

Statement on Telecommunications

A Key Factor in Electronic Commerce and Competitiveness

Preface

The Information and Communications Technologies enabled by advanced telecommunications are now key determinants of competitiveness and are increasingly among the most significant drivers of economic growth and global international trade. Electronic commerce is likely to be the most substantive sector of industrial development over the next five to ten years.

During 1998, the Government took a number of critical decisions that will help shape the future of the telecommunications sector in Ireland. These included:

- bringing forward the date for the full liberalisation of the telecommunications market from 1 January 2000 to 1 December 1998;
- the transposition of key EU telecommunications directives and the rapid implementation of a programme for liberalisation by the Director of Telecommunications Regulation;
- scheduling of an Initial Public Offering of Telecom Eireann shares for mid-1999;
- agreement on the sale of Cablelink, on the condition that a significant investment is made to upgrade the network as a multimedia platform and to provide voice telephony;
- designation by the Minister for Enterprise, Trade and Employment of Electronic Commerce as a sector eligible for development agency assistance;
- establishment of the high-level Advisory Committee on Telecommunications by the Minister for Public Enterprise;
- agreement on a Communiqué on Electronic Commerce with the US;
- redirection of £18 million of Structural Funds to co-finance broadband investment;
- commitment in principle of exchequer funds to co-finance with the private sector the development of international broadband connections and the development of a National Digital Park;
- agreement on a proposed structure for the development of a digital TV transmission infrastructure by RTE and the roll-out of digital TV;
- allocation of Structural Funds to support awareness campaigns by the Information Society Commission.

These decisions, strongly welcomed by the Council, confirm the central role of telecommunications in sustaining competitiveness and the extent of the actions required to establish a leadership position. They represent an important first step in developing a more strategic approach to managing and adapting to the change brought about by the rapid pace of development in telecommunications and the emergence of electronic commerce.

These decisions also lay the groundwork for future progress. They send important positive signals to the telecommunications sector, and to the enterprise sector in general, about the seriousness with which Government and the industrial development agencies view these changes. In light of the fast moving nature of the change in telecommunications they will need to be revisited frequently over time.

The global expansion of advanced telecommunications and electronic commerce demands a new Irish framework for the development of the infrastructure needed for the digital age. A reorientation is required in government policies pertaining to traditional commercial practices

Statement on Telecommunications

A Key Factor in Electronic Commerce and Competitiveness

and procedures, most of which were formed with a much different image of commerce in mind. Electronic commerce needs to be a major component of enterprise policy into the future.

In this regard, the Council have set out in this Statement a number of further actions in telecommunications and related fields that will help secure for Ireland the full economic and social benefits of the digital age.

Statement on Telecommunications

A Key Factor in Electronic Commerce and Competitiveness

Executive Summary

The liberalisation of telecommunications markets is dramatically increasing the levels of investment in new national and international networks and broadband telecommunications networks now span the globe. As computing, telecommunications and communications media converge they are having a profound effect on business structures, business models and business interactions. Computer networks are linked within and between countries, opening up new markets for international trade and enabling all businesses to be global. As the cost of telecommunications and computing power fall, countries and enterprises with low cost, high capacity and high speed access to these infrastructures are exploiting the enormous opportunities emerging in electronic commerce by attempting to establish a first mover advantage.

Broadband services, which are Information and Communications Technologies (ICTs) enabled by broadband telecommunications, are now key determinants of competitiveness. They are the most significant drivers of economic growth and international trade in the global economy. Electronic commerce, which is essentially the application of information and communications technologies to business, will be one of the most substantive sectors of enterprise development over the next two years. Broadband services can significantly lower production costs, reduce transaction costs, reduce barriers to entry to markets and increase competition. They can make a significant contribution to enhancing national competitiveness, to improving the allocation of resources and to increasing long-term growth. Given the openness of the Irish economy, Irish-based enterprises must have access to national and international broadband services that meet the best standards and are competitive relative to other countries.

Ireland's ability to move quickly to invest in and adopt broadband services, and to provide an environment for this to prosper, will be one of the major influences on future competitiveness in the digital age. Investment in broadband telecommunications and information technology in Ireland will need to be accelerated and further reductions made in telecommunication tariffs.

The high-level Advisory Committee on Telecommunications, appointed by the Minister for Public Enterprise, highlighted a number of key areas for immediate action in its report of November 1998. These include unbundling of the local loop, (separation of network management and service provision), developing Internet access and international connectivity and developing human resources and entrepreneurship for electronic commerce.

The immediate challenge is twofold: to be amongst the leaders in the provision of broadband telecommunications services; and to be amongst the leaders in the world in digital business and to develop as an electronic commerce hub. The achievement of this will require agreement on a shared vision by all government departments and agencies, that is clearly communicated to telecommunications service providers and the enterprise sector, to support the Government's objectives and vision to be amongst the leaders in the world in digital business and to develop as an electronic commerce hub. It will require the development of a high capacity, high speed, low cost national broadband infrastructure, a pro-competitive legal and regulatory environment for telecommunications and a supportive legal and fiscal environment for electronic commerce, with government playing a leadership role in encouraging electronic commerce in the country.

Statement on Telecommunications

A Key Factor in Electronic Commerce and Competitiveness

The Council believes that immediate action is required in the following areas:

- Establishment of a co-ordinated set of programmes to accelerate investment in broadband and promote the use of broadband and adoption of ICTs by enterprises;
- Establishment of a regime to monitor Ireland's performance against competing countries;
- Development and implementation of a national policy framework for advanced telecommunication deployment;
- Establishment of a position amongst the leaders in the world for digital businesses;
- Rapid development of digital TV as a platform for digital business.

Advanced Telecommunications - Increasing Adoption by Business

The rapid pace of development in broadband telecommunications and ICTs has implications at both operational and strategic levels for firms, governments and public agencies. It will have a profound impact on all sectors of the economy and on the dynamics of competition in all markets.

It is important that the implications of advanced telecommunications are more widely understood by the enterprise sector. Investment in ICTs to exploit broadband telecommunications needs to be significantly increased, from a position below the EU average to a position among the leaders in the EU. Only a dynamic market will secure the sustained high levels of investment required.

State development agencies, trade and representative associations and telecommunications service providers, working with the Information Society Commission and the government departments, need to jointly promote and support the use of ICTs and advanced telecommunications by enterprises. Demonstration projects and centres of excellence should be used to raise awareness and to demonstrate the benefits from using advanced telecommunications. Government also has an important leadership role to play by increasing its usage of broadband telecommunications in its dealings with the enterprise sector and others.

Monitoring Ireland's Performance with Competing Countries

A gap has emerged between Ireland and countries with which we compete in the cost and provision of broadband services. There is also a gap in the use of these services by business. Progress on the achievement of a position among the global leaders in broadband telecommunications requires to be systematically monitored into the future.

Forfás with the Department of Public Enterprise and others need to establish an on-going system to monitor progress on closing the gap that has emerged and to determine the required actions for Ireland to establish and hold a position among the leaders. The monitoring process should benchmark the availability, coverage and tariffs of advanced telecommunications services, levels of investment and the legal, regulatory and facilitating environment as well as the adoption by businesses of ICTs.

The Departments of Public Enterprise and Enterprise, Trade and Employment and the development agencies need to establish a process to systematically monitor and observe international developments to provide feedback to the enterprise sector, policy makers and regulatory bodies on key developments. Its focus should be particularly on developments in information and communications technologies, new applications and developments in digital markets. It should involve recognised experts from government departments and agencies, industry and academia. Irish embassies in international markets should be part of such monitoring.

Statement on Telecommunications

A Key Factor in Electronic Commerce and Competitiveness

National Policy Framework for Advanced Telecommunications Deployment

Irish-based enterprises require access to broadband services at the same quality and cost as in countries with which we compete. An action plan is needed for the provision of advanced telecommunications following liberalisation on 1 December 1998. The infrastructure required to support future economic growth should be planned and put in place in all regions of the country in advance of demand. Competition is a necessary condition but it may not be sufficient to accelerate the required investment in advance of demand. Other supports may be needed to ensure balanced spatial provision of advanced telecommunications into the future.

Not all areas within the country will have competitive provision quickly enough. Analysys Ltd. telecommunications consultants estimate, for example, that investment planned and underway could provide approximately 53 per cent of manufacturing and 63 per cent service sector employees with access to broadband services by the end of the year 2000. The implication is that enterprises with more than a third of manufacturing and services employees may not have access to broadband services in the short-term. The critical issue is how best to provide these enterprises with access to broadband services. This will have implications for the achievement of spatially balanced development within the country in the digital age.

The local access network, which is the connection from businesses to the local exchange, will continue to be a major bottleneck for the provision of broadband services to enterprises. A significant investment in optical fibre and broadband switches is needed in the local access network to allow high speed broadband transmission and the delivery of advanced broadband services to business customers at high capacity. Such services are needed to meet current requirements and to future proof the network for the large scale adoption of new services over the Internet. In addition, significant investments are required in enhancement technologies (such as xDSL) to provide broadband access on the existing copper telephone network; in wireless, cable and newly emerging technologies; and in upgrading of cable TV networks to provide competitive broadband services.

The issue of high capacity communications between Ireland and other countries is also important, specifically to the US and European countries. Ireland needs connections to the major broadband transatlantic fibre cables currently being constructed within Europe and between Europe, North America and south east-Asia. Investment is also required in a national facility (technically described as a peering facility) to allow the efficient exchange of global Internet traffic and to enable high speed connectivity with the major global Internet centres.

A policy framework is required for the development of a national broadband infrastructure to ensure that all enterprises have access to broadband services. It needs to be developed and rapidly implemented by the Departments of Public Enterprise and the Department of Enterprise, Trade and Employment, in conjunction with telecommunications operators. It needs to take specific account of the opportunities for co-operation with Northern Ireland in the development of national and international broadband links, in particular for the development of infrastructure in the North-West and Border counties.

