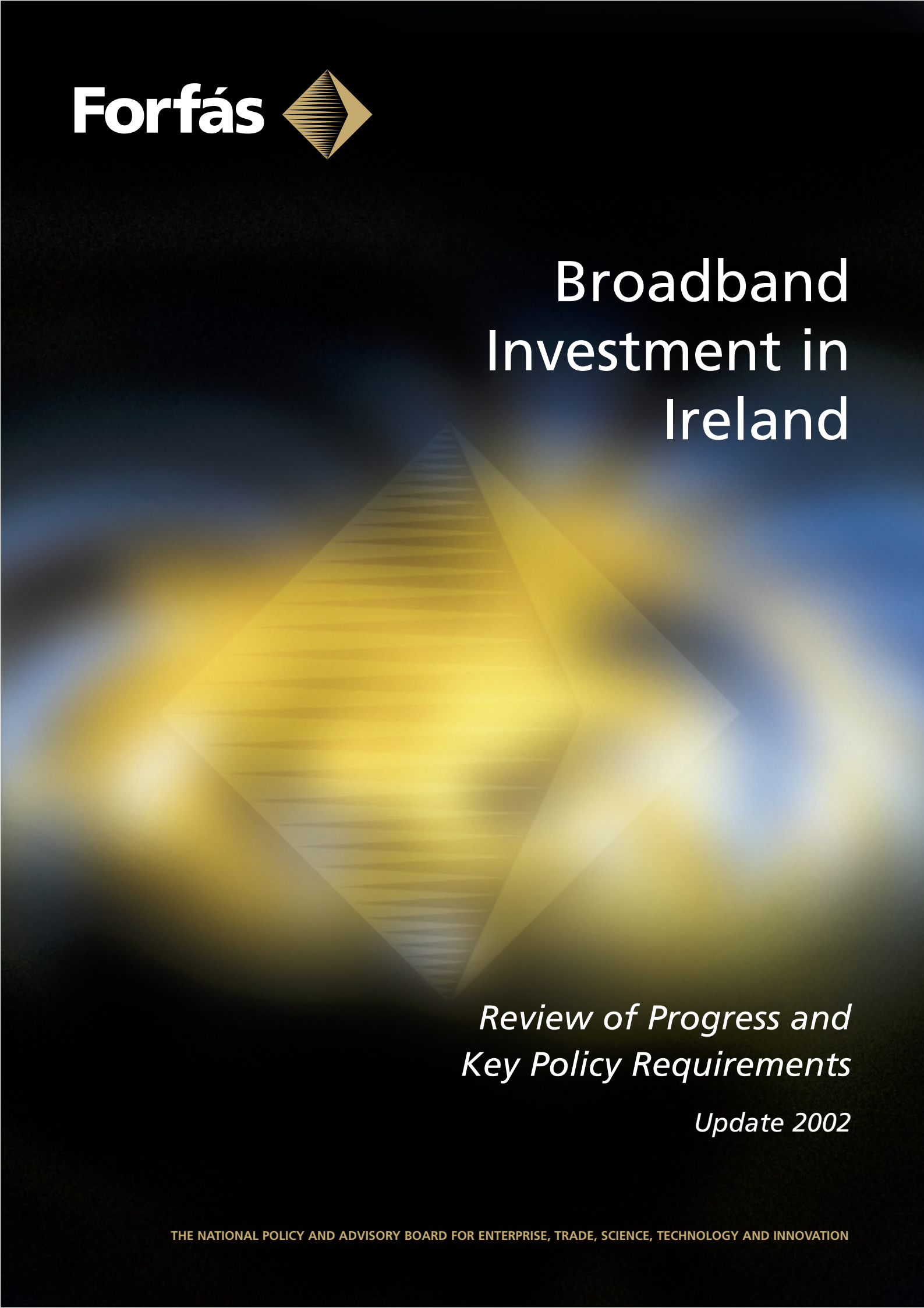
Forfás

Broadband Investment in Ireland



Review of Progress and Key Policy Requirements

Update 2002

THE NATIONAL POLICY AND ADVISORY BOARD FOR ENTERPRISE, TRADE, SCIENCE, TECHNOLOGY AND INNOVATION

Broadband Investment in Ireland

Review of Progress and Key Policy Requirements

Update 2002

1 Forfás Foreword

Advanced Communication Vital to Developing a Knowledge Economy

The revolution in information and communications technologies is having a profound effect on working methods, the organisation of companies, the focus of training and education and the way people communicate with each other. Electronic business has emerged as a major driver of economic activity. Most importantly, scientific and technological progress are leading the transition towards a knowledge-based economy. Knowledge is now a key factor of production. The ability to create, distribute and exploit knowledge and information is the main source of competitive advantage, wealth creation and improvements in quality of life. The transition to a knowledge-based economy provides Ireland with unparalleled opportunities for economic growth and improved social development.

World class broadband telecommunications infrastructure and services, that enable the flow of data, voice and image communications simultaneously at very high speeds, are essential to the development of a knowledge-based economy. The availability of advanced broadband services is also a critical factor in the investment location decisions of firms. The full exploitation of the potential of electronic business is not possible in the absence of these advanced communications networks. The presence or absence of these networks, therefore, affects the potential of countries, and of regions within countries, to exploit the opportunities for higher-paid, higher value added employment.

Some Good Progress since Liberalisation of Telecommunications Market

Published in March 1998, the Forfás report *Broadband Telecommunications Investment in Ireland* prepared by Analysys Limited, recommended a number of key policy actions to address an emerging gap in the levels of investment, price and quality of broadband services in Ireland, relative to those in other countries with which we compete. It recommended that the best way to bridge the emerging gap was to create a fully competitive and efficiently regulated telecoms market. It also recommended that, where there is evidence of market failure in the provision of required infrastructures, the government should develop strategies to "pump prime" the required investment in conjunction with the private sector.

The competitiveness of Ireland's telecommunications industry has improved greatly since 1998. Many of the issues raised in that report have or are being addressed and there has been a marked improvement in the services available to businesses in Ireland. The introduction of competition in the domestic market and the significant increase in Ireland's international capacity have greatly improved the situation. Companies can get high-speed communications comparable with those available in other countries. Price and service competitiveness have greatly improved compared with leading countries.

In addition, the Government has allocated €200 million to support regional broadband investment in the National Development Plan 2000–2006 and a number of important initiatives to enable the provision of broadband in the regions are now underway.

Broadband Availability in Ireland

While significant progress has been made over the last three years in opening the market for investment, the desired outcomes of world class broadband services and coverage at prices among the most competitive in the OECD still remain to be achieved. While the experience of large multinational corporations in the Dublin area is generally good, the experience of small and medium-sized companies and those outside Dublin is not as positive.

The availability and diverse supply of competitive broadband services in the different regions is inadequate. Fullscale unbundling the local loop, in effect in other countries for two to three years, has yet to occur. Problems of poor delivery times and large regional cost differentials for leased lines continue. The relatively poor experience of small and medium-sized companies is accentuated by the complete lack of low-cost commercial broadband using DSL technologies in Ireland. A recent OECD[1] survey examining broadband access availability and use, placed Ireland 27th out of 30 OECD countries.

In light of these circumstances and in recognition of the strategic importance of broadband services to enterprise development, Forfás commissioned Analysys Limited to undertake an update of their report published in 1998. The objective of this update was to determine the key policy actions required to improve the competitiveness of broadband telecommunications for business in Ireland, and to secure the required investment. The attached report sets out Analysys's key conclusions and recommendations.

Changed Investment Conditions

Stimulating investment in broadband infrastructures in Ireland is a challenging proposition even when circumstances are favourable. The deterioration in financial markets for telecommunications stocks and the absence of certainty as to the future regulatory framework for the communications sector in Ireland are discouraging investments in broadband infrastructures and services.

In addition, new circumstances also now apply in the Irish market:

- The change in ownership of eircom will result in an organisation with a very high burden of debts;
- eircom's competitors are all part of major European or global telecoms companies. Therefore any decision to invest in Ireland has to be justified not just on the basis of acceptable returns but also has to compete with investment proposals from other countries for access to limited funds.

Government has a key role in providing certainty to operators in relation to the regulatory regime, certainty as to future National Spatial Strategy and in removing barriers and uncertainties relating to telecommunications infrastructure planning and development. On the basis of current market indications, the investment required in broadband to drive new project and employment opportunities will only take place in core areas over three to four years and over a longer period in the regions. Thus, although implementing a pro-competitive regulatory framework is of paramount importance, there is an in-built possibility that the market will not meet the needs of the enterprise sector for broadband, if operators wait until demand has materialised.

The primary responsibility for ensuring that the broadband needs of enterprises and society are met lie with the State. The ultimate delivery of the infrastructures and services needed, will be either by private sector investment programmes, interventions by the State or by Public Private Partnerships. It is likely that if competitive broadband infrastructures and services are to be widely available in Ireland, a combination of all three of these implementation mechanisms will be required.

1 Source: The Development of Broadband Access in OECD Countries, OECD, November 2001.

Broadband Investment Required

In the context of the formulation of the National Spatial Strategy and the regional economic plans of the development agencies, the key priorities are:

- the deployment of competitive local access technologies for the provision of always-on broadband services, including DSL, fixed and mobile wireless, and optical fibre to business premises. This needs to include the deployment of regional access points to national and international telecommunications networks, including co-location facilities and high-speed Internet Protocol (IP) points of presence. The towns to be targeted for investment in the first instance are the main secondary and tertiary urban centres that offer potential for future economic and social advancement but where development potential is likely to be constrained due to the absence of advanced broadband infrastructures and services. The Government's announcement in early March 2002 to develop fibre optic access networks in an initial 19 towns is welcome. This investment requires to be delivered quickly and further extended as appropriate to all towns with a population above 1,500;
- the extension of open-access, diverse, resilient and advanced broadband and dark fibre backbone infrastructures throughout Ireland. The Government should seek to make the best use of existing infrastructures to achieve a faster and more complete roll-out of competitive broadband services, including making the best use of the optical fibre networks of semi-state bodies. The work by the Department of Public Enterprise to develop the Atlantic Broadband Corridor is a first step towards this and needs to be strongly supported. The initiative should be further extended to address deficiencies in the Midland and Border regions and, where appropriate, to include the development of North-South links.

The investment in broadband networks must be implemented in a coherent manner to deliver an integrated package that can provide an end-to-end solution for competing carriers to regional locations, thereby creating the competitive markets that benefit consumers.

Regulatory Certainty

The development of a strongly pro-competitive, consistent and transparent regulatory framework is needed within which all telecoms service providers can fully develop the market opportunities in broadband services. This will be of paramount importance in securing the conditions that will encourage operators to make the required investment.

Critical to this, is the Communications Regulation Bill 2002. The Bill has been in consultation and drafting for some time and this introduces a major element of uncertainty for operators contemplating investments. In mid February 2002, the Government approved the Communications Regulation Bill 2002 proposed by the Minister for Public Enterprise for publication and submission to the Oireachtas. The legislation to revise the powers of the regulator requires to be enacted by early Spring 2002, subject to some amendments described in this report.

The Bill addresses the key recommendations made in previous Forfás and National Competitiveness Council policy statements in relation to the objectives, powers and operations of the regulator. However, a number of amendments are required to the draft Bill:

- the re-insertion of provisions relating to the establishment of Appeals Panels. Appointments to Appeals Panels should be based on objective criteria and subject to consultation with the Competition Authority;
- the enforcement powers of the regulator should be increased. The penalties for non-compliance with directions of the Commission should be the highest possible consistent with the Constitution, from the proposed maximum of €1 million, to act as a significant deterrent to non-compliance;

- the re-insertion of provisions in relation to the procedures to be followed by the Commission would provide certainty as to the long-term operation of the regulators office;
- where there is not agreement between the Commission and the Competition Authority about which of the two bodies should decide or act on a particular matter which falls to be regulated by both, the Bill should establish a process for assigning responsibility for issues between the proposed Commission and the Competition Authority;
- to enable competitive flat-rate Internet access, empower the regulator to introduce a flat-rate interconnection package. Significant profits from timed Internet access are acting as a deterrent to operators providing always-on broadband access to businesses. The regulator should have the power to mandate eircom to introduce a fixed-rate narrowband interconnect product which would allow competing operators to offer always-on services at cost-oriented prices for basic and ISDN services. In 2001, the regulator in the UK mandated the introduction of a fixed rate programme, which enables a range of service providers to offer always-on Internet access for GBP15 per month (€25).

Regulatory Regime for Local Leased Lines

The development of competition in the provision of broadband services is being hampered due to high leased line interconnection costs and delays in the delivery of services. Enterprises and alternative telecom operators have serious concerns about the cost and delivery times of local leased lines provided by eircom. To address these issues, the regulator should carry out an immediate detailed review of the cost orientation, quality and service levels for local leased lines and the regulations should be further strengthened as necessary.

Broadband Co-ordination Body

There are areas of the country where the market is likely to fail to provide the necessary infrastructures. Where this occurs efficient deployment of public funds in a way that supports the plans of the development agencies and of the National Spatial Strategy should be strongly promoted to "pump-prime" commercial investment in these areas. Any involvement by the State requires to be set in an overall strategic framework and requires to be carefully managed to optimise State involvement and leverage maximum private sector involvement.

Public authorities have an important role to play in the provision of open access infrastructures at local and national levels for the competitive provision of broadband services. This includes the advanced provision of ducting for optical fibres and of colocation facilities in towns where operators can install equipment and exchange traffic. This would reduce the risk of unnecessary and socially undesirable repeat digging of roads, as well as the inefficiency of a proliferation of infrastructures across the country. However, careful consideration needs to be given to ensuring that the infrastructures deployed by public authorities for this purpose are compatible and inter-linked.

