in opening up the debate on the issues and practical implications of broadband delivery in Ireland and hopes that the discussion here clarifies the position further for respondents. It stresses again that this was a very high level initial analysis. It will consider whether, in the light of technological and commercial developments, it would be appropriate to repeat the exercise at a future date.

[16] For example new mini DSLAMs or 'pizza boxes' which are smaller and cheaper and should extend the range of availability of DSL without adding to the cost. ComReg, *'Future DSL Technology'* (ComReg 03/01); Also in the mobile sector, the Irish operators have been making much progress in the development of their 3G networks recently. For more details, see: http://www.electricnews.net/news.html?code=8878520

Finally, on a separate matter, ComReg notes with interest the comment made regarding the reported non-availability of ADSL on many lines, including those servicing modern apartment blocks in the Dublin area. Whilst ComReg appreciates that some telephone lines may not be suitable for DSL services on account of the distance of the customer's premise from the exchange, or particularly in rural areas, the presence of 'loading coils' and 'bridge taps'[17] in the local loop, ComReg is concerned to hear reports of a disproportionate level of line test failures in urban areas, where distance is generally less of an issue and degradations in the local loop would not usually be expected. ComReg intends to continue monitoring this situation and will follow up with *eircom* if necessary.

[17] These are unterminated cable lengths resulting from former use of the cable-pairs to other premises.

3.6 Other Measures to Support Broadband Roll-out

3.6.1 Summary of the Consultation Topic

Respondents were asked for their suggestions as to possible additional measures the regulator could undertake to encourage Internet/broadband adoption.

6. The initiatives the ODTR is currently supporting which assist Internet usage/broadband are presented in this report. Please outline any further measures you consider we could adopt as appropriate?

3.6.2 Respondent Views

In response to the regulator's invitation for suggestions, several respondents submitted proposals which they felt would further the development of the Internet and broadband markets in Ireland. Many of these proposals focused on the possible relaxing of regulations, which some respondents felt would assist the entry of additional broadband providers into the market. Two respondents suggested that ComReg could review the licensing of spectrum in the 3.5GHz band, with one suggesting that this could be done on a location by location basis. Elsewhere, two respondents suggested that ComReg could also consider raising the power limits permitted on 2.4GHz equipment. One of these suggesting that in rural areas an EIRP of up to 2W should be permitted. This, it was claimed, could be achieved while still keeping the maximum transmitter output at 100mW. It was argued that this would ensure that signals at the new levels would be highly directional and would not cause excessive interference. This respondent was also of the opinion that the regulator could do more to raise awareness of computer security issues – particularly in relation to WLANs.

In relation to fixed line solutions, another respondent suggested that ComReg could encourage small ISPs to introduce local products. Specifically, the respondent referred to the possibility of running DSL signalling over a 'dry pair'[18] from a customer premises to an ISP's premises. It was contended that this practice - now no longer possible, would allow ISPs to run their own small-scale DSLAM and hence could provide for a 'compelling small-scale' solution.

Finally, another respondent referred to the new Regulatory Framework and recommended that ComReg define functional Internet access in Ireland as broadband.

[18] A 'dry pair' is a reference to a copper pair with no electrical conditioning (i.e. signalling) between 2 customer sites on which customers provide their own end to end transmission equipment.

3.6.3 ComReg's Position

In reviewing the suggestions received, ComReg notes that several respondents raised issues relating to the making available of additional spectrum and the raising of power limits on terminal equipment. As regards spectrum availability, it should be noted that ComReg intends to introduce a licensing scheme for Fixed Wireless Access in the 26 GHz and 10.5 GHz bands as well as a limited scheme at 3.5 GHz later this year. This scheme will operate on a first come first served, per base station basis and ComReg hopes to publish the full details of this scheme shortly.

In relation to the comments on equipment power limits, ComReg wishes to clarify that the 100mW limit refers to the EIRP, i.e. the actual power radiated from the antenna, and not to the transmitter output power. Furthermore it should be noted that the band 2400-2483.5 MHz is commonly used for an increasingly wide variety of low power systems (including WLANs) which operate on an unplanned and licence-exempt basis. The band is also designated for use by industrial, scientific and medical (ISM) devices. Increasing the power limits for WLANs will not only have an adverse impact on other applications in the band and may lead to unacceptable degradation of service quality for all users of the bands, but would also increase the interference to WLAN users in general. The current power limits are the result of carefully developed harmonised solutions at the European level to facilitate the use of the band by WLAN and other applications. For these reasons ComReg would not intend to make any changes to the current power limits defined for these bands. However, recognising the coverage area limitations associated with the current power limit in the 2.4GHz band, the ODTR increased the maximum permitted power level in the relatively unused 5.8GHz band – where currently the risk of interference is considerably lower than that in the 2.4 GHz band - to 2W EIRP. This provides an alternative band for licence exempt wireless broadband access facilitating innovative new services over greater coverage areas. In relation to the respondent's comments on the raising of awareness on computer security issues, ComReg would refer the respondent to its Network Resilience Consultation (ODTR 01/77) and more specifically in relation to WLANs, to its recent WLAN briefing note (ODTR 02/16).