Encouraging the required investment needs a telecommunications regulatory environment that provides for equal access and fair terms of interconnection. Bringing effective competition in the local loop will significantly help to determine the success of the enterprise sector in fully exploiting ICTs. A pro-competitive legal, regulatory and facilitatory framework that provides for adequate powers of enforcement for regulatory bodies (such as the Director of Telecommunications Regulation for sector-specific regulation) are required in this regard, working in conjunction with the Competition Authority.

IDA Ireland and the Department of Public Enterprise need to actively market Ireland as an attractive location for investment in telecommunications infrastructure to the major global telecommunications and Internet Service Providers and to encourage accelerated investment by indigenous providers. Specifically they need to focus on attracting the major transnational

Statement on Telecommunications

A Key Factor in Electronic Commerce and Competitiveness

operators to invest in the provision of additional national and international capacity. The development agencies need to lead in the development of peering facilities into which global telecommunications operators and Internet Service Providers (ISPs) can connect. Encouraging that development and use of these facilities by telecommunications operators and ISPs; and Public Private Partnerships should be considered for such projects.

The allocation of Structural Funds to support investment in regional and rural areas requires to be given a high priority, where the market may fail to invest quickly in the infrastructure required. Such support should only be provided where absolutely necessary and on a competitive tendering basis. It should aim to prevent disparities emerging in the availability of broadband services and to avoid further concentration in already congested high-density enterprise areas.

Leadership in Adoption of Electronic Commerce

Electronic commerce is fundamentally changing business and is likely to be the most substantive sector of industrial development over the next number of years. New business opportunities, that are highly dependent on broadband telecommunications, are emerging, such as in multimedia, content and ICT industries. Opportunities are also arising in remote back-office, fulfilment services and digital support entities. More importantly, global markets are opening for all Irish-based enterprises for business-to-business electronic commerce and for entering new consumer markets. A sustainable position amongst the leaders in advanced telecommunications investment, innovation and R&D can only be achieved when enterprises are exploiting advances in ICTs as they emerge.

The Department of Enterprise, Trade and Employment needs to develop a white paper on electronic commerce to examine and set out an action plan in the relevant areas of enterprise policy. It should set out a clearly defined economic programme for the enterprise sector in the digital age and a strategy for the development of electronic commerce into the future. The white paper should set out a framework to guide and co-ordinate the activities of the Department, the development agencies and other relevant departments in achieving a position for Ireland amongst the leading countries in the exploitation of broadband telecommunications and electronic commerce. Accelerating competition internationally means decisions must be urgent ones: action has also to be taken in advance of the white paper.

Other requirements include increases by the development agencies of executive, planning and budgetary resources devoted to supporting digital business activities; a specific focus by IDA Ireland on attracting the leading international electronic commerce businesses to locate here as they emerge; and focus by Enterprise Ireland and Shannon Development on encouraging all businesses to trade electronically.

The agencies also need to develop a strong and competitive support base of indigenous firms in multimedia, content and ICT sectors, and seek out linkage opportunities with the major international players. The rapid development of the National Digital Park, recently announced by An Taoiseach, by IDA Ireland and Enterprise Ireland will be an important element in establishing an early leadership position in key digital business sectors. A system for measuring the development of electronic commerce activities in Ireland and the market share of Irish-based businesses in electronic commerce is also required.

The Departments of Enterprise, Trade and Employment, of Public Enterprise, and of Justice and Law Reform need to rapidly put in place the required legal and fiscal framework for electronic commerce. There is also a need for a significant enhancement of the national third-level information technology and multimedia infrastructure.

Statement on Telecommunications

A Key Factor in Electronic Commerce and Competitiveness

Development of Digital Television

Digital TV will be a key communications platform and infrastructure from a competitiveness perspective and potentially a significant platform for the mass roll-out of the Internet. Digital TV will also be a potential platform for providing broadband services such as tele-shopping, tele-medicine and distance learning. It will present new business opportunities for the Irish audio-visual and content industries and for the development of cultural, educational and local community channels. Ireland has fallen behind other countries in the development of digital TV, such as France, Italy, Germany and the UK where services have already been launched. The development agencies need to focus on assisting indigenous enterprises, in audio-visual and related sectors, to exploit new opportunities as the Internet develops and as the importance of the audio-visual industry in multimedia grows.

The convergence of broadcasting and telecommunications necessitates increased institutional co-ordination. To develop future digital broadcasting policy, co-ordination will be required between the Departments of Arts, Heritage, Gaeltacht and the Islands; Public Enterprise; and Enterprise, Trade and Employment; the Director of Telecommunications Regulation; and the proposed new radio/broadcasting regulatory body.

Public policy and regulation in respect of digital broadcasting needs to clearly distinguish between the infrastructure aspects of broadcasting and the public service and content issues. The objectives, responsibilities and required co-operation between the proposed broadcasting regulatory body and the ODTR require to be set out. Ultimately, the regulatory framework must ensure that the benefits of competitive markets are available to consumers and that there are no undue impositions on Irish industry. An indicative timetable for the transition from analogue to digital broadcasting in Ireland is also required.

Statement on Telecommunications

A Key Factor in Electronic Commerce and Competitiveness

Proposed Actions

Proposed actions are set out below.

Broadband Telecommunications - Increasing Adoption by Business

1. Co-ordinated awareness programmes need to be developed and funded by all trade and representative associations and the Department of Enterprise, Trade and Employment and the development agencies, working with the Information Society Commission to achieve a measurable increase in the adoption of ICTs by business, particularly among SMEs. These should build on the proposed IBEC/Information Society Commission awareness campaign joint initiative.
2. Demonstration projects of the benefits and effective use of broadband telecommunications and centres of excellence should be strongly supported in third-level institutions, representative and trade associations and others as a key part of awareness programmes.
3. The development agencies should increase their efforts to raise awareness among their client firms of the opportunities arising from the use of broadband telecommunications and ICTs and encourage them to define their strategy for becoming electronic businesses.
4. Representative and trade associations need to establish groupings of business managers at local level to share information on ICT and telecommunications developments, to work with telecommunications service providers in determining business requirements for broadband services and ICTs and to encourage investment.
5. Government has an important leadership role to play in encouraging the use of ICTs and in promoting the adoption of ICTs by the enterprise sector.

Monitoring Ireland's Performance with Competing Countries

6. Forfás, in conjunction with the Department of Public Enterprise, should establish a benchmarking system for continually monitoring the competitiveness of telecommunications tariffs, services, infrastructure and the regulatory environment between Ireland and competing countries, on a regular basis.
7. The Departments of Enterprise, Trade and Employment and Public Enterprise and the development agencies need to establish a process for systematically monitoring international ICT developments.
8. Irish embassies in competitor countries must be a key part of this monitoring process and the assignment of telecommunications attachés to key embassies in Washington and Japan should be considered.

Statement on Telecommunications

A Key Factor in Electronic Commerce and Competitiveness

National Policy Framework for Advanced Telecommunications Deployment

9. A national policy framework should be developed for the rollout of broadband telecommunications infrastructure in Ireland. The objectives of the policy should be to enable the:
 - Putting in place of a world-class broadband telecommunications infrastructure, in advance of demand, that would provide Ireland with the infrastructural base necessary to ensure the long-term competitiveness of the economy and in so doing sustain strong growth into the future;
 - Achievement of a more balanced spatial spread of economic growth in the future by ensuring that areas outside the main urban centres have as much access to broadband infrastructure as is technically and economically feasible;
 - Account to be taken of the social and economic opportunities for development of broadband infrastructures in co-operation with Northern Ireland;
 - Make the recommended national policy framework for broadband development a priority area with regard to Ireland's submission for Structural Funds post-1999;

The Departments of Public Enterprise and Enterprise, Trade and Employment need to develop this policy framework and facilitate its implementation by telecommunications operators.

10. The scope and legislative basis of the Office of the Director of Telecommunications Regulation should be reviewed as follows:
 - The overall objectives should be set out more explicitly;
 - The overriding responsibility should be to encourage the development of a competitive and liberalised telecommunications market so that the benefits of a competitive market are delivered to end-users;
 - The power to monitor and regulate telecommunications prices to end-users, including control of the Price Cap Mechanism, should be transferred from the Minister for Public Enterprise to the Director;
 - The Director should have the power to regulate interconnection terms between different networks, the power to benchmark prices charged and in particular to set interim rates where the process of cost examination is taking an unduly long time;
 - The enforcement powers of the Director should be reviewed. They should include the power to impose fines for breach of licence conditions, power to administer Codes of Conduct, power to require service level agreements between operators and customers and the power to require accounting structural separation;
 - Adequate resources should be provided to implement effectively the functions of the Office.
11. There is scope and a need for greater coherence between the Office of the Director of Telecommunications Regulation and the Competition Authority. The roles and responsibilities of each in respect of the telecommunications market need to be clearly determined and communicated. Both offices should consult continuously to ensure that account is taken of general competition policy and experience in Ireland.
12. Competitive costs and terms of interconnection between telecom networks require to be monitored and maintained to ensure Irish rates remain competitive relative to other European countries.