In the context of the regional broadband initiative announced by Government in early March 2002 for an initial 19 towns, the establishment of a body to co-ordinate the activities of public authorities and other Government initiatives in the telecoms market would be of benefit. The role of this co-ordination body or office would be to ensure consistency in approach and planning, to achieve economies of scale in the contracting of civil engineering works and in providing open access at the highest levels of service to operators wishing to provide competitive broadband services. This body would also have a role in promoting awareness and use of these infrastructures by operators. It could develop Public Private Partnerships for open metropolitan and local access networks and open backbone networks to reach local access networks. Such administrative bodies have been established in other countries, including Sweden and New Zealand, for these purposes. In the case of Ireland, the

option of establishing such a body quickly by Statutory Order under the Local Government Services (Corporate Bodies) Act, 1971 or Public Services Management Act, 1997 should be considered.

Planning Regulations for Road Openings

Telecommunications operators experience problems with the range of inconsistent administrative procedures that currently apply when dealing with local authorities. The Department of the Environment and Local Government and the Department of Public Enterprise need to quickly complete work on the development a consistent set of regulations for use by local planning authorities in order to provide certainty as to costs and administrative requirements. These planning regulations should be underpinned by appropriate legislation.

Infrastructure Sharing and Bundling

To facilitate the roll-out of alternative broadband infrastructures in an economically efficient way, a policy and planning framework needs to be developed to allow for operators to share common or neutral infrastructures such as ducts and exchanges. This is also important to facilitate the sharing of masts and other infrastructures in the roll-out of third generation mobile services.

Where technically feasible, provision should be made for telecommunications infrastructures to be laid along existing gas pipelines, new roads or along rail and power line way leaves. Opportunities for linking these telecommunications network infrastructures with one another should be examined, particularly where they are being deployed by semi-state organisations. This should result in a national IP (Internet Protocol) peering infrastructure that provides location-neutral pricing for national and international high-capacity broadband services.

Licensed Broadcast Services

Eircom is forbidden to deliver licensed programming services over its network. This removes potential sources of revenue from eircom's and other operators' broadband business plans and reduces competition to cable operators for the provision of innovative services. Analysys Limited recommends that this restriction should be removed in order to encourage DSL and optical fibre roll-out and increase competition.

Market Investment Opportunities

While small in many ways, the configuration and growth potential of the Irish market offers good opportunities for telecoms operators providing high-level services at competitive prices across a range of technical platforms. Opportunities for investment in broadband in Ireland should be pro-actively promoted internationally by the appointment of a marketing expert located within the development agencies or the Department of Public Enterprise or the proposed broadband co-ordination body. This expert, in conjunction with the development agencies and other interested bodies, would work closely with telecoms service providers to assess how existing networks can be fully developed, in particular with respect to the local access network and demand stimulation.

Ireland's International Internet Exchange and Peering Facilities

The lack of direct access in Dublin to the networks of the major national Internet carriers in other European countries (e.g., Deutche Telekom, Belgacom, etc.) is making Ireland a less attractive location for pan-European e-business. A medium term strategy and management structure for the Irish Internet Exchange (INEX) needs to be developed quickly to encourage such operators to develop links into Ireland.

eircom's Retail and Network Businesses

Any operator seeking to provide telecommunications services in Ireland needs to use eircom facilities where their own infrastructure is not available. Such facilities should be available to competing operators on exactly the same terms as to other parts of eircom. If eircom were to voluntarily separate into two companies, one providing infrastructure to all players in the market and the other offering retail services using that infrastructure, it is likely that a genuinely competitive market for access to telecommunications infrastructure could develop. For eircom this would potentially free the retail side of its business from much of the current regulatory scrutiny.

Enterprise Broadband Demand

Fragmentation of demand for broadband services often makes the business case for infrastructure deployment difficult for operators to resolve. Where the business case for broadband deployment is not immediately viable, schemes such as public and/or private sector demand aggregation should be considered to facilitate new infrastructure deployment. The development agencies also need to continue to strongly encourage enterprises to plan for and implement the appropriate systems to take advantage of broadband technologies in conjunction with the local deployment strategies of operators.

Conclusions

- To maintain and develop Ireland's overall competitiveness, a strategic investment programme for the provision of cost competitive and high specification broadband in the main secondary and tertiary towns and high-density enterprise areas requires to be speedily implemented. The government requires to act through Public Private Partnerships to ensure that essential open-access and competitive broadband infrastructures and services are available.
- Creating regulatory certainty is key to attracting the required broadband investment from operators. The solid foundations laid down in the Telecommunications (Miscellaneous Provisions) Act, 1996, establishing the Office of the Director of Telecommunications Regulation require to be built upon. The Communications Regulation Bill 2002 which proposes the establishment of a Commission for Communications Regulation is critical to this and should be amended to:
  - provide for the establishment of Appeals Panels to decisions of the regulator;
  - increase the commisions enforcement powers and levels of possible fines for breach of licence conditions or non-compliance with directions of the regulator;
  - set out the procedures to be followed in the administration of functions of the regulator;
  - clarify the relationship between the proposed Commission and the Competition Authority;
  - empower the commission to introduce a flat-rate interconnection package to enable competitive flat-rate Internet access.
- The establishment of a body to co-ordinate, optimise and manage the activities of the State in enabling the provision of open access infrastructures at local and national levels for the competitive provision of broadband services should be considered. As part of this initiative, the options for encouraging greater linkages and interconnection between the telecoms networks of semi-state bodies (including those of ESB, Bord Gáis and CIE) should be reviewed and actively promoted. A strategic marketing programme should be developed to encourage investment in broadband telecoms by operators providing high-level services at competitive prices, in particular in the local access network.
- A comprehensive set of national planning regulations should be introduced to provide certainty to operators with regard to infrastructure deployment.

- As part of the roll out of broadband infrastructures and services, a pro-active marketing programme to stimulate demand for broadband services should be developed, and public and private sector demand aggregation programmes should be used to encourage investment and ensure the widest possible broadband access coverage. Additional fiscal incentives should be considered to encourage investment and the low corporation tax rate for operators and service providers strongly promoted.
- The INEX requires to be upgraded and promoted to attract a wider range of international communications service providers and operators to peer and exchange Internet traffic in Ireland.

Contents

Executive Summary

Enormous progress has been made in the provision of broadband services to large business customers in Ireland since the publication of *Broadband Telecommunications Investment in Ireland* report by Forfás in March 1998. Many of the recommendations made in the report have been implemented and have had the desired effect (see Exhibit 0.1).

Exhibit 0.1: *Summary of Status of Implementation & Results of Recommendations*

Recommendation	Met	Result
Invest IEP50 million in ATM broadband switches in 22 high-density enterprise areas over the next two years	●	◑
Invest IEP150 million over five years in fibre in the local access network to meet the broadband needs of small and medium-sized businesses	●	◑
Broadband should be provided to small businesses and the residential sector through a combination of ADSL and cable modem technologies over the next ten years at a cost of up to IEP300 million	○	N/A
Introduce competition for basic voice telephony services in advance of derogation that Ireland has obtained to 2000	●	●
Effect an early sell-off of Cablelink to a company that would significantly invest in broadband and compete against the incumbent	●	◑
Extend the powers of the Regulator to include promoting competition, guarding against anti-competitive practices and protecting the interests of business customers	◔	◔
Establish a number portability facility by 1 Jan 2000	◕	◕
Pro-actively promote Ireland as an attractive location for investment by providers of broadband infrastructure and services	◕	◑
Support broadband development in peripheral areas by the use of Public Funds	●	●
Appoint a telecoms marketing expert to encourage investment in Ireland's broadband telecoms	○	N/A

● = fully implemented/desired outcome fully achieved

○ = not implemented/desired outcome not achieved

The optimism at the end of the last decade and the early part of 2000 fuelled the rapid roll-out of broadband access technologies (particularly DSL) in many countries. Although the current lack of confidence in telecoms stocks is slowing the roll-out of telecoms infrastructure across the world, it is by no means stopping it. Ireland is also subject to this slow-down.

Eircom planned to launch a DSL service (i-stream) in October 2001. This has been delayed due to the intervention of the regulator who is concerned about the high wholesale price at which this service would be made available to other operators. The country is thus currently without a commercial DSL offering.

There has been a fundamental shift in the structure of the industry in Ireland, including:

- The change in ownership of eircom will result in an organisation with a very high burden of debt. Reducing that debt could be seen as a higher priority than investment in broadband infrastructure.
- eircom's major competitors are all part of European or global telecoms companies. Therefore, any decisions on whether or not to make investments in Ireland, not only have to be justified on acceptable return criteria but they also have to compete with investments from other countries for access to limited funds.

When confidence returns to the telecoms sector, it is essential that Ireland is able to present itself as an attractive environment for investment in broadband infrastructure. A number of issues need to be addressed in order to ensure that this is the case.

Unmetered Internet access is not available

A flat rate interconnection product for narrowband access should be introduced as quickly as possible. This would allow competitors to offer always-on access to the Internet to customers by paying a flat fee for the service. Such interconnections should be available for basic telephony and ISDN services.

Wholesale DSL prices in Ireland are very high

The regulator should continue with its action until satisfied that eircom's bitstream access wholesale prices reflect the costs of an efficient operator.

The planned Communications Regulation Bill needs amendment and enactment

The draft Communications Regulation Bill 2002 should be amended to give the regulator powers to impose a flat rate interconnection product on eircom and ensure that the regulator has sufficient powers to levy meaningful fines for non-compliance. The Communications Regulation Bill 2002 should then be passed through the Oireachtas as quickly as possible.

Planning Regulations

The rules governing deployment of infrastructure vary according to the planning authority an operator is dealing with. These rules should be harmonised through the introduction of planning regulations.

Costs associated with infrastructure deployment are incurred by different operators

Local authorities should be encouraged to facilitate the provision of telecoms infrastructures and to deploy their own open access infrastructures – especially ducting. This would increase the likelihood of economic competitive broadband infrastructure deployment in their areas. A co-ordinating and project management resource or body should be put in place to co-ordinate the consistency of approach taken by the different authorities.

Fragmented broadband demand undermines the business case for deployment

Public and private demand aggregation schemes should be investigated to create a stronger case for investment to deploy broadband communications in a given area. The delivery of plans for e-government activities should be accelerated. Public sector demand aggregation initiatives should be actively developed taking a planned approach to increase sophistication of broadband in the public sector, with a particular priority on the provision of broadband communications to schools, hospitals and libraries.

eircom's business case for DSL deployment is undermined by inability to offer entertainment services

Artificial constraints such as the licence condition that prevents eircom from offering licensed programming services over its network should be removed.

The vertically integrated nature of eircom makes ONP difficult to police

Eircom and the industry should debate the merits of separating eircom's network business from its retail business, allowing the eircom network to become a wholesale network accessible on identical terms to all operators, thereby reducing concerns in the market in relation to open network provision (ONP) effectiveness.

Businesses have concerns about the quality and price of leased line local tail circuits

The regulator should investigate the price, quality and timeliness of delivery of local tail circuits to ensure prices are cost-oriented and the quality of the tail circuits is in line with international best practice.

The diversity of Internet 'peering' opportunities in Ireland is limited

The diversity of Internet 'peering' opportunities in Ireland is limited. The Irish Neutral Internet Exchange (INEX) should strive to attract Tier 2 Internet service providers and communications operators from Europe to have a presence there.

In addition to the measures designed to stimulate private investment in broadband infrastructure, the government should monitor the development of broadband infrastructure in areas where commercial deployment is likely to be problematic. There is a view emerging that the availability of broadband communications will become essential for the economic prosperity of any area. Failure to offer sufficient levels of broadband coverage would render that area uncompetitive – a manifestation of the "digital divide" which will increase economic divisions.

The State should consider entering into a Public Private Partnership (PPP) with commercial operators in areas where a digital divide looks possible in order to ensure the availability of broadband communications where required. Care will need to be taken to ensure that these partnerships are designed to keep any distortion of the competitive provision of communications infrastructure and services to an absolute minimum.

1 Introduction

Published by Forfás in March 1998, the report *Broadband Telecommunications Investment in Ireland* stimulated widespread debate on the level and costs of telecoms services available in the country at that time. The debate resulted in the acceleration of some planned actions and in the execution of some others that had not previously been on the agenda.

The current report (Broadband in Ireland, Update 2002) is a contribution to the ongoing debate about the development of broadband communications in Ireland. It examines different aspects of the current telecoms market in the country and ends with a series of recommendations which aim to encourage sufficient investment in the Irish telecoms market to ensure the future competitiveness of Irish business.

- **Chapter 2** provides a brief overview of the current context for broadband investment in Ireland.
- **Chapter 3** examines the extent to which the recommendations made in Broadband Telecommunications Investment in Ireland have been implemented and assesses the impact these have had on the telecoms and business environments.
- **Chapter 4** provides a review of the Communications Regulation Bill 2002, published on 1 March 2002, which will establish a Commission to regulate the country's telecoms market.
- **Chapter 5** summarises how a number of telecoms services relevant to broadband communications are provided in Ireland and how this compares with other countries.
- **Chapter 6** provides a set of strategy options to improve the climate for broadband investment in Ireland.
- **Annex A** contains a basic glossary of the main technical terms and abbreviations used throughout this report.

Analysys would like to thank the following organisations for their cooperation and contributions.

Government and industry organisations

Association of Licensed Telecommunications Operators
Competition Authority
Department of Public Enterprise
IBEC Telecommunications Users Group
Office of the Director of Telecommunications Regulation (ODTR)

Operators

Chorus
eircom
Esat Telecom Group plc (Esat)
NTL Group Ltd (ntl)

Agency client companies

CAPE Technologies
Cedar
Duolog Technologies
e-BCS Ltd
Erin Foods
Fexco
IBM
Intel
Microsoft
O'Brien's Irish Sandwich Bars
Orbiscom
Tellabs
TJH Ltd
Tranetics
wapprofit.com
Waterford Wedgwood

2 Summary of Key Points

- Ireland is ranked 27th out of the 30 OECD countries in terms of broadband availability and use.
- The challenge of addressing broadband competitiveness gaps in Ireland is now greater due to weaker financial markets for telecoms operators and eircom's heavy burden of debt.
- Broadband investment is a key public policy priority for medium-term economic development in competing economies, prompting the introduction of significant financial, regulatory and demand-side initiatives.
- Broadband access provision in Ireland is poor for all but the largest of companies based in Dublin.
- The Government needs to act quickly to provide a certain and conducive regulatory telecoms environment for broadband investment, for when confidence returns to the sector.