As regards the comments concerning the possibility of running alternative DSL signals on a 'dry-pair', ComReg would like to clarify that the reason this service is no longer available is because *eircom* have withdrawn it as a retail product. Without a reasonable request from an OLO for such a product, ComReg cannot force *eircom* to offer any retail product over and above the set of services already outlined in their universal service obligation (USO). Furthermore, were *eircom* to decide to re-introduce such a product, ComReg would highlight that any persons considering providing services over a 'dry pair' would need to ensure that such services were in compliance with the Copper Loop Frequency Management Plan (CLFMP)[19]. The CLFMP seeks to

[19] Copper Loop Frequency Management Plan, Issue 2: Local Loop Unbundling, December 2002. http://www.eircom.ie/bveircom/pdf/clfmp.pdf

minimise inference from different services in the same cable-bundle by providing masks for services and dictating what services can be provided on what lines.

ComReg also notes that one of the respondents called on the regulator to define functional Internet access as broadband. This suggestion is a reference to the new Universal Service Directive[20] which requires Member States to ensure that all reasonable requests for a connection to the public telephone network are met. Article 4(2) of this Directive states that this connection must be capable of providing '*data communications, at data rates that are sufficient to permit functional Internet access, taking into account prevailing technologies used by the majority of subscribers and technological feasibility'*. Recital 8 of the Directive further describes *'functional Internet access'* as speeds of up to 56kbit/s, however, it is explicitly recognised that the data rate is dependent on a number of factors which include the level of network development, modem speeds, the subscriber's terminal equipment, the given application for which a connection is being used, and the ISP connection.

Given the strategic importance of this issue for the future development of the Irish Internet market, ComReg would encourage further debate on the matter. To this end, ComReg would therefore like to draw the attention of readers to the recently issued consultation on 'The Future Framework for Regulation of the Universal Service in the Irish Market' (02/116). This consultation seeks respondents' views as to the definition of 'functional Internet access' and comments are welcome from all interested parties on this or any of the issues raised in the paper. The closing date for responses is 11th February 2003. ComReg would also draw attention to the consultation on the regulations implementing the Directives issued by the Minister for Communications, Marine and Natural Resources on the Department's web-site[21].

[20] Directive 2002/22/EC of the European Parliament and of the Council on Universal Service and Users' Rights relating to Electronic Communications Networks and Services (Universal Service Directive).

[21] This is available at:
http://www.dcmnr.gov.ie/display.asp?type=676103D110D5D842790C110D5D3BAEC58110D5D3549C2A110D5D3328170110D5D|28CF5B|17C1FE

3.7 Additional Issues Raised

3.7.1 Role of Regional Assemblies

- The Southern and Eastern Regional Assembly felt that the ODTR's report failed to highlight the important role the regional assemblies play in the delivery of broadband infrastructure under the NDP. SERA attached some documentation and business plans explaining their role (see Appendix).

4 Appendix – Extract from SERA Submission

Consultation Paper – 02/71

Future Delivery of Broadband in Ireland

Submission on behalf

Of

The Southern & Eastern Regional Assembly

October 2002

Introduction

The Southern & Eastern Regional Assembly warmly welcomes and commends the ODTR for the publication of this consultative document, which will contribute greatly to the debate on the delivery of broadband in this country in the year ahead.

As is evident in the content of this report the Telecoms industry in general, and the broadband area in particular, is dynamic and rapidly changing sector of the economy, and that decisions taken now can have and will have far reaching consequences.

For this reason it is important that the policy and regulatory framework is got right and is based on the fullness and correctness of the facts. It is in this context that the Regional Assembly has prepared this submission, which will deal primarily with matters relating to the NDP.

Role of Regional Assemblies

Before turning to the content of the consultative paper itself, it might be useful if the role of the Regional Assemblies in overseeing the delivery of broadband infrastructure in Ireland be explained, as it is not evident from the consultative document that this role is known or understood.