Statement on Telecommunications

A Key Factor in Electronic Commerce and Competitiveness

13. A number portability facility and carrier pre-select (equal access facility) need to be effectively implemented and monitored as soon as it is technically feasible after the date of full liberalisation, 1 December 1998, so as to facilitate the emergence of effective competition in the market.
14. IDA Ireland, in consultation with the Department of Public Enterprise, should actively promote Ireland internationally as a location for investment in advanced telecommunications infrastructure.
15. The £18 million allocation from EU Structural Funds, announced in mid-1998, should be supplemented by additional allocations to fund infrastructure projects in regional and rural areas, to ensure balanced spatial development. Additional funds should be provided on a competitive tendering basis.
16. The sale of Cablelink should be conditional on the provision of open and fair access to the network and on its development.
17. There is clearly a need for a rationalisation in the deployment of infrastructure and a sharing of facilities between network providers. The Office of the Director of Telecommunications Regulation, the planning authorities and the telecommunications providers should agree a market-based guideline for the sharing of facilities such as masts and ducts to optimise the development of national telecommunications infrastructure. They should take account of the provisions of the Infrastructure Sharing Bill being brought forward by the Department of Public Enterprise. The ODTR should have a clear role in dispute resolution.
18. Telecommunications service providers north and south of the border need to be encouraged by the development agencies and government departments to co-operate in the provision of broadband services, in particular for the provision of broadband in the North-West and Border counties and in enhancing international broadband connections. Telecommunications operators should be encouraged to develop telecommunications investment strategies for the whole island of Ireland. Initial measures, such as the development of the proposed Dublin-Belfast digital corridor, should be actively pursued. Practical measures such as the introduction of short dialling codes, of shared freephone numbers for the whole island and of an agreed policy on cellular roaming should also be pursued.
19. The introduction of low-rate charges for access to the Internet by business and consumers, set at a reasonable level for specific levels of high capacity access and usage will be of benefit and should be rapidly introduced to encourage extensive use and as a competitive imperative to develop a first mover advantage in electronic commerce. This should be pursued with suitable adjustments over time for new enhancement technologies such as xDSL on the copper network and cable modems.
20. An Irish peering facility developed by, and providing access for, all telecommunications providers and ISPs in Ireland and involving global operators is required. Policies should be considered and developed by the Department of Public Enterprise, IDA Ireland and Forfás, in consultation with businesses and telecommunications operators, for the rapid establishment of a national facility.

Leadership in Adoption of Electronic Commerce

21. IDA Ireland, Enterprise Ireland and Shannon Development should proactively target electronic commerce, multimedia, digital industries and Internet related businesses with a view to establishing projects. Executive, planning and budgetary resources within the agencies require to be redirected to support these areas and monitored over time.
22. The Expert Group on Future Skills should identify the specific skill requirements of the digital sector.

Statement on Telecommunications

A Key Factor in Electronic Commerce and Competitiveness

23. The creative and technical skill base needs to be developed in the following ways:
 - The expansion of existing multimedia activities, particularly in the Dublin Institute of Technology, Trinity College Dublin, Senior College Ballyfermot and FÁS;
 - The introduction of conversion courses to allow students from other disciplines to pursue a career in digital business;
 - The development of courses that include modules where students would learn the business benefits of advanced applications;
 - The need and options for establishing a higher level dedicated National College of Multimedia requires to be examined.
24. The Departments of Public Enterprise; Enterprise, Trade and Employment; and Justice and Law Reform should introduce a legal framework for electronic commerce and introduce a system of licensed certification authorities for digital signatures.
25. The Department of Justice and Law Reform should take the necessary steps to ensure that electronic evidence is admissible in civil legal cases.
26. The Department of Public Enterprise need to develop the policy framework for the full liberalisation and development of the postal services market, within a pro-competitive regulatory framework.
27. IDA Ireland and Enterprise Ireland should develop the National Digital Park in the Dublin Docklands and CityWest Business Park as quickly as possible. It is an important step in developing a strong base of firms in the multimedia, electronic commerce and Information and Communications Technology sectors. It should serve as a demonstration and should be extended to other industrial parks across the country. It should also provide a stimulus for the take-up of sophisticated telecommunications services and infrastructure required to support the new digital businesses.
28. In addition to the other actions needed, the Department of Enterprise, Trade and Employment should examine and set out an action plan on future industrial development policy for the development of electronic commerce businesses in consultation with all other Departments. It needs to set out the required government and development agency actions to ensure the enterprise sector fully realises the potential productivity and new business opportunities in electronic commerce.

Development of Digital Television

29. Policy, the lines of responsibility for infrastructure issues and content issues require to be made clear from a public policy perspective relating to the development of digital broadcasting. They need to be kept under continuous review between the Departments of Public Enterprise; Arts, Heritage, Gaeltacht and the Islands; Enterprise, Trade and Employment and the Office of the Director of Telecommunications Regulation.
30. The roles and functions of the proposed broadcasting regulatory body need to be clearly defined vis-à-vis those of the ODTR and the Competition Authority.
31. An indicative timetable for a full transition from analogue to digital is required to provide certainty to the enterprise sector and to encourage businesses to develop new services and content for digital TV and to free-up valuable spectrum.
32. The regulatory framework for digital TV should ensure fair access for competing technologies, make efficient use of the radio frequency spectrum and enable the benefits of a competitive market to be enjoyed by consumers.
33. The new business opportunities for the Irish audio-visual and content industry, as a result of the rapid expansion in the number of television channels and the delivery of content and multimedia via the Internet, should be assessed by the development agencies with a view to developing new or expanded projects.

Statement on Telecommunications

A Key Factor in Electronic Commerce and Competitiveness

Advanced Telecommunications and ICTs - Increasing Adoption by Business

Introduction

Advanced telecommunications play a vital role in maintaining and enhancing the competitiveness of modern economies. As telecommunications technology converges with computing and media technologies, its role in economic development and national competitiveness is increasing even further. Broadband and advanced telecommunications services and Information and Communications Technologies (ICTs) are key drivers of economic growth and competitiveness. It should be emphasised that the change brought about by these technologies, are changes that impact on the business as a whole, that business is the source of this change and that it will have a significant impact on enterprise development into the future. Broadband services, which are Information and Communications Technology (ICT) enabled by broadband telecommunications are now strategic issues for businesses and for countries.

A significant investment was made in upgrading the national telecommunications network in the 1980s and early 1990s. With a new wave of investment in advanced telecommunications services in other countries, the Council is very concerned at the gap that has emerged between Ireland and competitor countries in the provision of advanced telecommunications services and ICTs. The Council is strongly of the view that a position where Ireland would not only have a comparable competitive telecommunications position, but would be in a leading position relative to competitor countries needs to be achieved. This is required not only to develop Ireland as a centre for digital business and electronic commerce but also to sustain our current success.

The information technology sector (narrowly defined) is estimated to have accounted for around 40 per cent of the growth in the US economy in recent years and is considered likely to be the main driver of economic growth over the next 10-20 years. It has also made a measurable contribution to Irish economic growth in recent years.

Electronic commerce, which is essentially the application of Information and Communications Technologies (ICTs) to business, can significantly lower production costs, reduce transaction costs in value chains, reduce barriers to entry to markets and increase competition. Electronic commerce can make a significant contribution to enhancing national competitiveness, to improving the allocation of resources and to increasing long-term growth.

The availability in Ireland of advanced telecommunications services and ICTs comparable to those in the US, and at equally competitive tariffs, offers the potential for the sector to make a significant contribution to future economic growth. It could establish Ireland as a leading location for digital business into the future. Ireland must not fall further behind thereby undermining existing industries and failing to realise the full potential of electronic commerce for employment and wealth creation.

Broadband and advanced telecommunications are now much more important in attracting overseas investment and in strengthening the Irish-based enterprise sector, because internationally trading firms rely heavily on ICTs to sustain competitiveness. In a report of January 1998, *"Broadband Telecommunications Investment in Ireland"* Forfás proposed that the most effective way of ensuring that the required infrastructure and services are put in place is to encourage competition in all aspects of telecommunications. It also recommended that Structural Funds be provided to support investment where the market fails to deliver the required advanced telecommunications quickly enough. The Council is also strongly of this view and believes that the introduction of a very competitive marketplace is a necessary but not a sufficient requirement to meet our telecommunications requirements for future economic growth and development.

Statement on Telecommunications

A Key Factor in Electronic Commerce and Competitiveness

Irish enterprises in general have not made significant investments in advanced telecommunications and ICTs. Most firms use the Internet only for disseminating company, product or contact information. But the main benefits of electronic business are in business process redesign, disintermediation, increased market share and improved trading efficiency. To realise these benefits, new strategies and investments, including in human capital, are needed.

The immediate challenge is twofold. First, to encourage rapid investment in international connectivity and in the deployment of advanced telecommunications and ICTs nationally to achieve a position amongst the leaders by providing the required legal, regulatory and facilitatory environment. Second, to achieve a leadership position in electronic commerce and in the use of advanced broadband telecommunications and ICTs by supporting companies to formulate and implement strategies to exploit information and communications technologies and broadband services.

Business Issues

Telecommunications is no longer just a technology for basic voice and fax services. Advances in digital technology are allowing traditional and new communication services, including voice, data, sound and pictures to be provided simultaneously over many different telecommunications platforms. These advances are coming at the same time as telecommunications technology is rapidly converging with media communications and information technologies.

The implications of these developments for existing and new businesses are far reaching. This convergence is enabling new services to be provided and new ways of doing business. The low cost of establishing a presence on the Worldwide Web (www) is making it possible for companies of all sizes to sell their products and carry out their business on a regional and global basis. The provision of voice, fax and video services over the Internet will substantially reduce communications costs for firms. At the same time it is making competition global and is allowing customers to benefit from the wider choice of goods and services on offer by outsourcing to specialist suppliers across the globe. Business operations are becoming increasingly integrated. Information exchange within firms is increasing significantly.