2 Context

There has been a strong improvement in the provision of broadband communications in Ireland since the publication of the Forfás report *Broadband Investment in Ireland* in March 1998. However, access to high-speed communications is still dependent on scale and locality.

2.1 Developments in broadband availability since 1998

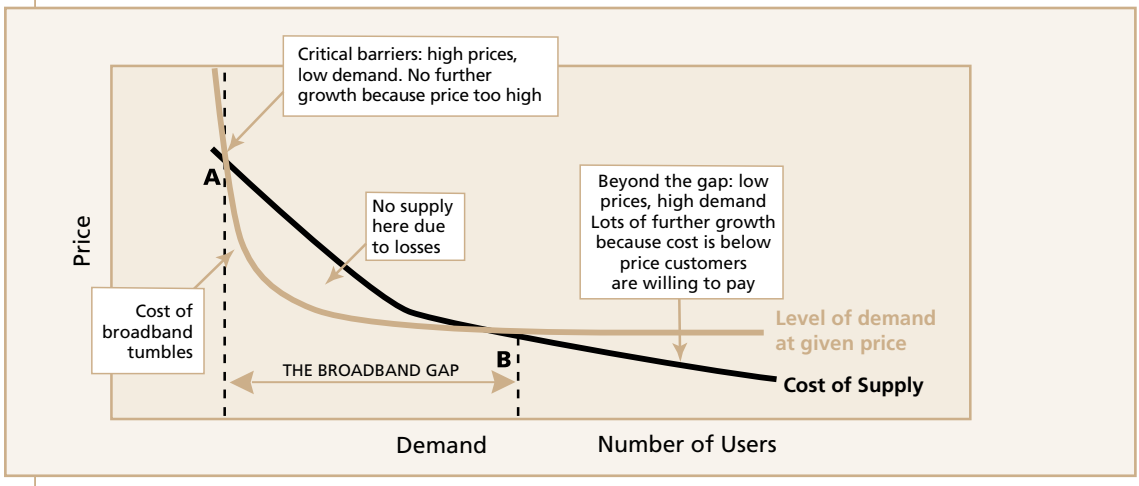
The introduction of competition and the landing of international capacity from Global Crossing have contributed to a better telecoms environment in Ireland. Large corporate organisations operating in the Dublin area now generally pronounce themselves "very happy" with the level of telecoms services they receive. Such companies have access to high-speed communications comparable with those available in other countries and there is no foreseeable concern about the level of international capacity. However, the experience of small and medium sized companies and those based outside Dublin is not as positive. This is due to the complete lack of DSL technology which would allow low-cost broadband access at speeds between 10 and 50 times faster than provided by conventional PSTN modems.

Ireland is not alone in tackling what has become known as the broadband gap.

2.2 The broadband gap

The relationship between price and demand for broadband services is illustrated in Exhibit 2.1 (below). Zone A (top left) shows where large businesses are price insensitive: they have access to funds and also a driving business need which means that they are prepared to pay for leased lines and the level of access they require regardless of price. Lack of competition for customers and inertia tends to make many telecoms organisations content with serving relatively small numbers of high-value customers, thereby ensuring that broadband access is confined to larger enterprises in general. To the right of Zone B, widespread deployment of broadband communications becomes feasible with large numbers of customers being served, at least in urban and sub-urban areas. This is the point, beyond the broadband gap that many businesses frustrated with slow communications and high per minute based charging want to get to.

Exhibit 2.1: *The cost and revenue curves associated with providing broadband communications*



Source: Analysys 2002

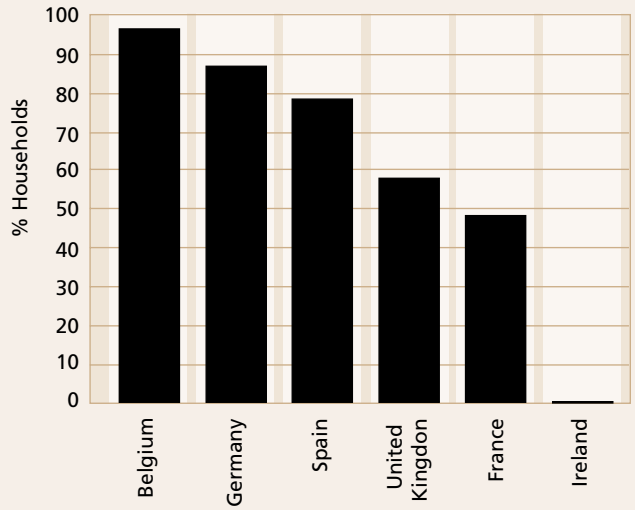
A key issue in all economies is moving the price of broadband communications to a level where demand will grow and the product offering becomes economic on a widespread basis.

Bridging the broadband gap is a concern in most developed economies and action on this front is underway in many European countries. In the UK, the Office of the e-Envoy is working towards the objective of making the United Kingdom "the best place to do ecommerce by 2005". In June 2001, Lionel Jospin announced a programme of investment of €1.5 billion (FFR10 billion) to ensure broadband deployment throughout France. The importance of adequate broadband access for businesses and individuals is recognised to be central to the development of these economies in the medium term.

Bridging the broadband gap requires favourable conditions on two fronts: availability and price. Neither applies in Ireland at the moment – broadband services such as DSL and cable modem are not available on a commercial basis, and the proposed pricing for eircom's i-stream DSL services places the market for broadband services firmly in Zone A of Exhibit 2.1.

Exhibit 2.2 provides a comparison of availability with other countries.

Exhibit 2.2: *DSL Coverage: households in 2001*



Source: OECD 2001, Analysys

This situation is unlikely to change significantly without the stimulus of competition and the threat of significant loss of market share through delaying roll-out of broadband services.

2.3 Investment

Narrowing the broadband gap is a challenging proposition even when circumstances are favourable – and the current climate for investment in telecoms is very poor. Telecoms stock market valuations have fallen dramatically since March 2000, as illustrated in Exhibit 2.3. It is unrealistic to expect the broadband gap to narrow while the market sentiment is as it is.

Exhibit 2.3: *NASDAQ Telecom Portfolio share price decline*

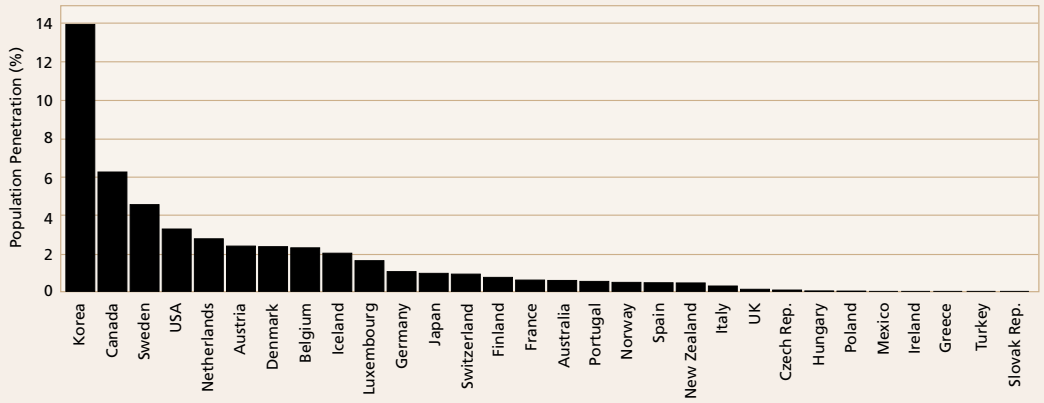
Source: BigCharts.com

The following conditions are also applicable in the Irish context.

- The change in ownership of eircom will result in an organisation with a very high debt burden. Reducing that debt could be seen as a higher priority than investment in broadband infrastructure.
- eircom's competitors are all part of major European or global telecoms companies. Any decisions on whether or not to make investments in Ireland not only have to be justified on acceptable return criteria but they also have to compete with investments from other countries for access to limited funds.

The widespread availability of broadband communications is crucial for the development of the economy and there are real concerns that the required level of investment may not be realised. Ireland is already behind all of the other developed economies in terms of building a broad base of broadband access. Exhibit 2.4 illustrates the position of Ireland within the OECD in terms of broadband roll out.

Exhibit 2.4: *Population penetration of broadband access technologies*



Source: OECD 2001.

2.4. The role of the Government in closing the broadband gap

There are a number of roles for the Government to play in ensuring that Ireland bridges the broadband gap. The responsibility for ensuring the right environment for private sector investment is one major role and is explored in detail in this report. In addition, governments have a responsibility to ensure that broadband communications needs are met in areas where provision is likely to remain uneconomic for the foreseeable future – failure to do so would only serve to exacerbate an area's prevailing economic disadvantages.

There are a number of Public Private Partnership (PPP) models which could be adopted to try and ensure that the broadband requirements of the whole country are met as far as possible. The choice of appropriate model and the rules and regulations which must be followed in developing such a partnership are well understood through PPP initiatives in other sectors and other countries. Broadband communications will become an important component of infrastructure throughout the country as the Information Society develops.

2.5 Conclusion

There is some concern as to the future competitiveness of the Irish economy as it has already started to seriously lag behind others in terms of broadband deployment.

Analysys Limited is confident that market sentiment towards the telecoms sector at the moment reflects a dramatic over-correction to the inflated values on telecoms stocks in 2000. We believe that the market will recover and that confidence in the telecoms sector will return.

When investment confidence does return, it is important that Ireland is perceived as an attractive option for investment. This would ensure that the broadband gap in Ireland is closed within the same timeframe as in competing economies.

3 Summary of Key Points

- A lot of positive developments have occurred in Irish telecoms since 1998 and costs have fallen substantially.

- The deployment of operators' own programmes of investment, combined with application of Structural and Exchequer Funds, means that there are few parts of the country incapable of supporting reliable broadband services when affordable access becomes available. However, the improvement in absolute terms has not been matched by an improvement in Ireland's relative position when compared to other countries.

- A number of key recommendations in the 1998 Forfás report *Broadband Telecommunications Investment in Ireland* remain to be implemented and action has not always had the desired effect.

- The gap in availability of affordable broadband access for small businesses in Ireland relative to other countries is widening as the launch of DSL and cable modem services are delayed.

- The serious deficiencies in the powers of the regulator, as highlighted in the 1998 *Broadband Telecommunications Investment in Ireland* report, have yet to be rectified.

- New issues have emerged since 1998 which need to be addressed.

3 Implementation of the recommendations from the Report *Broadband Telecommunications Investment in Ireland*

This chapter considers the recommendations made in the report *Broadband Telecommunications Investment in Ireland* and assesses the extent to which they have been implemented.

3.1 Status of the recommendations

Exhibit 3.1 lists the main recommendations made in *Broadband Telecommunications Investment in Ireland* and provides a headline indication of the extent to which each has been carried out. It also assesses the extent to which the planned result of the recommendation has been achieved.

Exhibit 3.1: *Summary of status of implementation & results of recommendations*

Recommendation	Met	Result
Invest IEP50 million in ATM broadband switches in 22 high-density enterprise areas over the next two years	●	◑
Invest IEP150 million over five years in fibre in the local access network to meet the broadband needs of small and medium-sized businesses	●	●
Broadband should be provided to small businesses and the residential sector through a combination of ADSL and cable modem technologies over the next ten years at a cost of up to IEP300 million	○	N/A
Introduce competition for basic voice telephony services in advance of the derogation that Ireland has obtained to 2000	●	●
Effect an early sell-off of Cablelink to a company that would significantly invest in broadband and compete against the incumbent	●	◑
Extend the powers of the Regulator to include promoting competition, guarding against anti-competitive practices and protecting the interests of business customers	◔	◔
Establish a number portability facility by 1 Jan 2000	◕	◕
Proactively promote Ireland as an attractive location for investment by providers of broadband infrastructure and service	◕	◑
Support broadband development in peripheral areas by the use of Public Funds	●	●
Appoint a telecoms marketing expert to encourage investment in Ireland's broadband telecoms	○	N/A

● = fully implemented/desired outcome fully achieved
○ = not implemented/desired outcome not achieved

Source: Analysys

Exhibit 3.1 shows that while significant progress has been made, some important recommendations remain outstanding. Two of the most significant items are detailed below.

- Broadband communications to small and medium businesses through DSL and cable modems are not yet a reality. The timescale in the original recommendation was stated as "the next three to five years" for many businesses which has not been met. In addition many countries already have hundreds of thousands of broadband customer connections using these technologies. Lack of availability of affordable broadband access for small businesses is already lagging behind leading countries, and the gap is widening as the launch of these services in Ireland are delayed. Initial price indications are relatively uncompetitive and would inhibit the development of competition.
- The powers of the regulator have not been altered from the original Telecommunications (Miscellaneous Provisions) Act, 1996, which established the ODTR from 1997. Serious deficiencies in the powers available to the regulator as highlighted in *Broadband Telecommunications Investment in Ireland* report have not been addressed.

Section 3.2 explores the status of each recommendation in more detail, describing what has happened and giving the reasons behind the headline assessment.

3.2 Rationale behind the assessment

3.2.1 Investment in ATM switches

Recommendation

Invest IEP50 million in ATM broadband switches in 22 high-density enterprise areas over the next two years.

Action

21 ATM switches were in place by August 2000. A further 11 were scheduled for installation by the end of 2001. These switches are located in the key business areas.