Under the NDP, and more particularly the Community Support Framework, the two Regional Assemblies are the designated Managing Authorities for the Regional Operational Programmes. What this means in practice is that in respect of any co-financed measures, which include the E-Commerce and Communications Measure, the Regional Assemblies are ultimately responsible to ensure that the measures are delivered in compliance with the Programme objectives and with EU and National policies.

NDP Infrastructure Broadband Programme

The Consultative paper correctly identifies the initiatives being taken under the NDP as the principal government sponsored supply-side initiatives to deliver the provisions for broadband infrastructure. However what is set out in Section 6.3.1. does not accurately reflect the policy and objectives contained in the NDP, and more particularly the Operational Programmes.

Funding for the provisions of broadband infrastructure is being provided under the E-Commerce and Communications Measure within the Local Infrastructure priority of the two Regional Operational Programmes, for which as stated above, the Regional Assemblies are the Managing Authority. The second important fact to bear in mind is that this is a co-financed measure, that is the

European Union is providing Structural Funds, to part fund the measure. This has important legal consequences for the way the measure is delivered.

Finally it is important to be aware of and understand what the E-Commerce and Communications measure is about. Certainly what is provided in the text of Section 6.3.1. of the Consultative Paper is both factually incorrect, and gives a misleading picture of both the objectives and delivering mechanism for the measure.

In this regard a copy of the relevant extracts from the Programme Complement for the measure is attached for your information. This Programme Complement provides the Operational framework within which the measure is being implemented.

From the attached document you will note that objectives for the measure extend beyond the development of a number of metropolitan rings in selected towns, and include providing funding for the development of and extension to the backbone broadband network.

It should also be pointed out that the measure is not being delivered on a Public-Private Partnership (PPP) basis, certainly not within the accepted meaning of the term PPP.

In fact when the measure was originally designed it was intended that the provision of broadband infrastructure would be delivered principally by the private sector.

However since the down turn in the Telecoms industry in 2001, the delivery mechanism for the measure has been modified to enable a much more significant role to be played by the public sector. For this reason, we as the Managing Authority for the measure had to bring formal proposals to the Programme Monitoring Committee to amend the Measure, and ultimately obtain sanction from the European Commission.

The consultative Paper makes no reference to the first round of funding under the measure whereby 9No. Private Sector projects are being supported which are delivering a new national fibre-backbone as well as an extensive roll-out of DSL services.

In the second call, all bar one of the projects being supported are from the Public Sector. Under this latter category local and regional authorities are being grant-aid to the tune of 90% of eligible costs to put in place broadband networks in selected cities/towns. Once constructed these networks will be made available on an open access basis to the telecom operators.

As this measure is being delivered by way of a series of open call for proposals it is not possible to say at this time what further projects will be funded over the lifetime of the Programme. It should also be noted that the measures as

part of the Operational Programme will be subject to external evaluation as part of the mid-term review, and that there may be future changes to the measure for the remaining period of the Programme.

The final area which we wish to draw your attention to in respect of the E-Commerce and Communications Measure, and which is very pertinent to your subsequent discussion in the Consultative Paper is the issue of funding.

In this regard we wish to draw your attention to the Financial Plans for the measure for both the BMW and S & E Programmes. These financial plans have been subject to amendments and are only recently approved by the European Commission.

The said financial plans are attached and these should be used in any discussion of the likely funds which will be available for the delivery of broadband infrastructure up until 2006. You will see from these plans that under the two Regional Operational Programmes in excess of €500 million has been committed to this measure over the lifetime of the Programme.

The final point the Regional Assembly would like to draw your attention to is in respect of a number of core objectives of the NDP and which are likely to have wider implications in relation to the subject matter of the Consultative document.

As you will be aware two of the core objectives of the NDP are the promotion of balanced regional development and social inclusion. In addition the objectives of balanced regional development will be further elaborated on in the forthcoming publications of the National Spatial Strategy.

The reason these policy objectives are being highlighted, is in the context of additional powers provided to the Minister for Communications, Marine and Natural Resources under the 2002 Communications Act, whereby Ministerial Directions on government policy may be issued to the Commission for Community Regulation and to which it must have regard.

As accessibility to broadband infrastructure and at an affordable cost is a vital piece in the armoury for the promotion of both social inclusion and balanced regional development, it is likely that any consultation of future broadband policy will need to be cognisant of these important policy objectives.