Among the factors driving the demand for increased use of advanced high capacity telecommunications services on the part of companies are the following:

- The Internet is becoming increasingly important as a business tool and this is driving the demand for high speed access and connectivity;
- The linking of computers in different locations around the world for corporate networking has led to the development of 'Intranets' that allow people separated by vast distances to work together as if they shared the same building;
- Facilities are becoming available that permit the high-speed exchange of large volume files around the world and allow instant access to commercial databases;
- Videoconferencing and business TV services are becoming an increasingly important part of the way in which companies communicate internally and with other companies;

Statement on Telecommunications

A Key Factor in Electronic Commerce and Competitiveness

The development of the Internet means that goods can be sold direct to consumers and paid for electronically. The development of this "electronic commerce" and the move to a "digital economy", as it is called, gives rise to the following issues in the Irish context:

- ***Preparing business for foreign competition:***

In the Digital Economy, the cost of entry to a market is low, geography is relatively unimportant, and, at least initially, cross-border trading in electronic goods and services is difficult to monitor. Companies that currently enjoy market leadership in Ireland will come under pressure from overseas competitors and need to have competitive strategies in place before this occurs.

- ***Identifying new ways to win global market share for existing businesses:***

While the emergence of the global market and a cross-border trading environment will present increased competition to Irish companies, it will also make it easier for them to trade in that market. It is important to know how products in various sectors may be marketed electronically on a global basis.

- ***Finding new opportunities in the global market:***

By understanding the characteristics of electronic commerce and the Digital Economy, new market opportunities that play to our key competitive strengths can be identified. Forward thinking and creativity, both on the part of foreign investors and Irish entrepreneurs, must be fostered to achieve market growth on a global scale.

Irish-based enterprises must embrace these changes. Government needs to create an environment that supports rather than holds back the process of change so as to create a strong basis for future wealth creation and job growth. The investment required is as important as previous investments in developing our electricity and road networks that enabled economic development to take place. Other countries have already moved ahead of Ireland in this regard.

Among Irish-owned enterprises there is a significant base of firms for which the effective use of ICTs and advanced telecommunications networks will be critical if they are to remain competitive, deliver higher quality service and efficiently market and distribute their goods and services. Sectors such as food are increasingly dependent on real time data exchange with customers and suppliers. They face shortening lead times for filling orders and pressure to continuously reduce inventory.

The potential for the increased use of the Internet by foreign-owned firms in Ireland for pan-European sales and the development of Internet supporting call-centres and shared services operations needs to be actively promoted by the development agencies. Telecommunications service providers and ISPs will also need to ensure that they can provide voice, fax and video services over the Internet on a comparative basis with those available to enterprises in competitor countries.

It is essential that every business in the country develops an understanding of the digital revolution and in particular of the opportunities and threats that it presents. Trade and representative associations, the trade union movement and the development agencies must continue to educate their members about the benefits of advanced telecommunications services and ICTs. Co-ordinated awareness campaigns need to be developed with the Information Society Commission to educate senior business people in this regard. In addition, demonstration projects and centres of excellence should be used to show the benefits that can be gained by using the best telecommunications practices. The allocation of £235,000 by the Department of Public Enterprise to the Information Society Commission for awareness

Statement on Telecommunications

A Key Factor in Electronic Commerce and Competitiveness

raising is an important first step. The joint IBEC/Information Society Commission awareness campaign should form the basis for similar campaigns with other trade and representative associations, specifically among SMEs.

Government has an important leadership role to play in encouraging the use of ICTs by the enterprise sector. The Internet and broadband communications will allow dealings between government and the enterprise sector to be conducted electronically. The active use of advanced telecommunications services and ICTs by the public sector would send important signals to the enterprise sector and to investors about the importance attached by government to the rapid development of the telecommunications sector and electronic commerce.

Summary of Actions Proposed

1. Co-ordinated awareness programmes need to be developed and funded by all trade and representative associations and the Department of Enterprise, Trade and Employment and the development agencies, working with the Information Society Commission to achieve a measurable increase in the adoption of ICTs by business, particularly among SMEs. These should build on the proposed IBEC/Information Society Commission awareness campaign joint initiative.
2. Demonstration projects of the benefits and effective use of broadband telecommunications and centres of excellence should be strongly supported in third-level institutions, representative and trade associations and others as a key part of awareness programmes.
3. The development agencies should increase their efforts to raise awareness among their client firms of the opportunities arising from the use of broadband telecommunications and ICTs and encourage them to define their strategy for becoming electronic businesses.
4. Representative and trade associations need to establish groupings of business managers at local level to share information on ICT and telecommunications developments, to work with telecommunications service providers in determining business requirements for broadband services and ICTs and to encourage investment.
5. Government has an important leadership role to play in encouraging the use of ICTs and in promoting the adoption of ICTs by the enterprise sector.

Statement on Telecommunications

A Key Factor in Electronic Commerce and Competitiveness

Monitoring Ireland's Performance Against Competing Countries

Introduction

Ireland gained a significant competitive advantage as a result of a major investment in telecommunications infrastructure in the 1980s and early 1990s. It is clear, however, that a new wave of investment is now taking place in developed economies to support the widespread deployment of advanced telecommunications services.

Many countries have recognised the importance of telecommunications in sustaining future economic development and job creation and are actively encouraging major investment in their telecommunications networks through early and full liberalisation. These countries have put supportive regulatory and fiscal environments in place to encourage telecommunications investment and have recognised that increased telecommunications competition drives down charges, such as those for using the Internet and increases the range of services available to business.

In 1996, the Government set an objective to achieve a telecommunications sector that is in the top quartile of OECD countries by reference to standard sectoral indicators. Strong efforts should be made to ensure that this position is rapidly achieved and a new position in the top quartile in the EU should be adopted as an objective for all telecommunications tariffs, services and infrastructure. The target date for achieving this position should be the year 2000.

An ongoing monitoring system of national and international telecommunication and information and communications technology developments needs to be developed to monitor the adequacy of the actions and investment being undertaken to address the gap in Ireland. It should also ensure that disparities in the provision of services between Ireland and competing countries are identified and appropriate corrective action taken.

This section reviews the comparative position of Ireland under a number of relevant headings and then proposes an on-going monitoring system.

Comparative Position

There are a number of areas in the provision of Irish telecommunications services compared with those of competitor countries that need to be addressed. These include the need for increased global connectivity at competitive prices, for increased availability of low cost advanced telecommunications services, for real and effective competition and for the establishment of global operators in the Irish market. The most serious gaps are in broadband infrastructure within the country, tariff structures for high bandwidth leased lines and the as yet insufficient availability of competitive ATM services. These deficiencies have restricted the availability of advanced telecommunications and kept the cost of those services that are available artificially high.

The increased investment by Telecom Eireann - up from £198 million in 1996 to £350 million in 1998, the capital programme of new operators, the decision to liberalise fully the Irish market and the sale of Cablelink will go a significant way to addressing the requirements in the major urban centres. The following sections review the competitiveness of the Irish telecommunications market under a number of key headings.

Statement on Telecommunications

A Key Factor in Electronic Commerce and Competitiveness

- **Telephone Penetration**

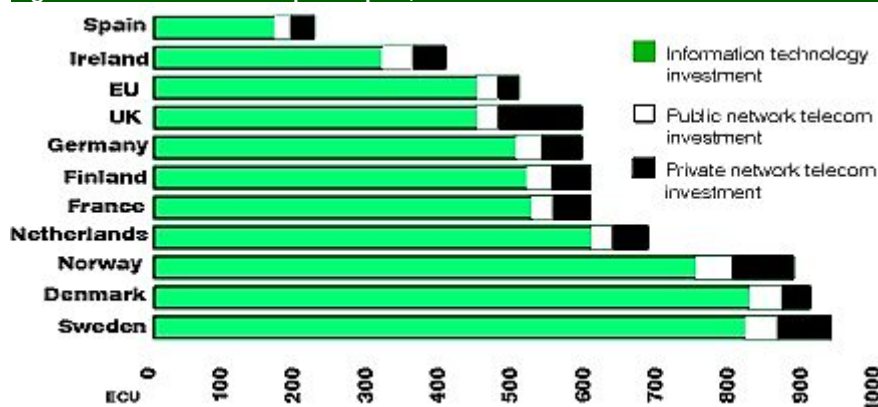
The number of telephones per head of population in Ireland is low by international standards. The standard international measurement is the number of phone lines per 100 inhabitants. Ireland is ranked 16 of 19 OECD countries giving it one of the lowest rates in Europe¹. This is despite the fact that households in Ireland are only marginally larger than in other countries. The proportion of main lines that are digital lines in Ireland approximates to the EU average². Mobile phone penetration in Ireland has significantly increased and now stands at over 20 per cent, although this is still below the penetration levels in the Nordic countries at over 50 per cent.

- **Investment in ICTs**

Investment in Information and Communications Technologies (ICTs) is made up of investment in information technology and in telecommunications equipment for public and private networks. According to the European Information Technology Observatory (EITO), investment per capita in ICTs in Ireland in 1997 was at 80 per cent of the EU average. It was equivalent to about two-thirds the levels of investment per capita in the UK, Germany and France and less than half the investment per capita in the Nordic countries of Denmark, Finland, Sweden and Norway combined. This is illustrated in Figure 1.

With regard to the components of ICT investment, investment in Information Technology (IT) in Ireland, which provides an indication of the preparedness of a country for digital business, was a third of investment per capita in the US and was equivalent to just over 40 per cent of investment in Nordic countries, the leaders in the EU. IT investment in Ireland was about 60 per cent of investment in the UK in 1997.

Figure 1 ICT Investment per Capita, 1997



Source: European Information Technology Observatory, 1998

Investment in telecommunications equipment, which comprises investment in public and private networks, is high in Ireland. Telecommunications equipment investment in 1997 was estimated at approximately 80 per cent of per capita investment in the Nordics. However, according to EITO data, investment in private network telecommunications equipment in Ireland, which is an indication of the level of sophistication of user networks, approximated 63 per cent of the level of investment in the Nordic countries in 1997. It accounted for only 43 per cent of total telecommunications investment in Ireland compared with an average of 55 per cent in the Nordics and 65 per cent in the Netherlands.