Result

The ATM switches installed are delivering high-speed services and IP-based services to businesses on request. However, published prices for native ATM services are not available to business customers, as is the case in many other countries (e.g., the UK).

3.2.2 Investment in fibre for business access

Recommendation

Invest €190 million over five years in fibre in the local access network to meet the broadband needs of small and medium-sized businesses.

Action

Under the National Development Plan 2000-2006, the Government has made a provision of a €200 million incentive programme to promote investment in advanced telecoms in areas where it is clear that the market will not deliver sufficient investment, and to support the acceleration of the Information Society and ecommerce. This investment is being provided in regional programmes with two-thirds allocated to the lagging Border, Midlands and West region.

The first allocation of funding was awarded following an open competitive tendering process in January 2001 – operators were invited to submit proposals which were then assessed against the broad objectives of the programme. Of the thirteen projects approved at that time, nine are still going ahead. eircom has ceased plans for the roll-out of DSL in seventy towns across the country and Formus Communications, which was approved funding to provide wireless broadband services in the regions, has ceased trading. In August 2001, a second call for proposals was issued by the Department of Public Enterprise in consultation with Forfás and the development agencies and 31 projects were received by the closing date of 19 October 2001. In early March 2002 the Government announced its decision to proceed with an initial 19 towns for the deployment of broadband fibre optic loops and fibre connections to businesses.

Result

Nine projects are underway to improve business access to broadband communications in areas where the economic case for providing the services is not complete. Most of the projects are running to plan, although some face small delays resulting from movement restrictions imposed by the foot and mouth crisis in 2001. Work has commenced on the deployment of fibre optic metropolitan and business access networks in an initial 19 towns.

3.2.3 **Broadband availability**

Recommendation

Broadband should be provided to small businesses and the residential sector through a combination of DSL and cable modem technologies over the next ten years, at a cost of up to IEP300 million.

Action

There has been some activity on the broadband access front. Broadband wireless access licences have been awarded to eircom, Esat, Chorus and Formus. However, Formus ceased trading in early 2001. The roll-out and competition in these services has been limited to date.

The i-stream service announced by eircom was planned for launch on 2 October, 2001. However, the ODTR has intervened to prevent the service being launched until it is satisfied with the wholesale price.

The regulator has battled with eircom to allow access to unbundled local loops in order to meet obligations imposed by EU regulations but as yet, not a single copper pair of eircom's network has been unbundled by a competitor.

Esat has introduced nationwide broadband access via leased lines with distance-independent tariffs for lines at speeds of 155Mbit/s or higher. This is a significant development for larger business customers seeking location-independent connectivity wherever the Esat network is available.

Result

N/A

While the original recommendation specified that broadband access via affordable technologies should be carried out within ten years,

Ireland has already fallen badly behind competing economies in terms of broadband access via DSL and cable modems (see Exhibit 2.4).

3.2.4 Fully liberalise the telecoms market

Recommendation

Introduce competition for basic voice telephony services in advance of the derogation that Ireland has obtained to 2000.

Action

In May 1998, Mary O'Rourke, Minister for Public Enterprise, brought forward the full liberalisation of the telecoms market to 1 December 1998, choosing to abandon the derogation which Ireland had negotiated from the EU on full liberalisation of the telecoms market.

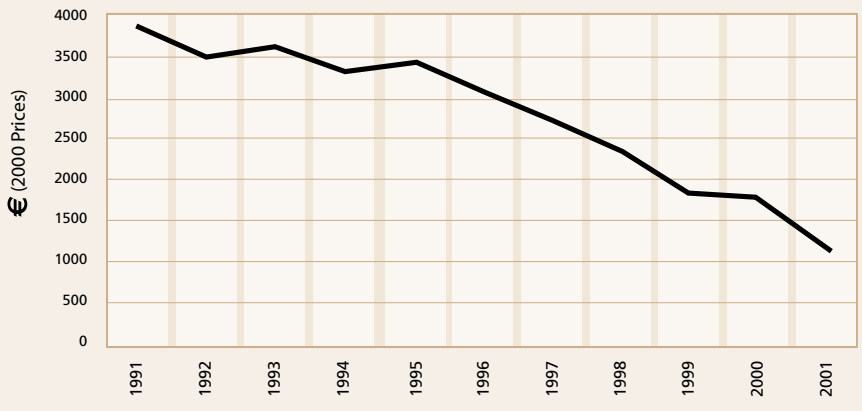
Result

Voice services provided by other operators, such as Esat, Cable & Wireless, ntl and Chorus, entered the market for basic voice services. The new entrant share of the PSTN market is now at 20%.

Real price competition is having a downward effect on prices paid for telecoms by all customers. Most of the price pressure is on usage rates, which have fallen significantly. Exhibit 3.2 below illustrates the effect of liberalisation on the cost per line for a six-line business. The price decline slowed as the incumbent anticipated the arrival of competition, and then resumed at a faster rate following the actual entry of competitors into the market. Similar patterns were seen in the prices of leased lines at the same time.

The improvement in the quality of service offered to customers is less easy to demonstrate but surveys indicate that there have been improvements in the responsiveness of operators to customer requests and queries since the advent of competition. For instance, a recent survey of SME businesses in Ireland revealed a high level of satisfaction with installation and delivery times, response to faults and availability of services.[2]

Exhibit 3.2: *Average cost per line per year to a six-line business in Ireland (1991 - 2001)*



Source: Analysys

2 *IMS Survey: SME Telecommunication Services Survey, October 2000.*

3.2.5 Effect an early sell off of Cablelink

Recommendation

Effect an early sell-off of Cablelink to a company that would significantly invest in broadband and compete against the incumbent.

Action

Cablelink was sold to ntl in July 1999 raising IEP525 million for its shareholders (Telecom Eireann (now eircom) and RTE). The sale attracted a lot of interest and competition for Cablelink was intense.

Result

ntl entered the market for basic telephony services in 2000 and competes directly with eircom for these services in its franchise areas (Dublin, Waterford and Galway). However, the plans ntl had for upgrading the quality of the cable networks in its franchise areas were shelved in 2001 because of difficulties in raising finance due to the change in financial market sentiment towards investments in telecoms ventures. ntl is proceeding with the launch of digital cable television in the Dublin area without the original planned network upgrades. In September 2001, the ODTR estimated that 25% of customers of cable television had access to digital television services.

The change in investment plans for network upgrade has hampered ntl's ability to offer broadband access. As a result, ntl offers only dial-up access, which is metered during business hours. This lack of progress in developing broadband access via cable is certain to have had the effect of delaying the roll-out of DSL services from eircom. This is because it reduces the pressure on eircom to offer broadband access services early (to avoid losing customers to ntl).

3.2.6 Extend the powers of the regulator

Recommendation

Extend the powers of the regulator to include promoting competition, guarding against anti-competitive practices and protecting the interests of business customers.

Action

The powers of the regulator remain unchanged from the powers granted to the Director of Telecommunications Regulation under the Telecommunications (Miscellaneous Provisions) Act of 1996.

Following the court case after the proposed award of the third GSM licence to Meteor, the government recognised that, when faced with an appeal, the regulator's decision should stand, pending a court decision, rather than the appeal suspending the decision of the Director until the outcome of the case. This was an important development as it makes obstruction of the ODTR's work through court action more difficult until the case in question is proven.

Result

The ODTR has had a very difficult time stamping its authority on the sector. Many of its decisions have been contested in court, though it has won all cases in first instance or on appeal. Its ability to impose fines for obstructing the work of the Director is very limited.

New legislation has been drafted to set up a regulatory commission for the telecoms sector that would address many of the problems encountered so far (see the analysis of the Communications Regulation Bill 2002 in Chapter 4).

3.2.7 Introduce number portability early

Recommendation

Establish a number portability facility by 1 January 2000 (instead of 2003).

Action

The ODTR established number portability for non-geographic numbers (1800 numbers etc) in January 2000. Portability for geographic numbers has been available since the end of November 2000. Full mobile-number portability is expected to be available by the end of 2002.

Result

Having to change numbers when changing operator represents a great barrier to shifting operators. This is particularly true for business customers as changing telephone numbers can result in substantial costs (changing stationery and signs, updating vehicle liveries, informing customers of the change, etc.). It has no doubt been an important contributor to the fact that 20% of customers now use a telecoms supplier other than the incumbent.

By the same token the lack of full number portability for mobile services has reduced the competitive nature of the mobile market. This is critical with a third operator in the early stages of service roll-out. A lack of number portability serves as a real barrier to the third operator being able to compete in the lucrative business market (where changing numbers can have a host of associated knock-on costs).

3.2.8 Promote Ireland as a target for broadband investment

Recommendation

Proactively promote Ireland to providers of broadband infrastructure and services as an attractive location for investment.

Action

Of particular note was the Government initiative to achieve a significant improvement in Ireland's international connectivity. Following a process of competitive tender, the Government entered into a partnership with Global Crossing in 1999 resulting in a 15-fold increase in Ireland's international connectivity.

Result

Since 1998, a large number of companies, both indigenous and from abroad, have invested in telecoms in Ireland. Some of these organisations will offer affordable broadband services when they can get access to the unbundled infrastructure that they need to reach the customer.

As on December 2001, of the 88 licensed telecoms operators in Ireland, 47 held general licences and, of these, 18 had (or were planning to roll out) their own network infrastructure. A further 31 basic telecoms licences have been issued and, of these, 15 have deployed (or are planning to deploy) their own infrastructure. All of this represents a very dramatic increase in the overall level of activity in the Irish telecoms market since 1998.

3.2.9 Support broadband roll out in peripheral areas

Recommendation	Support broadband development in peripheral areas by the use of public funds.
Action ●	The initiatives identified in Section 3.2.2 address the issue of availability of broadband-capable backbone infrastructure in peripheral areas. Various government agencies have also been involved in looking at the issue of telecoms infrastructure in peripheral regions.
Result ●	The availability of backbone infrastructure has improved dramatically in the last few years. The deployment of operators' own programmes of investment, combined with the application of Structural Funds, has ensured that there are few parts of the country incapable of supporting reliable broadband services when affordable access becomes available.

3.2.10 Appoint a telecoms marketing executive

Recommendation	Appoint a telecoms marketing expert whose role it will be to encourage investment in Ireland's broadband telecoms.
Action ○	No action has been taken.

3.3 Conclusion

Many of the issues raised in the report *Broadband Telecommunications Investment in Ireland* have been addressed and there has been a marked improvement in the services available to telecoms customers in Ireland. However, the improvement in absolute terms has not been matched by an improvement in the country's relative position when compared with other countries. Creating the right regulatory environment will be crucial to improving this position. The following chapter looks at the Communications Regulation Bill 2002, which is designed to make the necessary changes to the regulatory framework.

4 Summary of Key Points

- Strongly pro-competitive and efficient telecoms regulation is a prerequisite for the competitiveness of the Irish economy.
- There are concerns with some of the draft provisions of the Communications Regulation Bill 2002 and these should be addressed before the Bill becomes law.
- Once the concerns with the draft legislation have been addressed, the Communications Regulation Bill 2002 should be passed into law as quickly as possible.
- Fines on conviction should be increased significantly from the proposed level of €1 million.
- The relationship between the proposed Commission for Communications Regulation and the Competition Authority where disputes over jurisdiction may arise, needs to be clarified.
- The procedures adopted by local authorities to allow operators to lay infrastructure need to be co-ordinated and made consistent through the introduction of planning regulations.
- The Communications Regulation Bill 2002 should provide sufficient powers for the regulator to introduce a fixed rate interconnect package, enabling the launch of competitive low-cost flat-rate Internet access by operators.
- The Commission should have powers to impose fines for each day that unbundled access to local loops is not provided.
- Provision should be made for periodic (i.e., three- to five-year) reviews of the functions and powers of the Commission, identifying areas where real competition is established and can therefore be freed from regulation.

4 Assessment of the Regulatory Environment

This chapter provides the results of Analysys's review of the text of the draft Communications Regulation Bill 2002 from the point of view of an observer considering investing in broadband communications in Ireland. It draws on our discussions with suppliers and users of communications services, and from our experience of the regulatory framework of other countries where the development of broadband communications is more advanced.

Our review contains a high-level discussion of the general thrust of the published draft Communications Regulation Bill 2002, comments on some of the individual heads, an analysis of how the proposals address the concerns raised in *Broadband Telecommunications Investment in Ireland* report, and comments on issues which are omitted from consideration in the proposed legislation.

4.1 An overview of the draft Communications Regulation Bill 2002

The *Broadband Telecommunications Investment in Ireland* report contained an assessment of the legislation (the Telecommunications (Miscellaneous Provisions) Act of 1996) which established the ODTR in 1997. There are now plans to revise the regulatory framework and a draft Communications Regulation Bill has been the subject of consultation by the Department of Public Enterprise. A draft of the Bill was published by the Department of Public Enterprise following approval by Government in March 2001 and a revised draft of the Bill was approved by Government in mid-February 2002 for publication and submission to the Oireachtas.[3]

The draft Communications Regulation Bill 2002 is designed to provide a regulatory regime for the telecoms industry, which reflects the major technological, market, and competitive changes that have affected the industry in recent years. Provision is being made to:

- replace the ODTR with a Commission for Communications Regulation;
- increase transparency in relation to governance and accountability in the regulatory process;
- broaden the scope of the powers of the Commission in the exercise of its functions in light of the emerging EU regulatory framework;
- strengthen the powers of the Commission to promote competition in the telecoms sector;
- provide for effective powers of enforcement of the Commission's decisions.

The proposals are based on the premise that the pace of development in the communications sector is such that efficient regulation is a pre-requisite for competitiveness. However, the Bill will not give effect to the new European Commission `Telecom Package' of five directives which was adapted in early 2002. The Bill omits a number of the sections approved by Government in March 2001, including establishment of appeals panels.