¹ Communications Outlook 1997, OECD, Paris

² European Information Technology Observatory, 1998

Statement on Telecommunications

A Key Factor in Electronic Commerce and Competitiveness

- **Internet Usage**

While the number of Internet users is increasing rapidly, the proportion of Irish businesses and people using the Internet is still low by international standards. In July 1998, Ireland was ranked 16 of 29 OECD countries in terms of Internet usage with 12.5 Internet hosts per 1,000 people³. The take-up of the Internet and related ICTs is an important indication of whether businesses are exploiting these technologies.

Electronic commerce using the Internet will be critically dependent on the availability of advanced telecommunications services. In the business sector, Internet penetration rates are driven by the cost of connection, the access cost (i.e. usually telecommunications) of using the Internet and by the uptake and usage of ICTs and PCs. While connection to the Internet is generally a fixed charge (paid to the ISP), the telecommunications cost for the Internet in most countries is currently usage based. The provision of local telephone calls at a standard charge, or free, regardless of the level of usage in countries such as Canada, the United States, Hong Kong and New Zealand has contributed to high Internet penetration rates. The large reductions in the tariffs for Internet access during 1998 and the proposed introduction of a form of flat rate charging from January 1999 should be of considerable benefit.

Although telecommunications Internet usage charges in Ireland are now more competitive than in other European countries that provide metered services, such metered charges have constrained the take up of the Internet in Europe and may continue to limit growth in the future. The countries that move first to flat rate charges for Internet access in Europe are likely to gain significant first mover and competitive advantage.

The introduction of fixed-rate charges, set at a competitive level, for access to the Internet by businesses and consumers, for specific capacity and usage packages would be of considerable benefit to the enterprise sector. It would be a competitive imperative to develop a first mover advantage in electronic commerce. It may be argued that this would lead to capacity problems, but the pricing structures could be reviewed over time with suitable adjustments for new enhancement technologies that allow 'always-on' Internet access for a flat rate charge for the service such as xDSL on the copper network and cable modems. The objective is to get more firms using the Internet and to get those firms who use the Internet to expand their activities.

- **Tariffs and Interconnection**

The development of electronic commerce activities will be highly dependent on the availability of competitively priced advanced telecommunications services. The cost of these telecommunications services will have a major influence on the competitiveness of enterprises that are involved in electronic commerce and on Ireland's attractiveness as a location for electronic commerce businesses. Our competitors therefore will increasingly be those countries in the OECD that offer the lowest national and international voice and advanced telecommunications services.

Many telecommunications tariffs in Ireland have been reducing in recent years. The opening of the market to full competition has dramatically accelerated this trend with reductions of up to a third on some tariffs since mid-1998.

The Government has previously set an objective to achieve a position in the top quartile of OECD countries on a number of telecommunications performance

³ Ripe NCC: European Host Count, July 1998

Statement on Telecommunications

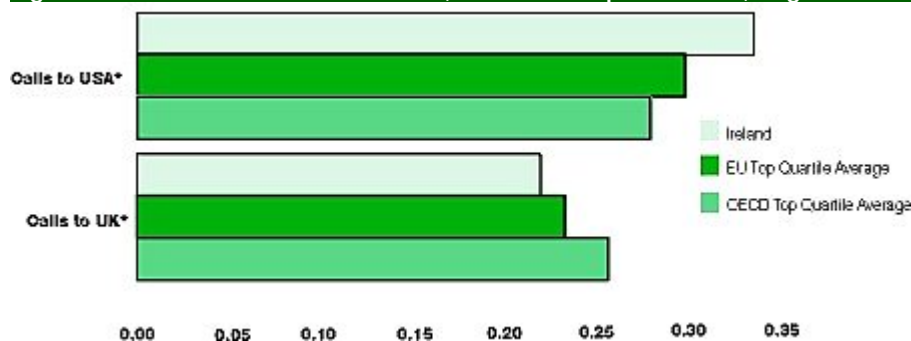
A Key Factor in Electronic Commerce and Competitiveness

indicators, including tariffs. The achievement of this objective will require competition on tariffs relative to best international prices, rather than in respect of the tariffs prevailing in the Irish market. For the future, it is critical that Ireland rapidly achieves its objective of a position in the least expensive quartile of OECD countries and a position in the least expensive quartile of EU countries by the year 2000. Progress on the achievement of a position in each of these quartiles is assessed below⁴.

For a range of key benchmark tariffs Ireland's ranking and position relative to the average of the lowest quartile tariffs among OECD and EU countries is analysed. This provides an indication of achievement of a position in the top quartiles of these groupings.

- Telecom Eireann has significantly cut its prices for **international calls** in recent years and has negotiated competitive tariff deals for a large number of call centre projects. Tariffs for calls to the UK are competitive, with Ireland ranked third in the OECD. Ireland is in the OECD top quartile, ranked seventh, for cost of calls to the US and Ireland is ranked fourth in the EU in terms of competitiveness for calls to the US.

Figure 2 International Business Tariffs, Relative Competitiveness, August 1998



Source: Eurodata, August 1998. *Cost of First Minute

- The OECD cost of connection and rental charges for telecom services in Ireland remains high, with Ireland ranked 21st in the OECD and 12th in the EU in competitiveness. The costs of connection and rental in Ireland are approximately twice the average of the EU top quartile average and over twice the average OECD top quartile.
- With regard to the cost of local calls, Ireland is ranked nineteenth in the OECD, excluding those countries that do not have metered local calls, and ninth in the EU. Special rates introduced for Internet access during 1998 mean that Internet calls will be among the most competitive in the EU from January 1999, in particular relative to those in competitor countries such as the UK, Germany and the Netherlands. The proposed introduction of flat rate Internet tariff services for fixed volumes should also enhance the competitiveness of access for Irish enterprises.
- The cost of national calls in Ireland remains above the OECD and EU top quartile averages. Although the cost of national calls was reduced from October 1998 by a third, a further decrease of up to 60 per cent would be needed to place Ireland in the EU top quartile. Ireland is ranked 14th in the OECD and 7th in the EU following the reductions in October 1998.
- Ireland's mobile tariffs are below the EU average. In October 1998, the price of calls from ordinary telephones to mobile phones were reduced by 17 per cent and Ireland now has one of the lowest costs of calling from fixed to mobile.

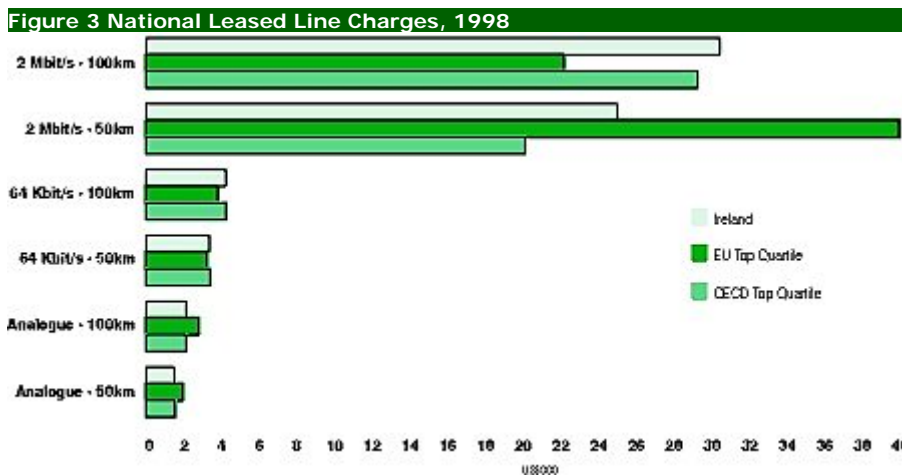
⁴ No allowance for discounts have been made in the analyses of tariffs presented

Statement on Telecommunications

A Key Factor in Electronic Commerce and Competitiveness

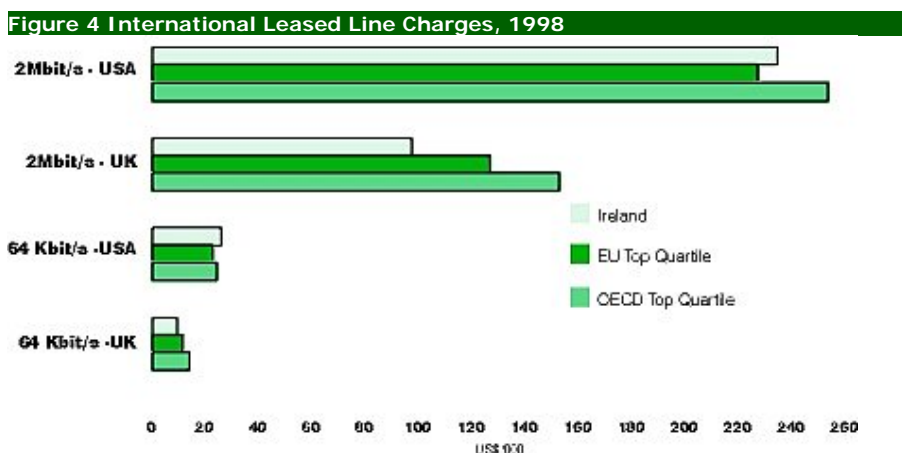
Up to mid-1998 Irish tariffs have only been published for leased lines up to 2Mbit/s. Customers wishing to obtain greater capacity could only do so in 2Mbit/s multiples which was a prohibitively expensive method of acquiring broadband capacity, although Telecom Eireann have provided customers with customised solutions above 2Mbit/s. The absence of tariffed products above 2Mbit/s has in the past discouraged the take up by business of higher capacity broadband applications. In October 1998 Telecom Eireann announced the introduction of a tariff for a 34Mbit/s leased line service that provides returns to scale for the use of higher capacity services than would buying multiples of 2Mbit/s.