3 Available at www.dpe.ie

In particular there are a number of provisions in the draft Communications Regulation Bill 2002, which would serve to ensure transparency and accountability in the regulatory process, namely:

- the clear statement of objectives that are to guide the work of the regulatory commission in the draft Communications Regulation Bill 2002 – in particular that it strives to promote and sustain a competitive market, and that it will have a public interest responsibility;
- that the proposed new Commission for Telecommunications Regulation operates within government policy guidelines to facilitate the development of the telecoms sector as an important instrument in achieving national social and economic objectives;
- that the Commission shall be independent with regard to its function in the day-to-day regulation of the telecoms industry – such independence is an essential component in developing a competitive telecoms industry as one important instrument of social and economic progress;
- that provisions for formalising the issue of strategy statements will further clarify the objectives of the regulator and improve accountability.

4.2 Comments on some sections in the legislative proposals

This section looks at the specific sections in the draft Communications Regulation Bill 2002 which require modification if the most favourable climate for broadband investment is to be created. This analysis does not constitute a detailed legal analysis of the Bill but an assessment of the potential industry outcomes.

Section 13: Directions by Minister

This section seeks to ensure that the Commission shall be independent in the day-to-day regulation of the telecoms industry. However, the Minister retains overall policy responsibility for the communications sector and for the management of the radio frequency spectrum. The Commission must remain subject to that general policy and to Ireland's obligations under international agreements. The section makes clear that any policy directions must be transparent and must relate to policy issues rather than to matters coming within the day to day responsibilities of the Commission.

This proposal presents dangers in terms of blurring the distinction between developing policy and enforcing the rules. Traditionally, policy formulation is the responsibility of politicians and should remain so. However, detailed formulation and enforcement of the rules is a matter for the independent regulator who has a responsibility for ensuring policy implementation. The actions of the regulator are currently totally independent. This proposal would blur the distinction by allowing the Minister to force the regulator to formulate or enforce the rules in a specific way.

The most immediate danger from this proposal is one of perception – operators considering setting up businesses in Ireland may question the real independence of the Commission as a result of such a proposal.

In order to provide a transparent policy context for the commission and reduce any possible need for the Minister to issue policy directives, consideration should be given to the publication of a policy statement on the sector by the Minister at maximum intervals of (say) 2 years.

Section 30: Levies and Fees

Under the Telecommunications Act 1996, the ODTR has imposed a levy on telecoms operators to contribute to the running costs of that Office and to cover the costs of the Minister in paying the annual subscriptions to international telecoms organisations. The new draft Communications Regulation Bill 2002 provides that the levy shall apply to providers of "electronic communications services" rather than providers of "telecoms services" to reflect the ever-increasing convergence of telecommunication, television and the Internet.

While we agree that it is important for the ODTR to have its own revenues independent of government funding, the wording causes potential concern for organisations considering investing in broadband in Ireland. This is because there is no definition of the circumstances in which the levy could be imposed, the rules for the imposition of the levy or how the burden will be distributed across the telecoms service providers. The section is also unclear on the type of organisation the levy would apply to – would it apply to Internet service providers, for instance?

Section 35: Cooperation between Commission and Competition Authority

This section follows the recommendations set out in Governance and Accountability and in the *Final Report of the Competition and Mergers Review Group.* It allows the Commission and Competition Authority to consult with each other on specific cases and to exchange information.

In the event of a disagreement between the Commission and the Competition Authority as to which has jurisdiction over a particular case or issue, who will decide which opinion should hold sway? Clarity at this stage could avoid much delay when urgent action is needed.

Section 43 & 47: Offences and increase of penalties

This section sets out the offences and penalties for those who fail to comply with a compliance notice of the Commission under this Act.

It is important that a system of penalties be put in place which provide for timely and speedy enforcement of breaches of the regulatory regime. A maximum fine of €3,000 for a summary conviction does not appear to be a sufficient deterrant. The alternative of six months imprisonment should also be included.

The fines on indictment of €1,000,000 should be increased by a factor of 10 or greater and should be subject to frequent review. The majority of offences which apply under the code should be indictable offences. The redress, available under summary conviction, is not a deterrent to any significant organisation which chooses to defy the lawful instructions of the regulator.

Section 55: Opening of public roads for establishment of electronic communications infrastructure

The purpose of this section is to give road authorities a greater degree of control over the opening of roads for the purpose of establishing electronic communications infrastructure, thereby reducing the disruption to traffic, residents and businesses. Network operators will have to seek the consent of the road authority to open a road, whereas currently they need only notify them.

Such legislation would oblige operators to seek the consent of road authorities to lay telecoms infrastructure under roads, rather than just notifying them as is currently the case. This would greatly increase the uncertainty faced by operators in planning their network roll-out.

Road authorities have seriously disrupted the roll-out plans of operators by introducing delays. Such problems can be particularly acute when an operator wishes to deploy a network along the roads of one county which ultimately serves a town in another county. In some cases, road authorities in the transit county have taken issue with such build.

Implementation of this section would increase the uncertainty faced by operators in planning network deployment and so would tend to discourage investment. The development of a national set of guidelines and notification procedures that all local authorities implement consistently is preferable.

Section 58: Physical infrastructure sharing by infrastructure providers

This section provides for the sharing by infrastructure providers of their facilities with other providers and applies only to that part of their infrastructure which is used to support electronic communications infrastructure.

This section is welcome in that it allows and encourages the sharing of infrastructure which is used to support electronic communications. The Commission would be empowered to intervene should any such request be unreasonably denied. The availability of shared infrastructure could help to lower infrastructure costs, thereby making investment in Ireland a more attractive option for companies weighing up investment opportunities.

Section 59: Lopping of trees

This section refers to the powers of operators to lop or cut trees or shrubs which interfere with over-ground infrastructure. This section is based on Section 22 of the Telecommunications (Infrastructure) Bill, 1999 and provides that where a tree or shrub interferes with telecoms infrastructure, the network operator may, upon service of a notice to the landowner, cut back the tree or shrub. The landowner may choose to cut back the tree or shrub him or herself, in which case the network operator shall pay for any expenses incurred.

This section ensures that the operator can do what is needed and could be considered as a model for an alternative approach to Section 55.

Section 61: Compliance Order

Specifying the means by which a compliance notice is to be delivered (in person, leaving it at an address, or sending it by a prepaid registered post to the address at which the person carries out business) would seem to preclude the Commission from sending a compliance notice to an organisation operating outside the State, which only publishes an email Internet address. Electronic delivery of a Compliance Notice should also be considered.

4.3 Analysis of the concerns raised in the Broadband Telecommunications Investment in Ireland Report

The following table lists the concerns raised in the *Broadband Telecommunications Investment in Ireland* report and how they have been addressed in the draft Communications Regulation Bill 2002.

Concern regarding 1996 Act	Fully addressed in the draft Communications Bill	Comment
The regulator has no defined objectives in law.	Yes	The objectives and powers of the Commission will be much more clearly defined in the proposed legislation
The regulator funds its activities by imposing a levy on the industry	No	Concerns about levies expressed in the previous report still apply to the proposed legislation
The Minister for Public Enterprise retains the power to set and review the price cap	The five-year period during which the Minister had power over the price cap has expired	
There was no statutory guarantee that information given to the regulator would be treated as confidential	Yes	Confidentiality of information surrendered is now guaranteed
Fines for non-compliance	Partially	Fines of up to €1,000,000 will be possible under the proposals, which is not a sufficient deterrant. Fines for summary convictions which can be imposed on individuals have been increased to €3,000.
Interconnection was not mentioned in the 1996 Act.		Not an issue of great concern now, that an interconnection regime is up and running
No substantial mention of numbering in the Act		Work is progressing well under the existing legislation. This is not an issue for concern
The Act did not contain a timescale for liberalisation	The Irish market was liberalised in December 1998	No longer applicable

4.4 Omissions

Financial Payment Obligation

The draft Heads of the Bill of March 2001 contained a provision that where the Commission initiated criminal or civil proceedings, in lieu of continuing such proceedings, the Commission could impose a financial payment obligation upon the person against whom such proceedings are initiated.

This was potentially a very strong power to put at the disposal of the Commission. It could rapidly resolve situations where an operator, through obstructive behaviour inflicts severe financial damage on its competitors through failure to comply with the decisions of the Commission.

New entrants to the telecoms market might be likely to take some comfort from the ability of this power to curtail obstructive behaviour by large players already in the market and its re-inclusion in the Communications Regulation Bill 2002 should be considered.

Procedures to be Followed by the Commission

The provisions in relation to the procedures to be followed by the Commission have been omitted from the most recent draft of the Bill. The clarity offered by the inclusion of these procedures would offer some protection against challenges of a procedural nature to decisions of the regulator and serve to provide long term certainty as to the operation of the Commission.

Sun-Setting Regulation

The issue of a periodic (three to five-year) review of the powers of the Commission and their level of appropriateness for the prevailing conditions in the Irish telecoms market would seem to be appropriate for inclusion in the proposed legislation. Such a review could result in a report to the Minister recommending areas in which real competition is established (and which can therefore be freed from regulation), and areas where the Commission's powers seem to be insufficient and should be extended. The logical extension of this review is that once full competition in telecoms is achieved, the Commission should be disbanded and all of its responsibilities should devolve to the Competition Authority.

Fixed Rate Internet Access

So as to provide for fixed rate Internet Access, the ODTR should be consulted and an assessment made as to whether it has sufficient powers to introduce a fixed rate interconnect package as quickly as possible. It is currently unlikely to have sufficient powers if a request for special network access by a competitor is made and this needs to be included in the Communications Regulation Bill 2002.

Unbundling the local hoop

Similarly the Commission should be given specific powers to impose fines for non-compliance with the unbundling regime. In the UK, Oftel proposes to impose a fine for each day an unbundled loop is unavailable and similar powers for the regulator in Ireland may see some take-up of the right to access unbundled local loops.

4.5 Conclusion

The draft Communications Regulation Bill 2002 to create the Commission and extend the powers of the regulator is generally a good document. There are some flaws however and it is important that these are dealt with, that the Communications Regulation Bill 2002 is put to the Houses of the Oireachtas as quickly as possible – and that this is then enacted into law. Great efforts should be made to ensure that this is carried out as early as possible in 2002 as its draft status creates regulatory uncertainty which is not attractive to potential investors.

5 Summary of Key Points

- There has been a strong improvement in the competitiveness of telecoms in Ireland since March 1998. However, the availability of reliable high-speed leased lines outside the major cities is not satisfactory. Outside Dublin, competition remains poor, prices high and network quality can be variable. Ireland's relative performance is poor for fixed rate broadband access.

- Considerable improvements have been made in the provision of competitive leased lines, both nationally and internationally. However, competition in the provision of leased lines is being hampered by interconnection prices (amongst the highest in the EU) and excessive delays in delivery times.

- There has been no commercial launch of DSL and cable modems, both of which could offer relatively high-speed, always-on access to residential and small business customers.

- Mobile phone prices for business users are among the most expensive in the EU.

5 Competitiveness of the Irish telcoms market

Forfás has monitored developments in various aspects of the Irish telecoms sector for a number of years, benchmarking these against the situation in other countries[4]. The relative performance of its telecoms market has been good and its relative position has improved steadily (from tenth to sixth place) in the countries monitored. However, overall performance has mainly been due to strong improvements in basic voice telephony which has little bearing on broadband communications.

Strong improvements have been seen in the provision of competitive leased lines both nationally and internationally. But in the area of low-cost medium-band and broadband access, Ireland's performance is relatively poor, with ISDN being expensive and poorly delivered. New access technologies such as DSL are completely unavailable, as illustrated in Exhibit 2.2.

The provision of broadband at the high usage end of the data communications market is, at this stage, still fairly restricted to larger corporates with larger SME businesses increasingly moving into this market. The main services associated with the use of broadband in this market are leased lines, both national and international, and frame relay technology. The ODTR commissioned Irish Marketing Surveys[5] to examine the views of large businesses with respect to the provision of broadband services in Ireland. Results show that some companies operate with more than one type of broadband access and the most common type of access by far is leased lines with 62% of respondents using a national leased line, 40% using international leased lines and 48% using frame relay for data communications.

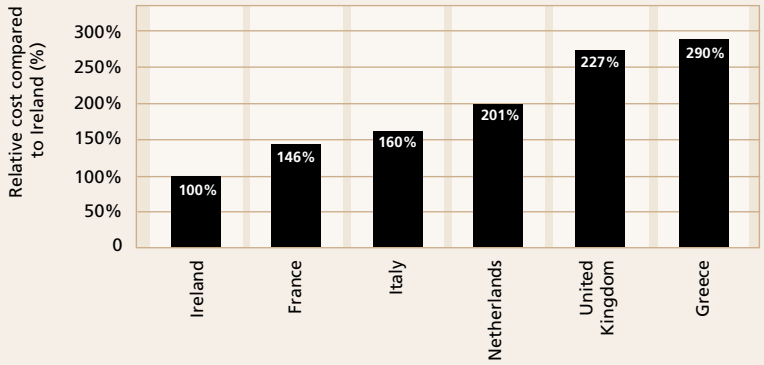
5.1 Leased lines

When the *Broadband Telecommunications Investment in Ireland* report was first published, leased lines tariffs were only available in multiples of 2Mbit/s – a very expensive way of accessing high-speed, leased line communications. Since then, availability and price have improved enormously and they are now available at speeds up to billions of bits per second.

Not only has the availability of leased lines improved dramatically but the overall level of service has improved. However, operators who compete with eircom and purchase leased line capacity from eircom have significant issues on the timeliness of delivery and the quality of the lines. Ireland is one of only three countries to publish performance measures for leased lines. Most importantly, prices have fallen dramatically in the last three years. Ireland went from being the most expensive place in Europe for leased lines to the highly competitive position illustrated in Exhibit 5.1.

4 Telecommunications Benchmarking Report - periodic reports by Teligen for Forfás.
5 IMS Telecommunications Services Survey, ODTR, June 2001.

Exhibit 5.1: *Price of 2Mbit/s International Circuit relative to the Irish Price, November 2001.*



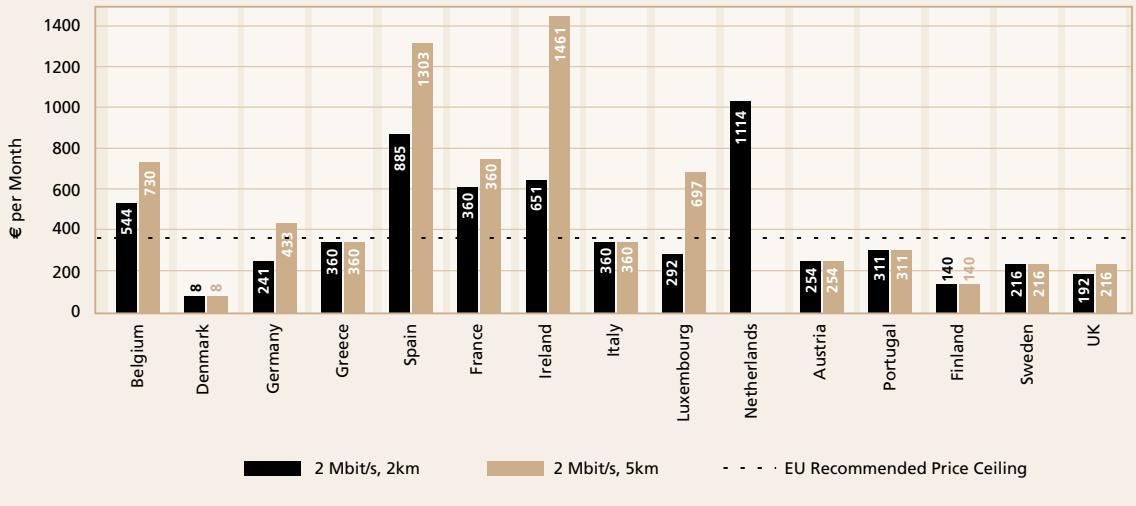
Source: Analysys

The greater international connectivity provided by Global Crossing since June 2000 has led to reduced prices and greater reliability. In terms of nationwide service, Esat has introduced broadband access with a single, distance-independent, tariff – however, this only applies to lines at 155Mbit/s or above and relies on ready access to the Esat network.

In the regions outside Dublin though, overall competition remains poor and prices high. Key concerns mentioned in the Teligen report include the lack of availability of higher speed line services in some parts of the country, expensive national leased lines and in the case of higher speed lines, price lists are not available (c.f. in the UK, where price lists are available for high-speed 622Mbit/s lines). Strong concerns were also expressed by a panel of business representatives regarding the resilience of leased lines outside the major conurbations and the high prices charged for local tail circuits.

The development of competition is also being hampered by the high leased line interconnection prices in Ireland relative to other countries and the fact that these remain significantly higher than EU benchmark prices set in 1999. Exhibit 5.2 shows monthly rental prices charged by incumbent operators for short-distance leased lines interconnection circuits to other interconnected operators.

Exhibit 5.2: *Leased Line Interconnection Prices for 2Mbit/s Local end circuits*



Source: Total Research - Teligen. Cited in the Seventh Report on the Implementation of the Telecommunications Regulatory Package, published by the European Commission in November 2001.

While the December 2001 quarterly review from the ODTR reports a dramatic improvement in the delivery times of leased lines from eircom to competing operators, timeliness is still substantially longer than the 21 days prescribed by the EU.

5.2 Low-cost broadband access

New technologies such as DSL and cable modems offer relatively high-speed access to residential and small business customers at prices which are very low when compared with the traditional prices of leased line access. As such, they are seen as critical to ensuring the widespread deployment of broadband communications. One or both of these access technologies is available on a commercial basis in almost every country in Europe except Ireland.

Ireland was developing these technologies and was expecting to see commercial services introduced by mid-2001. However, in March 2001, ntl decided to postpone the network upgrade programme which would have enabled it to offer cable modem services, thereby removing the competitive momentum. Within weeks of ntl's announcement, eircom announced delays in its commercial deployment of DSL. Meanwhile, hold-ups in agreeing the framework for local loop unbundling have ensured that no other operator has yet been able to offer DSL services over eircom's access network.

The commercial absence of these technologies poses considerable threats to the competitiveness of Irish business. eircom announced that its i-stream DSL service would be available in some locations in Dublin from October 2001. However, concern over the high prices for wholesale access to this service forced the regulator to intervene and the launch has been postponed. Lack of availability affects not only residential and small business customers but also large corporations, which need employees to be able to access corporate intranets at usable speeds from home.

5.3 Frame relay

Ireland has continued to strengthen its frame relay services over the last couple of years, moving from an average competitive position to a joint second position (with Belgium) by April 2001, and significantly narrowing the gap that separates it from the leading country, the UK. Recent improvements are due to an increase in the number of providers. Ireland has consistently been offering the cheapest frame relay rates of the three countries with published prices.

5.4 ATM

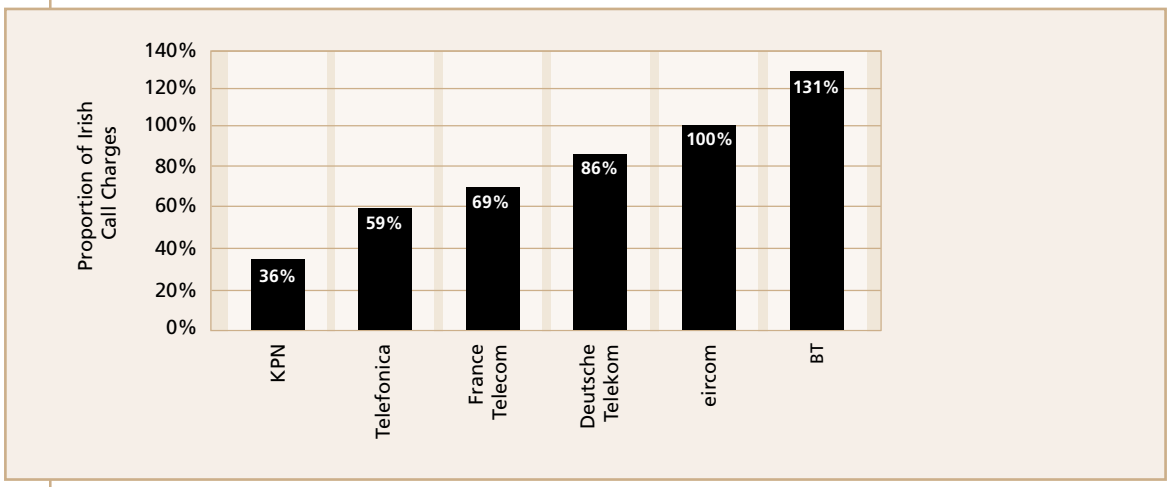
The *Broadband Telecommunications Investment in Ireland* report called for widespread deployment of ATM switches in 22 centres around the country. At that time, ATM services were unavailable in the country. Since then, ATM deployment has followed the recommended approach and services are available, although there are no published service prices. Teligen currently ranks ATM services in Ireland fourth out of twelve countries – a considerable improvement given the total absence of these services three years ago.

5.5 ISDN services

Although ISDN is not a broadband service per se, it is a ubiquitous medium-band technology and as such often represents a good transition technology for small businesses where less expensive alternatives are unavailable.

Ireland is in a relatively weak position with regard to ISDN; it is ranked tenth out of the 12 countries studied. The ISDN market has been hampered by delays to installation, poor competition (due to the lack of alternative technologies such as DSL) and high prices – Exhibit 5.3 illustrates the relatively poor position of Irish ISDN call rates. Other countries, such as the USA, Sweden and Belgium, have promoted competition in this area, and this has lead to significant price decreases.

Exhibit 5.3: *ISDN call charges as a Proportion of eircom ISDN call charges, November 2001.*



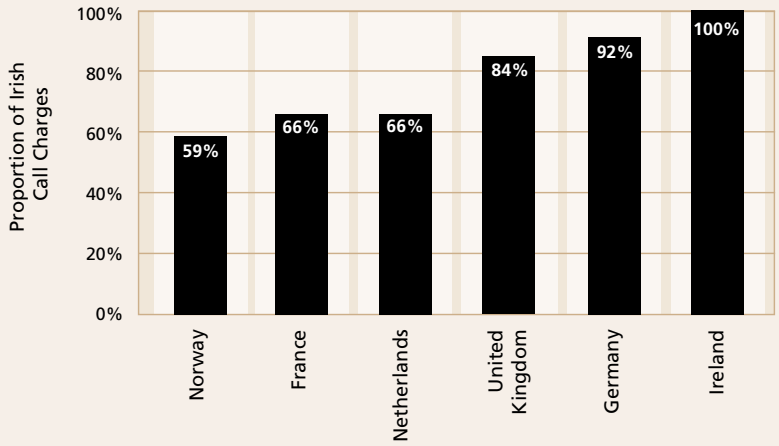
Source: Analysys

Despite the relatively low attractiveness of ISDN in comparison with DSL or cable modem, penetration has increased swiftly: the number of ISDN access channels grew by 50% in the year to June 2001. A possible explanation for the recent surge in demand (given the relatively low levels of customer satisfaction with the service) is that it represents a strong latent demand for the higher bandwidth services of DSL or cable modem. Many businesses feel that these services are unlikely to be available in the short term and so have opted to take an ISDN service in the interim.

5.6 Mobile services

Ireland has had some of the most consistently expensive mobile telephony charges in Europe, as illustrated in Exhibit 5.4. Competition was hampered due to the court action taken by Orange following the ODTR decision to award the third GSM licence to Meteor. Meteor was finally issued with a licence in June 2000 and launched its service in February 2001. Under the licence conditions, Meteor will be obliged to provide coverage to 80% of the population within two years. Consequently, competitiveness in the mobile telephony area is expected to improve significantly.

Exhibit 5.4: *Cost of ownership as a proportion of the cost of mobile ownership in Ireland, November 2001.*



Source: Analysys

Ireland and Luxembourg are the only two countries in the EU15 not to have awarded 3G mobile licences. However, in December 2001 the dispute between the ODTR and the Department of Finance about the fees to be charged for the relevant licences was resolved. The ODTR expects the licences to be awarded in the middle of 2002, with services launching in early 2004.

High prices and delays in the availability of 3G services are of concern to businesses in Ireland. As working practices become more dependent on mobile technologies, this concern can only become greater if the relative competitiveness of the mobile market in Ireland does not improve over the next two years.

5.7 Conclusion

As we have seen, the performance of broadband communications in Ireland is mixed. Strong improvements have been observed in recent years but the country is trailing in some significant areas such as DSL and cable modem.

The next chapter examines the actions which could be taken to improve the climate for investment in the telecoms sector.

6 Summary of Key Policy Requirements

- Facilitate widespread flat-rate access to narrowband and broadband communications at competitive prices through the introduction of a flat-rate interconnection package.

- Creating regulatory certainty is key to attracting the required broadband investment from operators. The passage of Communications Regulation Bill in early 2002 is critical to this and should be amended to:
  - clarify the relationship between the proposed Commission and the Competition Authority
  - increase fines for non-compliance or breach of licence conditions
  - empower the regulator to introduce a flat-rate interconnection package to enable competitive flat-rate Internet access.

- A comprehensive set of national planning regulations should be introduced to provide certainty to operators with regard to infrastructure deployment.

- The Government should develop Public Private Parternships to ensure that essential broadband infrastructure is available where the market is failing to deliver.

- Where funding is provided to public bodies and local authorities, telecoms deployment should be co-ordinated and implemented in a technically consistent manner through the establishment of a national body.

- Additional fiscal incentives should be considered to encourage investment and the low corporation tax rate strongly promoted, to potential new telecom operators.

- Public and private sector demand stimulation and aggregation programmes should be used to encourage investment and to ensure the widest possible broadband access coverage.

- Restrictions on providing licensed programme services via the telephone network should be removed.

- Consideration should be given to separating eircom's retail and local access network businesses so as to provide a common high-quality, open access network which would allow a range of providers to offer services on an open access basis.

- The cost and timeliness of delivery of leased lines should be reviewed and fines for late delivery increased as required.

- The Neutral Internet Exchange (INEX) requires to be upgraded and promoted to attract a wider range of international telecoms operators to exchange Internet traffic in Ireland.

- The options for encouraging greater linkages and interconnection between the telecoms networks of commercial semi-state bodies (including ESB, Bord Gáis and CIE) should be reviewed and actively promoted.

6 Strategies to position Ireland advantageously for investment

This chapter examines a set of proposals that could be used to improve the climate for broadband investment in Ireland. Areas for possible action include:

- facilitating widespread flat-rate access to narrowband and broadband communications at competitive prices
- amending and enacting the draft Communications Regulation Bill 2002 as quickly as possible
- stimulating fixed and mobile infrastructure deployment
- stimulating and aggregating demand to ensure the widest possible broadband access coverage
- Taking an active role in the provision of broadband communications in areas where commercial deployment of appropriate technologies is uneconomic and likely to remain so.