Overall, leased lines charges within Ireland, which are critical for the effective use of ICTs and for efficient communications between firms domestically and internationally have been high by comparison with important competitor countries such as the UK. Since the announcement of the date of liberalisation of the Irish telecommunications market, reductions of up to one third of the prices of leased lines have brought charges for national and international leased lines down in line with the average of the most competitive countries in the EU and OECD.



Source: Eurodata, Ireland October 1998. all other countries August 1998

- The cost of 2Mbit/s national leased lines were reduced substantially during 1998 and are now more competitive relative to other countries and further reductions will be required to provide a competitive cost base for the development of electronic commerce. Ireland is ranked fifth in the OECD and third in the EU for 2 Mbit/s 100km national leased lines. The cost of basic voice analogue lines remains between two to three times the average of the OECD and EU top quartiles.



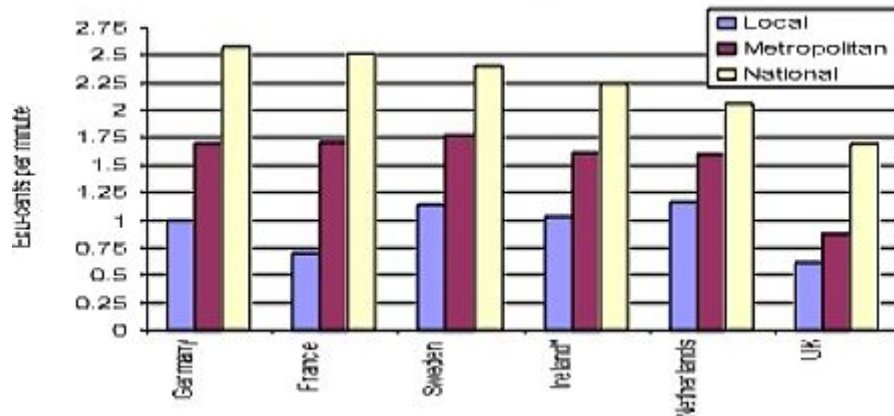
Source: Eurodata, Ireland October 1998. all other countries August 1998

Statement on Telecommunications

A Key Factor in Electronic Commerce and Competitiveness

- Ireland is now ranked first in the OECD and EU in terms of competitiveness for 2Mbit/s and 64Kbit/s **international leased lines** to the UK. Among EU countries Ireland is ranked second for 2 Mbit/s and third for 64Kbit/s for **international leased lines** to the USA, while among OECD countries Ireland is ranked third and fifth for these services respectively.
- From the perspective of competing telecom providers, by far the most important issue in Irish telecommunications at the moment is interconnection, or more specifically the price being charged for interconnection where a customer of one network is calling a customer of another network. Interconnection charges in Ireland are expected to be among the lowest in the EU following reductions of up to 30 per cent effective from October 1998 and further reductions of up to 40 per cent announced in November 1998. Figure 5 illustrates the comparative Irish interconnect rates and those of the main telecom operators in other countries taking account of Telecom Eireann's announced reductions of November 1998 and the latest data for other countries as of July 1998. It shows the interconnect rates charged in a number of different European markets for terminating local, metropolitan and national calls with Ireland expected to have a competitive average ranking of 3rd-4th in the EU, within the lowest quartile.

Figure 5 Interconnection Charges, Ecu-cents, 1998*



Source: IP/98/731, EU Commission, July 1998. Rates for Ireland as of November 1998.
 * Call termination at peak rates based on 3-minute duration.

- As ATM switches are only now being deployed, comparable quoted tariffs for ATM services are not yet available for Ireland. For other countries it is notable that while pricing structures do vary considerably, the approach adopted in Nordic countries leads to a relatively attractive pricing structure with the objective being to stimulate demand in the market. Similar policies are needed in Ireland.
- **Broadband Infrastructure**

"Broadband" refers to the high-capacity fibre optic cables and switching devices called ATM switches, which are required to provide high speed transmission of large volumes of information, including voice, video and data.

The rapid growth in the Internet and with data traffic beginning to exceed voice traffic has caused capacity problems in the US, despite efforts to provide fibre backbone networks far in excess of expected future demand. As a result, there has been a rapid deployment of ATM switches in the backbone network to cope with data and Internet traffic and multimedia services. ATM revenue is projected to grow by at least 100 per cent per annum over the next few years and is projected to be the dominant broadband service over the medium term. AT&T, for example, have been using ATM

Statement on Telecommunications

A Key Factor in Electronic Commerce and Competitiveness

since 1993. They have also introduced a global broadband service linking the US network to Japan, Canada, the UK and Europe.

In the local access network, i.e., the telephone lines to business premises, copper cables are rapidly being replaced with fibre, in particular in metropolitan areas. It is estimated that at least one in eight of all businesses in the US had fibre connections by the end of 1997. New entrants are also rapidly deploying fibre, and their deployment of fibre is roughly doubling every year.

Broadband and ATM services at speeds of up to 155Mbit/s are widely available in other European countries with which we compete, including the UK, France, Germany, Spain and the Nordics and up to 622Mbit/s in Finland. The Nordic countries have taken a lead in broadband communications in Europe with capacity of 34Mbit/s as standard. Examples of the services available include:

- In the UK, British Telecom has a policy of deploying fibre to any business with 10 lines or more or that require capacity greater than 0.5Mbit/s. BT offers leased lines and ATM services at speeds of up to 140Mbit/s. The UK has several network operators offering pure fibre-based networks that provide leased lines up to 34Mbit/s and ATM services. Early liberalisation has also opened the market for cable television operators to supply telecommunications services;
- Sweden's Telia provides ATM in 30 cities in Sweden and in five cities in Norway. Telenor provides ATM in six cities in Norway. Telecom Finland provides service in over 22 cities and has a reputation for the lowest priced ATM services. Telenordia provides ATM service in 21 cities across Norway, Sweden and Denmark;
- Deutsche Telekom has been using ATM since the 1980s and built a national ATM pilot network in 1994. It now offers a full commercial ATM service in over 19 German cities providing capacity of up to 155Mbit/s;
- France Telecom had deployed over 60 ATM broadband switches by the end of 1997 across France providing speeds of up to 155Mbit/s. This broadband network is also interconnected globally.

In overall terms, Ireland's backbone infrastructure is well developed with over 90 per cent fibre. SDH⁵ technology is widely deployed and the backbone is operating at very high speeds that are normally denoted in gigabits (up to 2.5Gbit/s). Two separate submarine fibre cables out of the country have been in service for several years and two further cables are under construction. There is also a transatlantic submarine fibre cable.

The local access network is predominantly low bandwidth copper creating a bottleneck between the high-speed backbone, international connections and business premises. Fibre access, with speeds of up to 2 Mbit/s and multiples thereof, has been deployed to over 30 business parks and commercial areas in cities and towns around the country. Trials using SDH are underway in some sites for the provision of services at 34Mbit/s, 155Mbit/s and higher. Competitive services to connect computer networks or local computer network extensions at speeds of 10Mbit/s and some at 100Mbit/s are also available.

A major ATM rollout now underway in Ireland will provide service with access speeds up to 155 Mbit/s over time. Telecom Eireann is already providing a major company with an on-campus 622Mbit/s service with 34Mbit/s national and international ATM connections and this is a welcome development. The wider availability of these

⁵ SDH (Synchronous Digital Hierarchy) allows managed transmission service at speeds of 34 Mbits/s, 140 M/bits and higher. SDH differs from ATM in that SDH controls the transmission of traffic at high speed between customer and exchange or exchanges while ATM controls the switching/routing of broadband services at the exchanges.

Statement on Telecommunications

A Key Factor in Electronic Commerce and Competitiveness

services to other enterprises would be of considerable benefit in providing a stimulus to new business. Overall, there are significant levels of broadband infrastructure planned by new telecom operators in the major urban areas. These investments and gaps are discussed further in Section 3 of this Statement.

Regulation

Since 1 January 1998, the telecommunications markets in most of the European Union have been fully liberalised. As in Ireland, the European telecommunications sector has traditionally been characterised by a strong public monopoly tradition. This environment has until recently created a series of individual national telecommunications markets. As a result the opportunities arising from the creation of a pan-European telecommunications market have been largely lost. This contrasts with what has occurred in other sectors of the European economy.

Essentially liberalisation involves ending local monopolies by opening markets to competition. However, a prerequisite for encouraging investment is a strong pro-competitive regulatory framework that is transparent and non-discriminatory and that covers such issues as the licensing process, the level of licence fee, the terms of interconnection and so on.

The Irish telecommunications regulatory framework is rapidly being put in place. A new Office of the Director of Telecommunications Regulation (ODTR) was established under the 1996 Telecommunications (Miscellaneous Provisions) Act and became operational on 30 June 1997. The Competition Authority also has a role in the telecommunications market ensuring the consistent application and enforcement of competition rules in all markets. However there are a number of elements in the 1996 Act that established the Office of the Director that now need to be reviewed, which are further discussed in Section 3.

In all European Union countries, except Greece, Portugal and Ireland, which had derogations on fully liberalising their telecommunications markets, telecommunications markets were opened to competition and had fully implemented the required Directives by 1 January 1998. Since mid-1997 a programme to implement all outstanding EU telecommunications harmonisation and liberalisation EU Directives has been underway in the Department of Public Enterprise. There are a number of key outstanding issues that need to be progressed. These include interconnection, promoting competition, numbering, licensing and spectrum issues, which are dealt with in Section 3 of this statement.

Implementing a Monitoring Regime - Benchmarking

Ireland needs a process for international benchmarking of our broadband telecommunications tariffs services, infrastructure and regulatory environment. It is proposed that Forfás, in conjunction with the Department of Public Enterprise, carries out this exercise on a regular basis for the National Competitiveness Council covering the five areas set out below:

- **Tariffs**

Tariffs for all telecommunications services in competing countries should be monitored. This should be done from published data collected and interpreted by telecommunications specialists. Progress towards achieving the objective of moving Ireland into the lowest cost quartile of tariffs among EU and OECD countries should be reported on a quarterly basis.