6.1 Improving the narrowband regime

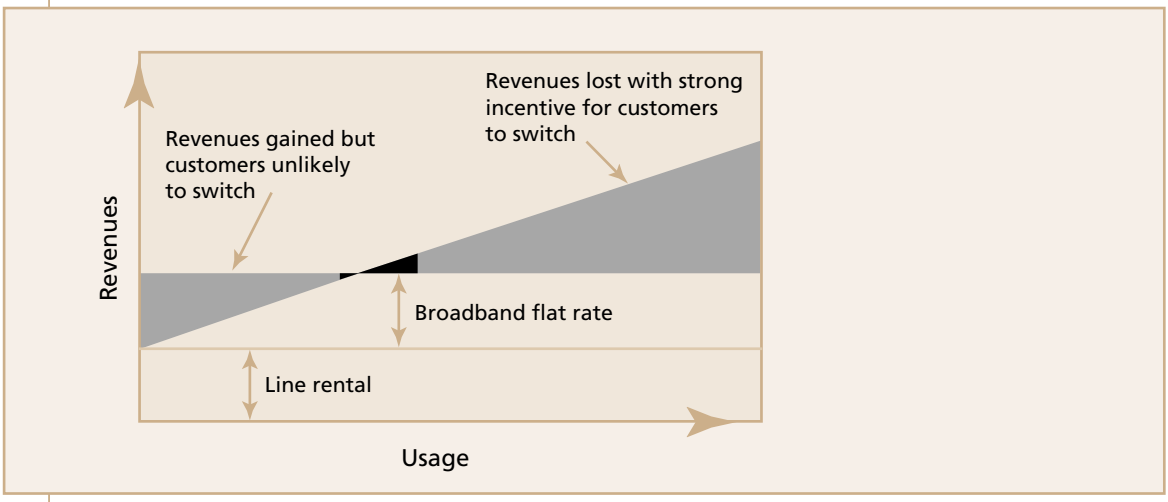
Narrowband communications and the way they are priced have a very strong influence on broadband investment decisions. As well as carrying risks of its own, investment in broadband access technologies stands to put the currently substantial narrowband revenues at risk.

Internet access via narrowband (currently the only option in Ireland for those unable to afford a leased line) is charged to the end user on a usage basis – the more the service is used, the more the customer pays. Price is calculated on the basis of very low levels of usage, reflecting levels usually associated with an average telephone line (small numbers of minutes of usage per day). However, the reality is that lines are being used for hours at a time, generating substantial revenue which in no way reflects the actual costs associated with providing the service. These revenues would be threatened if:

- flat-rate narrowband packages were introduced
- high-usage customers transferred immediately to broadband access (generally priced at a flat-rate for always-on access).

Exhibit 6.1 (below) illustrates the revenues which would be lost.

Exhibit 6.1: *Revenue implications of flat rate broadband*



Source: Analysys 2002

Incumbent operators cite potential revenue losses as an argument against deploying flat-rate broadband technologies. Furthermore, any competing operator wishing to offer flat-rate packages is forced to pay for interconnection on a timed basis. Esat faced this problem when it was forced to remove service from some intensive "No Limits"[6] customers – charging a flat rate to your customer when paying for usage to your interconnection supplier can be unsustainable.

The situation could be transformed if the incumbent offered a flat rate interconnection package so that a competing operator could pass this on to its customers in the form of a flat rate package. Competition would emerge quickly as operators compete to win customers. The incumbent would be forced to offer its own comparable packages. Flat-rate access among heavy users would become the norm and the disincentive of revenue loss from the introduction of broadband would be removed – those revenues would be gone anyway. For example, in the UK in 2000, Oftel imposed a Flat Rate Internet Access Call Origination (FRIACO) interconnection product on BT. As a result, a number of ISPs are offering packages with unlimited access to the Internet, twenty-four hours a day for under GBP15 per month (€25).

Given that the demand for ISDN services in Ireland is growing strongly (reflecting the lack of DSL availability and that some parts of the country are unlikely to see roll-out for some time), it may be of benefit to consider mandating an ISDN flat-rate interconnection product also. This would allow those not reached by DSL technology to benefit from some of its advantages.

One concern expressed by some operators is that there may be insufficient interconnection capacity available should a flat rate product launched by them be subject to anticipated levels of take-up. This potential problem should be investigated as the FRIACO interconnect products are designed.

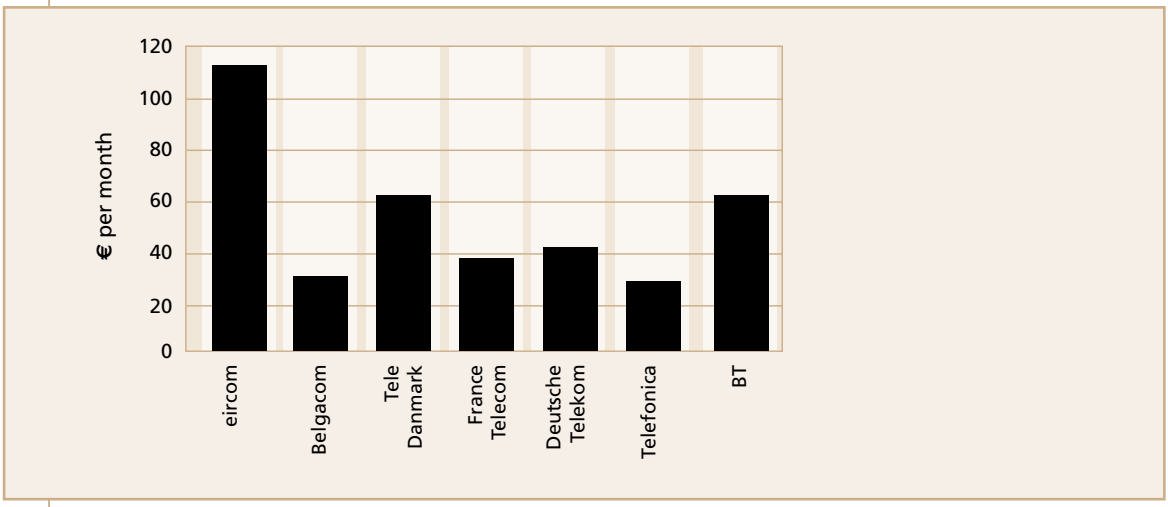
6.2 Scrutinising the i-stream product from eircom

On 12 September 2001, eircom announced its plans to make DSL services commercially available in parts of Dublin. This is a welcome development but concern has been expressed about different aspects of the service. The primary concern is price. Exhibit 6.2 and Exhibit 6.3 show the average monthly cost of subscribing to i-stream, compared with the cost of subscribing to equivalent services from other European operators. The exhibits show that the price for the eircom service is the highest among those surveyed for both the low-end and high-end i-stream products. For residential customers, the cost is around 75% more expensive than the next most expensive offering.

The eircom price for business customers is also the highest among the countries surveyed. While many businesses will welcome the launch of the i-stream on the basis that an expensive service is better than no service, such high prices are likely to dampen demand in the longer term.

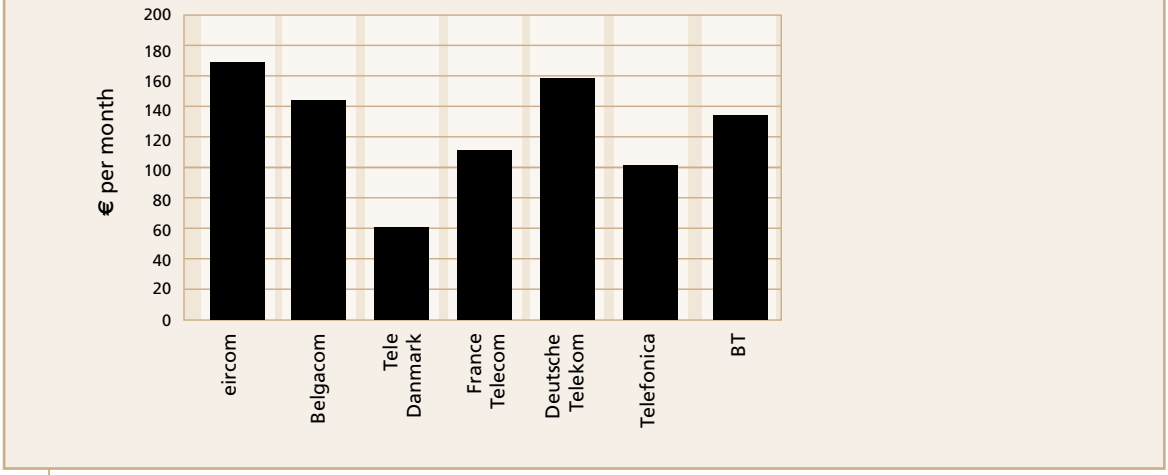
6 The Esat flat rate package for narrowband access to the Internet.

Exhibit 6.2: *Cost of subscribing to low-end DSL services*[7]



Source: Analysys 2001

Exhibit 6.3: *Cost of subscribing to higher end DSL services*[8]



Source: Analysys 2001

Concerns regarding the i-stream product are not limited to price. A much greater range of DSL services are available in many other countries to meet the needs of the enterprise sector. The offerings from eircom are limited in their ability, e.g., to deliver video-based services because of the relatively low bandwidth downlink speeds.

The regulator should continue to investigate eircom's proposed charges in order to understand how cost-oriented they are, with particular attention being paid to wholesale price. If this is found to be unjustifiably high, when assessed against the costs of an efficient operator, then the regulator should direct eircom to lower these charges.

7 The costing apportions the set-up charge over a 36-month period. Prices exclude VAT. The service priced is 128kbit/s upstream, 512kbit/s downstream for a single user - the eircom i-stream residential service or its nearest equivalent from the other operators.

8 The costing apportions the set-up charge over a 36-month period. Prices exclude VAT. The service prices is 256kbit/s upstream, 1Mbit/s downstream - the eircom i-stream business service or its nearest equivalent from the other operators.

6.3 Creating regulatory certainty

The passing of Communications Regulation Bill 2002 could eradicate a great deal of uncertainty in relation to the regulatory regime in Ireland but we also feel that the current Communications Regulation Bill 2002 would benefit considerably from some changes before this occurs. Chapter 4 contains our comments on the draft Communications Regulation Bill 2002.

Given the benefits of establishing a flat rate interconnection product (as outlined in Section 6.1), it would be advantageous to ensure that the draft Communications Regulation Bill 2002 gives the Commission the necessary powers to impose a flat rate interconnect product on eircom.

There is also some concern about the powers of enforcement in the draft Communications Regulation Bill 2002. The maximum level of fines which can be imposed on operators found guilty, by summary conviction of failure to comply with the regulatory regime, is €3,000. The sanctions upon conviction for an indictable offence at €1m. Any offence under the Communications Regulation Bill 2002 which is not indictable will be impossible to enforce against a determined offender with such a low level of fines for summary conviction.

There is also an emerging concern that eircom, under new ownership financed by a very high level of debt, will cut back on capital investment, preferring to reduce its debt rather than invest in its network. Such a decision would be the right of a private company. However, if the fall in investment is such as to seriously undermine the reliability and functionality of the network, then some provision for the Commission to intervene should be considered in the Communications Regulation Bill 2002. At the very least the price-cap powers of the regulator should be examined to ensure that the regulator has the power to reduce the prices charged to customers, if a reasonable proportion of revenues is not reinvested for the future benefit of those customers.

6.4 Facilitating the deployment of infrastructure

6.4.1 Need for planning regulations

Any operator seeking to deploy infrastructure on a widespread basis in Ireland will have to deal with a number of different local and national authorities, as well as private building owners and holders of rights of way. At the moment, there is little co-ordination of rules and regulations between these authorities and so those deploying infrastructure are forced into often protracted negotiations to deploy infrastructure.

While we understand that there are important issues of local accountability and democracy at stake, it is also important that businesses and individuals should not be unduly disadvantaged by lack of access to high quality communications. Balancing these rights requires care but we believe that it can be done. Telecoms operators in other countries (such as the UK) have the right to build infrastructure conferred upon them, and there are standard procedures for interacting with different authorities. The draft Communications Regulation Bill 2002 goes some way towards this by defining some rules for the interaction between telecoms operators and road authorities, particularly on the allocation of costs when an action by one affects the other.

A more comprehensive set of planning regulations could be considered so that investors can have some level of certainty of their network deployment costs and timescales. However, such a set of rules would rapidly be overtaken by unforeseen circumstances. It would, therefore, be preferable to define a procedure whereby the Minister for the Environment and Local Government and the regulator can draw up a set of rules and amend them where they are found to be inadequate.

6.4.2 Infrastructure sharing

Sharing of facilities used by other operators is an attractive option for investors considering deploying new telecoms infrastructures. The draft Communications Regulation Bill 2002 describes a regime whereby, if an operator requests to share infrastructure, then the regulator will be empowered to intervene and impose a resolution on both parties within a given time period. This welcome provision appears to address the issue of creating a favourable environment for infrastructure sharing.

As well as accessing infrastructure already in use by other operators, local authorities should be encouraged to deploy their own infrastructure (especially ducting) which could then be leased to telecoms operators. Such deployment could be carried out in conjunction with other civil works at minimal cost. Once in place, the ducting could be used by operators on a shared basis, generating revenue for the local authority, saving the operator expensive civil works charges and minimising disruption as roads are dug up less often.

The establishment of a body to co-ordinate the activities of public authorities would be of benefit to ensure consistency in approach and planning, achieve economies of scale in the contracting of civil engineering works and in providing open access at the highest levels of service to operators wishing to provide competitive broadband services. This body would also have a role in promoting awareness and use of these infrastructures by operators. It could also facilitate public private partnerships developing neutral open access backbone networks to get access to local access networks. Such administrative bodies have been established in other countries, including Sweden and New Zealand for these purposes. In the case of Ireland, the option of establishing such a body quickly by Statutory Order under the Local Government Services (Corporate Bodies) Act, 1971 should be considered.

6.4.3 Fiscal incentives

Section 3.4.1 of the *Broadband Telecommunications Investment in Ireland* report described a range of fiscal measures which could be used to stimulate investment in broadband infrastructure. Those options are still available and should be considered again to help narrow the broadband gap. These include credit guarantees, targeted fiscal subsidies, tax holidays, investment tax credits, accelerated depreciation schemes, tax losses carrying forward and subsidies to users to promote broadband usage and take-up.

In addition, as any potential telecoms investor will have a business plan based on a model of future cashflows, an important input is the rate of corporation tax to be applied. The rate is being progressively reduced to a single low rate of 12.5% on trading income by 2003. While it is well known in the IT sector that Ireland's tax regime will be very favourable to investment, it may not be as well known in telecoms circles. Therefore a campaign of raising awareness of the corporation tax rate in Ireland among telecoms investors could be beneficial to attracting telecoms investment.