Statement on Telecommunications

A Key Factor in Electronic Commerce and Competitiveness

- **Services**

There are a large variety of broadband services planned and becoming available on the Irish market at different times and in different parts of the country. Some are unique to the Irish market while others are directly comparable to those available elsewhere. The benchmarking process should identify the services required by the enterprise sector that are becoming available overseas and seek to determine whether Ireland can emulate or move ahead of them.

- **Adoption of Information and Communications Technologies**

Penetration of information and communications services and Internet adoption are important determinants of the market for advanced telecommunications services. These must be benchmarked on a continuous basis. Action should be taken to improve Ireland's relative positioning where practicable.

Public and private sector ICT initiatives and demonstration projects with appropriate feedback loops, such as the Information Age Town project, also play a key role in stimulating the take-up of advanced telecommunications services and can assist in establishing competitive advantage in digital business. Initiatives in Ireland in these areas need to be monitored, tracked and benchmarked with initiatives in other countries.

- **Infrastructure**

Infrastructure deployment, investment and build-up needs to be kept under review. "Geographic coverage" should be the key indicator for this analysis. This is a measure of the geographical spread of services and in general is related to the availability of fibre optic cable and ATM switches. It is intended that the benchmarking process should concentrate on business coverage, which is the proportion of businesses to which broadband services are available in Ireland and competing countries.

- **Regulation**

A pro-competitive regulatory environment, that is transparent and consistent, is important for investor confidence. Other countries have moved ahead of Ireland in liberalising their telecommunications markets and establishing pro-competitive regulatory environments to encourage the required investments. The benchmarking process should provide information on regulatory developments in other countries and on Ireland's comparative position. This is important in negotiating with investors and in developing proposals for improving the situation in Ireland.

Monitoring Market Developments

There is a need to develop a detailed and ongoing understanding of the way in which the rapidly changing information and communications technologies (ICTs) and markets are likely to evolve in the future so that plans can be developed to maximise the benefits for Ireland. Future trends, such as the likely scope of the Internet and its implications for businesses and industry structures, need to be assessed and monitored on a continuous basis. This will require a process involving recognised experts from industry, academia and government departments and agencies.

A group representing relevant government departments and development agencies, including the Departments of Enterprise, Trade and Employment, Public Enterprise, Teltec - the Telecommunications Programme in Advanced Technology, and Forfás needs to determine

Statement on Telecommunications

A Key Factor in Electronic Commerce and Competitiveness

the objectives of this process of monitoring. The group needs to assess the desirability of an ICT observatory, the required deliverables and to examine how best such a system could be established.

International Market Developments

Ireland needs to monitor developments at a national level abroad in the ICT sectors. IDA Ireland will obtain some information from companies but the Irish embassies abroad could be useful in monitoring developments at a national level in their host country and in assessing the implications for Ireland. A process of monitoring international developments is central to achieving first mover advantage in establishing Ireland as a leading European location for digital business.

Summary of Actions Proposed

6. Forfás, in conjunction with the Department of Public Enterprise, should establish a benchmarking system for continually monitoring the competitiveness of telecommunications tariffs, services, infrastructure and the regulatory environment between Ireland and competing countries, on a regular basis.
7. The Departments of Enterprise, Trade and Employment and Public Enterprise and the development agencies need to establish a process for systematically monitoring international ICT developments.
8. Irish embassies in competitor countries must be a key part of this monitoring process and the assignment of telecommunications attachés to key embassies in Washington and Japan should be considered.

Statement on Telecommunications

A Key Factor in Electronic Commerce and Competitiveness

National Policy Framework for Advanced Telecommunications Deployment

Introduction

The liberalisation of the telecommunications market and opening it to full competition is a necessary, but not a sufficient step, in securing the levels of investment in advanced telecommunications services and ICTs required to sustain future economic growth. In this regard, the Council welcomes the Government decision during the first half of 1998 to sell Cablelink and the allocation of an initial £18 million of EU Structural Funds to supporting investment in broadband on a co-financed basis with telecommunications providers and others. Significant economic and social benefits can be expected from this allocation. These initiatives point to a growing understanding of the actions required to address the gap in the competitive provision of broadband services between Ireland and competing countries, and such progressive policies require to be vigorously pursued.

Recent Investments by Telecom Operators

A summary of infrastructure investment planned for the next three to five years is set out below.

- **Telecom Eireann:**

Telecom Eireann initiated a major ATM development from July 1998 for the provision of ATM services with access speeds up to 155Mbit/s over time as the transmission speeds on the network are increased. Fibre optic access with capacities of up to 2 Mbit/s and multiples thereof, has been provided to over 30 business parks and commercial areas in cities and towns around the country. Trials using SDH are underway in some sites for the provision of services at 34Mbit/s, 155Mbit/s and higher. Telecom Eireann also provides services to connect computer networks or LAN extensions at speeds of 10Mbit/s and some at 100Mbit/s. A third submarine fibre cable is being constructed out of the country.

- **ESAT Telecom:**

ESAT Telecom plans to complete the construction of a fibre backbone cable, which will reach at least 25 cities and towns by the end of 1998. An international fibre cable to the UK with onward connections to London and Amsterdam has been in service since the end of May 1998. It plans to offer broadband services and ATM services with bandwidth capacities up to 45Mbit/s.

- **Worldcom/MCI:**

Worldcom/MCI, one of the largest international telecommunications operators has a fibre-laying programme in central Dublin. It is also targeting a number of business parks in Dublin, Cork and Limerick for fibre cabling. It claims to be the first Irish telecommunications provider to offer customers connections to 155Mbit/s links.

- **Ocean:**

Ocean, a joint venture between the ESB and British Telecom, plans to develop an ATM platform and offer leased lines of up to 155Mbit/s. It is intended to deploy this infrastructure to the key industrial areas around Dublin. Using the ESB's existing microwave infrastructure, it is also intended to link a number of major urban centres

Statement on Telecommunications

A Key Factor in Electronic Commerce and Competitiveness

such as Cork, Shannon and Waterford, with slightly lower grade leased line services, i.e. up to 100Mbit/s. In the longer term, up to 2000 and beyond, it is intended to link in to the remaining major urban centers (such as Limerick and Galway) via spurs from the ESB's microwave network.

- **Cablelink:**

With one of the highest rates of cable penetration in Europe at 80 per cent, an upgraded Cablelink network should serve as the basis of an alternative telecommunications network offering broadband services in the Dublin area.

- **NTL:**

NTL, a UK company also operating in Northern Ireland through a subsidiary Cabletel, have laid an undersea fibre cable between Ireland and the UK which will offer services to a number of Irish and international telecommunications providers. The network will be deployed across the country over time. This undersea fibre cable will have a link to Cabletel's fibre network in Northern Ireland, with an onwards connection to Scotland.

- **Telenor:**

Telenor, the Norwegian national telecom company is providing satellite services in Ireland that can give point-to-point broadband links for enterprises in various locations across the country.

- **Cable & Wireless:**

Cable & Wireless have been providing telecoms services to clients in Ireland since 1994. They plan to invest £16 million in infrastructure development over the next two years, to include the development of a fibre distribution network in Dublin, a trunk network and laying fibre to some industrial estates.

Broadband Investment Required

Based on early indications of operator plans it is likely that all major telephone exchanges will be connected to a high capacity national backbone over the next five years. Further investigations are underway with telecom operators to determine the full extent of the deployment of modern transmission technology to all exchanges.

It is important to note that there is a further level of network architecture between the telephone exchange and many customers called the Remote Subscriber Unit (RSU). These elements concentrate the traffic from subscriber lines onto the higher capacity link to the telephone exchange. It is essential that the link between the telephone exchange and these RSUs have SDH if customers connected to those RSUs are to have high capacity broadband services.

The local access network, which is the connection from businesses and residential customers to the local exchange or RSU, will continue to be a major bottleneck. It is primarily narrowband copper cable.

Regional Development

Not all areas within the country will have competitive provision quickly enough. Using data on the spatial distribution of employment as a proxy for the distribution of economic activity in the

Statement on Telecommunications

A Key Factor in Electronic Commerce and Competitiveness

country, Analysys Ltd⁶ have made initial estimates of the likely impact of the investment planned and underway in the provision of competitive broadband services to the year 2000.

Based on current market indications, the investment planned and underway during 1998 will provide, by the end of 1998, approximately 45 per cent of manufacturing employment and 56 per cent of service sector employment with access to advanced telecommunications and broadband services within the country.

Analysys Ltd., having assessed the rollout plans of the operators, estimate that these coverage figures will rise to 53 per cent for manufacturing and 63 per cent for services by the end of the year 2000.

The implication is that for more than one-third of employees in manufacturing and services, broadband and advanced telecommunications will not be available in the short- term. This absence of provision will have implications for the achievement of spatially balanced development within the country in the digital age. Large parts of counties in the North-West, West, along the Border, in the midlands and smaller towns in many counties are not scheduled to have access to broadband services quickly.

A national policy framework is required for the development of a broadband telecommunications infrastructure and to ensure that all enterprises that have a requirement for broadband have access to those services. It needs to be developed and rapidly implemented by the Departments of Public Enterprise, and Enterprise, Trade and Employment, in conjunction with telecommunications operators. It needs to take specific account of the possible links with Northern Ireland, in particular for the development of competitive broadband services in the North-West and border counties. In developing the policy framework, there need not be a single uniform network but rather a range of different infrastructures each optimised for the particular market segment or geographic area that it serves. A key aim of the plan should be to ensure that enterprises in areas outside the major high-density enterprise areas would not be at a competitive disadvantage in developing electronic commerce activities. The focus of effort requires to be on those areas where there are no current plans to deploy advanced telecommunications infrastructures, thus avoiding an unnecessary proliferation of infrastructures in the largest business centres.