6.4.4 Information sharing

Operators are more likely to be in tune with the priorities of Government if they are aware of Government priorities for investment as set out in the National Development Plan and the forthcoming National Spatial Strategy. There is, after all, likely to be a very great overlap between the needs of the Government and the potenetial future needs of the enterprise sector.

6.4.5 Stimulating demand

Fragmentation of demand is a real obstacle when trying to narrow the broadband gap. It acts to prevent investment in broadband infrastructure because of uncertainty as to the returns. It also leaves potential users unsure as to which broadband technology to adopt, if any. Thus, fragmentation acts as a brake on broadband roll-out both on the supply and demand sides.

Aggregation of demand attempts to alleviate fragmentation by bringing together potential suppliers and large groups of users. It has the advantage of allowing potential suppliers to assess the demand potential of an area and allows them to educate potential users as to the benefits of using broadband communications.

Public sector demand aggregation probably has the most potential in terms of generating results as the public sector is such a large consumer of communications services. Public sector broadband requirements would be assessed and offered for tender to a single supplier (or a small number of suppliers where practical). The tender would make the business case for broadband roll-out easier when looking at investment options and would result in more extensive, faster broadband roll-out.

Other aggregation schemes could also be considered. For instance the Chamber of Commerce in a town could launch a campaign to aggregate commercial demand for broadband communications. The collective business requirements for a town or area could then be put to tender, encouraging an operator to roll-out infrastructure in that town.

Aggregation schemes will need to consider future broadband usage patterns. For instance, there is little use of broadband communications in the public sector at present but a policy decision for it to "go broadband" would strongly increase the effect of any aggregation scheme deployed. Any such policy should set targets for the proportion of interactions with the public sector which can be achieved using broadband communications over a period of time so that by 2005, the majority of such interactions can be achieved using broadband. In addition, it should include requirements for schools, libraries and health centres to be equipped with broadband communications as this is important for ensuring widespread benefits – and more particularly, that these benefits are enjoyed as early as possible.

6.5 Other actions

6.5.1 Restraints on service delivery

At the moment there are strong restrictions on eircom and other telecommunications operators in terms of what services can be delivered over its network. The eircom licence prevents it from offering "licensed programme services" which would effectively exclude broadcast television services, though video on demand services would be possible. This makes it difficult for the company to compete on a full-service basis with cable companies. Lifting the restriction would have a number of benefits:

- the business case for deployment of broadband would be enhanced
- the competitive dynamic between eircom and cable companies would be enhanced
- given the rules on non-discrimination, the eircom network would be an open platform, allowing a

host of service and content providers to bundle the full range of services and reach customers using it as a platform.

6.5.2 Local access network separation

The vertically integrated nature of eircom has been perceived as a problem by some. The issue of full separation of the incumbent's network business from the retail part has been the subject of discussion in the industry for many years. It has a number of advantages for all players concerned:

- **for the incumbent** – entirely separated from the network business, the retail business could be the subject of less intense regulatory scrutiny, ultimately allowing the freedom to achieve higher than regulated rates of return in competitive markets
- **for competitive operators** – access to the eircom network on terms which are not only regulated to be fair, but which would be governed by a genuine commercial relationship unaffected by any concerns in the network company as to the success of the eircom retail company
- **for the regulator** – the effort spent in monitoring accounting separation between the network and retail side of eircom's business would be removed, as the two organisations would have separate statutory accounts
- **for business** – the general availability of the eircom network to all players would ensure the most efficient use of the network for the benefit of all communications users through increased choice, competition and lower prices.

Clearly, any move in this direction needs to be initiated by eircom, as it is a private company. BT has created very separate businesses, one of which (BT Wholesale) supplies network services to BT's other business units and to competing operators. In general, although there are some issues to do with broadband network services, BT Wholesale is well regarded by its customers, delivering in a timely and efficient manner. While BT has not gone so far as to actually separate the organisation completely into two parts, it illustrates the potential of such an approach.

We recommend that a debate should be held by the industry to establish the costs and benefits of adopting this approach for each of the parties involved.

6.5.3 Services level regulation

In a users forum held by Forfás in preparation for this report, participants expressed very strong concern at the price and quality of local tail circuits provided by eircom. With the exception of very large multi-national organisations with a presence in Dublin, almost all other organisations expressed strong dissatisfaction, describing difficulties in obtaining dates for delivery, late delivery (in one case more than 100 days after the original delivery date), poor quality – and very high prices.

The regulator should subject the provision of local tails by eircom to particular scrutiny. The quality of service could be audited and an investigation undertaken into the prices charged to establish that they are cost-oriented. Any other company investing in communications in Ireland will be dependent on eircom for local tail provision in many parts of the country. If the quality of these circuits is below par and the price too high, investor enthusiasm could be adversely affected.

6.5.4 International exchange of Internet traffic

There are currently four Internet exchanges in Ireland. The main one is the Internet Neutral Exchange (INEX) with a number of global Internet providers and Tier 1 telecoms operators now having a presence there. However, the presence of Tier 2 operators in the form of major European national ISPs (such as Deutsche Telekom and Belgacom) is lacking. This reduces the attractiveness of Ireland as

a centre for European e-business as communications costs between Dublin and London are incurred in order to exchange traffic with these operators.

A strategic plan for the development of INEX over the next decade is needed to support the development of Ireland as an e-business hub and to promote the development of the Information Society. There is a need for a full-time professional executive to manage the efficient exchange of Internet traffic at INEX and to market the facility to new members (specifically Tier 2 members of other exchanges in Europe and non-backbone businesses). The cost of connectivity to Ireland for Tier 2 members would be an issue while volumes are building up. Options to overcome some of these cost issues could include a virtual presence by using the connections of Tier 1 providers or through the commissioning of dedicated international circuits for new entrants between London and Dublin.

6.5.5 Utilising the State's telecoms infrastructures

A number of state organisations (under the control of the Department of Public Enterprise) have deployed telecoms networks of their own – ESB, CIE and Bord Gais. They could be viewed as an asset which could be deployed in the national interest. We suggest that a review of opening and linking these networks for access by third parties could be beneficial in stimulating further broadband activity in the Irish market.

6.6. State involvement in the provision of broadband communications

The Government should monitor the development of broadband communications availability throughout the country. It should assess the coverage which is likely under commercial deployment and take steps to ensure that areas of the country unlikely to be covered under commercial deployment are covered through the development of appropriate PPPs with operators.

6.7 Conclusion

A great deal needs to be done in order to position Ireland as a target for investment to benefit from the return of confidence to telecoms. Although the dynamism of the Irish telecoms market has improved dramatically since 1998, similar improvements have been made elsewhere and the relative position of Ireland with respect to competitor economies has not improved as significantly as might have been hoped at liberalisation – particularly in terms of broadband communications.

There are a number of measures open to the government to improve the situation, including facilitating widespread flat-rate access to broadband communications at competitive prices, creating regulatory certainty, increasing the powers of the regulator, stimulating fixed and mobile infrastructure deployment and aggregating public sector demand for broadband communications.

However, there are parts of the country where all of these actions and others will fail to make the provision of broadband services economic on a purely commercial basis. In these areas it will be necessary for the government to act through PPPs to ensure that essential broadband infrastructure is also available.

Annex A: Glossary

ADSL	Asymmetric digital subscriber line – a communications technology which allows an ordinary telephone to be used for high-speed (broadband) communications. The fact that it is asymmetric makes it particularly useful for Internet access
Always-on	Telecoms services (particularly Internet access) which is always available, negating the need to dial up
Backbone	On the Internet or other wide area network, a backbone is a set of paths that local or regional networks connect to for long-distance interconnection
Bandwidth	The width of a communications channel, typically measured in kbit/s (in digital systems). This measure gives an indication of how fast data flows on a given transmission path
Bit	The smallest unit of information (data) a computer can process – essentially a one or a zero
Broadband	A high speed connection which allows communications at speeds higher than can be achieved through basic rate ISDN (144kbit/s)
Cable modem	A device that connects a computer to the Internet via a local cable network operator
Digital	The use of a binary code (ones and zeros) to represent information
Downstream	The capacity of a network reserved for carrying information or other signals from a server, exchange or controller to the user
DSL	Digital subscriber line – a family of similar technologies which allow ordinary telephone lines to be used for high speed broadband communications. The family includes ADSL, HDSL, VDSL etc.
Ecommerce	The ability to transact business over communications networks
Fibre/fibre-optic	Strands of very pure glass that can carry far more information than copper wires over far greater distances
Frame relay	A commonly used standard for public data communications
FWA	Fixed wireless access – see FRA
Incumbent	The monopoly telecoms operator that existed in most countries prior to telecoms liberalisation. The incumbent is usually policed by a telecoms regulator to ensure that competing operators get fair access to its network
Interconnection	The point at which one network hands over traffic to another network. The price and terms and conditions that apply to the handover are also referred to as interconnection
Internet	The world's largest computer network, available to anybody with a PC, a modem, a telephone line and an access provider. It supports the reading of text, graphic and video files and email exchange
Intranet	Private network that uses the same technology as the Internet
IP	Internet protocol – the communications standards used by the Internet

ISDN	Integrated services digital network – the technical standard used in the public switched telephone network (PSTN)
ISP	Internet service provider – an organisation which allows companies and individuals to connect to the Internet
kbit/s	Kilobits per second – a measure of how many bits can travel between two points in a second in thousands of bits
Leased lines	A leased line is a telephone line that has been leased for private use. Typically, large companies rent leased lines from the telephone message carriers (such as AT&T) to interconnect different geographic locations in their company
Local loop	The copper wires an incumbent has between its exchanges and its customers
Local access	The connection between the customer's premises and a point of presence on the exchange carrier
Mbit/s	Megabits per second – a measure of how many bits can travel between two points in a second in millions of bits
Mobile	An abbreviation commonly used for mobile cellular communications – referring to mobile telephone networks
Modem	Equipment that converts digital signals to analogue signals and vice versa allowing digital devices such as computers to communicate using analogue links such as telephone lines
Narrowband	Network or circuit capacity of less than 64kbit/s
Peering	The process by which Internet operators of similar size exchange traffic without charging each other. Where operators are not similar then one has to pay the other to handle its traffic
Pricing	The art of determining the price for a good or service
QoS	Quality of service – how good the service provided by an operator actually is. It covers technical issues such as failing to connect calls and dropping calls, as well as how quickly an operator responds to requests from the customer
Regulation	The process by which a government agency ensures that a complicated market like telecoms behaves as if it were a competitive market while one player, the incumbent, has an extremely powerful position in that market
Satellite	A body in space which receives signals form the earth and beams them to another part of the earth
SP	Service provider – the provider of a telecoms service. An SP may not have its own network but uses the network of another organisation to provide its service e.g. cricket scores
Upstream	The capacity of a network reserved for carrying information or other signals from the user to a server, exchange or controller
VPN	Virtual private network – a service that looks like a private network to the customer but which is delivered over a shared network
Wholesale	Sale of goods or services to another party who is not the final consumer of the good or service
Wireless access	Access via a system that operates locally without wires

Reports Published by Forfás 2000 - 2002

The Dynamics of the Retail Sector in Ireland	January 2000
Enterprise 2010	January 2000
Survey of Research & Development in the Business Sector 1997	February 2000
Benchmarking Science, Technology & Mathematics Education in Ireland Against International Good Practice *Irish Council for Science, Technology & Innovation (ICSTI)*	February 2000
Proposals on Transport Infrastructure, the Planning Process and Public Transport *National Competitiveness Council (NCC)*	March 2000
The Second Report of the Expert Group on Future Skills Needs *Responding to Ireland's growing skill needs*	March 2000
Business Education & Training Partnership 2nd Forum, Dublin	March 2000
Management Development in the Republic of Ireland: Patterns and Trends	May 2000
Annual Competitiveness Report 2000 & The Competitiveness Challenge Report *National Competitiveness Council (NCC)*	May 2000
State Expenditure on Science & Technology, 1999	June 2000
Forfás Annual Report 1999	July 2000
Statement on Telecommunications, e-Business and the Information Society *National Competitiveness Council (NCC)*	July 2000
Statement on Regulatory Reform *National Competitiveness Council (NCC)*	July 2000
Annual Survey of Irish Economy Expenditures	August 2000
Report on e-Business Skills Report on In company Training *Expert Group on Future Skills Needs*	August 2000
Survey of Research in the Higher Education Sector 1998	September 2000
Statement on Labour Supply and Skills *National Competitiveness Council (NCC)*	September 2000
Telecommunications for e-Business: A User's Guide	November 2000
Annual Employment Survey 1999	November 2000
International Trade and Investment Report, 2000	December 2000
The 4th Framework Programme in Ireland	April 2001

Commercialisation of Publicly Funded Research *Irish Council for Science, Technology & Innovation (ICSTI)*	April 2001
The Third Report of the Expert Group on Future Skills Needs *Responding to Ireland's growing skill needs*	July 2001
Forfás Annual Report 2000	August 2001
Annual Employment Survey 2000	September 2001
Statement of Outward Direct Investment	October 2001
State Expenditure on Science & Technology, 2000	December 2001
Research and Development in the Public Sector, 2000	December 2001
Key Waste Management Issues in Ireland	December 2001
The Competitiveness Challenge	December 2001
The Annual Competitiveness Report, 2001	December 2001
Expert Group on Future Skills Needs *The Labour Market Participation of Over 55s in Ireland*	January 2002
International Trade and Investment Report	February 2002
Biotechnology *Irish Council for Science, Technology & Innovation (ICSTI)*	February 2002
Enlargement of the European Union *Forfás Submission to the National Forum on Europe*	February 2002

A full listing of Forfás reports is available on the Forfás web-site – www.forfas.ie or from the Information Office in Forfás – Tel. 01-607 3134.