International Connectivity

The availability of high capacity communications between Ireland and other countries is critically important. International links will require increased capacity to provide increasingly higher capacity connections to global networks, specifically to the US and European centres. Ireland needs to be connected to the major broadband transatlantic fibre cables currently being constructed between Europe and North America. Investment is also required in a national peering facility to allow for the efficient exchange of global Internet traffic. This is explained further in Section 4.

Investment Required

The following investments will be required:

- A significant investment in advanced telecommunications infrastructures such as optical fibre and SDH to allow high capacity broadband transmission and the delivery

⁶ Based on employment and population data from the CSO Labour Force Survey and Census of Population and Business and Finance Database of Top 2000 Commercial Enterprises.

Statement on Telecommunications

A Key Factor in Electronic Commerce and Competitiveness

of ATM services to business customers is required in order to allow customers have access to broadband services at high speeds. The deployment of these technologies should take account of the need for future upgrading to more advanced technologies, such as WDM⁷;

- In addition, a significant investment in xDSL technologies to provide broadband access on the existing copper telephone network is required;
- The cable TV networks installed in the major cities also need to be rapidly upgraded to provide competitive broadband services.

Estimates by consultants, Analysys Ltd⁸ for Forfás have previously indicated that addressing the short to medium-term requirements for the provision of broadband services to the enterprise sector would require an investment of approximately £500 million. This included an investment programme of £150 million to replace copper in the local access network with fibre optic and £50 million for the installation of ATM switches and the fibre required to connect businesses to these switches. During 1998 Telecom Eireann initiated an ATM deployment programme and expects to have 26 installed by the end of the year. The cost of providing broadband to small business and the residential sector through the deployment of xDSL on the copper telephone network and cable modems on the cable television network, was estimated at up to £300 million.

Based on an analysis of the investments being made by new entrant operators and additional investments being made by Telecom Eireann, provisional estimates by Analysys indicate that of the order of 40 per cent of the investment needed in advanced telecommunications infrastructure is already planned or underway by these operators. This would indicate that there is a shortfall of about £120 million in the provision of SDH transmission capacity between local exchanges and remote subscriber units and the provision of fibre in the local access network. In addition, the parts of the provincial transmission network are likely to need upgrading to ensure reasonable narrowband communications. This requires pump-priming of additional investment by operators and the Government over the short to medium -term. This investment could be seeded from Exchequer Funds pending the next round of Structural Funds post-1999.

The position with regard to the deployment of xDSL and cable modems needs to be monitored by the Department of Public Enterprise. The investment required in these technologies to deliver broadband services to small businesses and residential customers may need to be stimulated as these technologies become fully developed for wide-scale deployment.

The rapid provision of this broadband infrastructure, specifically at a regional level, is of strategic importance if continued migration to already congested cities is to be halted and companies are to be attracted to locate in the regions in a balanced way.

Implementation Strategy

There is a need for a co-ordinated policy approach to the deployment of a national broadband infrastructure by the Departments of Public Enterprise and Enterprise, Trade and Employment, in conjunction with the development agencies and telecommunications operators. The objective is to ensure that disparities do not emerge in the availability of broadband services within the country. It needs to take account of the capital intensive nature of deploying telecommunications infrastructure, the population densities within the country and the lead times involved in bringing services on stream. Advances in wireless broadband technologies and convergence between telecommunications and broadcasting provide a number of options to ensure the efficient deployment of the required national broadband

⁷ Wave Division Multiplexing - extremely high speed transmission technology that utilises the full spectrum of light for transmitting broadband services along fibre.

⁸ Broadband Telecommunications Investment in Ireland, Forfás, 1998

Statement on Telecommunications

A Key Factor in Electronic Commerce and Competitiveness

infrastructure, taking account of the geographic spread and concentration of businesses across the country.

Strong and fair competition in all aspects of telecommunications services requires to be developed as quickly as possible. Strong competition in the telecommunications market would have the effect of lowering the price of high capacity broadband services. This should have the desired effect of inducing telecommunications providers to offer higher bandwidth lines and induce companies to use higher bandwidths due to lower prices. Given the scale of investment required and the population densities across the country, the required investments need to be actively supported.

As indicated above not all areas and enterprises in the country will have access to competitive broadband services quickly and may therefore fail to reap the benefits of a competitive market. The challenge is how best to encourage competition in the most important areas. The development of a pro-competitive regulatory environment is the first step. Other measures will be required to encourage competition in all areas including:

- Active promotion of Ireland, and specific areas within Ireland, as locations for investment in broadband telecommunications to national and international telecommunications service providers as part of an industrial development plan;
- The provision of fair and equal access to the installed infrastructure in the country to operators and service providers that wish to provide broadband services to enterprises. This could include the development of franchises for the provision of advanced broadband services on the local access network, in strategically important areas;
- The co-financing of investment with the private sector in areas or projects that may not immediately be commercially attractive but are of high importance either from a national or regional development perspective, through Public Private Partnerships for example.

The strategy to increase the availability of broadband and ensure competitive prices for broadband services should consist of three main elements. The first requirement, which is to stimulate the use of broadband services by business, was considered in Section 1. The second requirement is for an effectively regulated telecommunications market. The third is for active promotion of investment by both national and transnational telecommunication operators in broadband infrastructure.

Pro-competitive Regulation

The creation and implementation of a genuinely pro-competitive regulatory framework will be a key driving force in encouraging the required investment in telecoms by commercial companies, as it has been in other countries. This requires, above all, establishing a comprehensive, consistent and transparent regulatory framework within which all telecommunications and information communications service providers can fully develop the market opportunities in all services including advanced telecommunication services. This should be the key policy objective. The Office of the Director of Telecommunications Regulation will also have a role in ensuring that for those enterprises that do not have access to competitive service providers in their areas, the services that are provided are comparable in terms of technical and professional service, quality and value for money as those available in areas where there is competition.

While the Telecommunications (Miscellaneous) Act, 1996 established the Office of the Director of Telecommunications Regulation (ODTR) that has been operating since July 1997, it is now appropriate to strengthen its legislative basis. The drafting of a new Regulatory Bill to enhance the powers of the Director needs to be prioritised as a result of the accelerated liberalisation programme. In particular, a statement setting out clear objectives for the Office

Statement on Telecommunications

A Key Factor in Electronic Commerce and Competitiveness

of the Director is required, powers in relation to pricing need to be strengthened. The following issues need to be addressed:

- The scope and legislative basis of the **Office of the Director of Telecommunications Regulation** should be reviewed as follows:
 - The overall objectives should be set out more explicitly;
 - The overriding responsibility should be to encourage the development of a competitive, liberalised telecommunications market so that the benefits of a competitive market are delivered to customers;
 - The power to monitor and regulate telecommunications prices to end-users, including control of the Price Cap Mechanism, should be transferred from the Minister for Public Enterprise to the Director;
 - The Director should have the power to regulate interconnection terms between different networks, the power to benchmark prices charged and in particular to set interim rates where the process of cost examination is taking an unduly long time resulting in lack of full information on which to base a decision;
 - The enforcement powers of the Director should be modified. They should include the power to impose fines for breach of licence conditions, power to administer Codes of Conduct, power to require service level agreements between operators and customers and the power to require accounting structural separation;
 - Adequate resources should be provided to implement effectively the functions of the Office.
- ***Coherence between the ODTR and the Competition Authority***

There is scope and a need for greater co-ordination between the Office of the Director and the Competition Authority. The Competition Authority has an overall role in respect of the telecommunications sector, as part of its role to ensure the application of general competition rules across the economy. It is essential that the development of competition and application of competition rules in the telecommunications market is consistent with other markets in the economy and that distortions do not emerge. The roles and responsibilities of each in respect of the telecommunications market require to be clearly determined and communicated to the market to avoid confusion. Both offices should consult on an on-going basis to ensure that account is taken of general competition policy and experience in Ireland.

- ***Interconnection***

The importance of interconnection is outlined in Section 2 above. The Director has commissioned consultants to review Telecom Eireann's costs and to assess the cost orientation, transparency and non-discriminatory nature of the interconnect prices it charges. This process needs to be completed as rapidly as possible in order to come to a definitive view on interconnection charges. It is highly likely that investment decisions are being held up by uncertainties about the level of interconnection charges faced by competing providers.

- ***Numbering***

Advanced telecommunications services cannot be developed and delivered without a suitable numbering scheme that provides an adequate supply of numbers for new services and service providers. A new numbering plan has been published by the ODTR. Arrangements for codes for access to competing carriers have been put in place for 1 December 1998 and changes to the numbering system have also been carried out. A significant amount of changes to the numbering system will need to be carried out and these changes should be implemented quickly to minimise disruption.

Statement on Telecommunications

A Key Factor in Electronic Commerce and Competitiveness

- ***Number Portability***

Number portability is very important for a properly competitive telecommunications market. Customers must not be deterred from changing to more competitive operators by the inconvenience of being forced to change their number. The technology and techniques for portability are well understood and have already been implemented in other countries. A number portability regime requires to be effectively implemented and regulated as quickly as is technically feasible and the Council welcomes the date set for number portability of 1 January 1999.

- ***Licensing***

Currently, Telecom Eireann is licensed by statute and in a fully liberalized telecommunications market it will be necessary to replace this statutory license with an appropriate Public Telecommunication Operators (PTO) license. Other operators, particularly companies wishing to access the national infrastructure, should be in a position clearly to understand the obligations and rights of Telecom Eireann. This should be done in the overall review of the Licensing Regime for all operators which will set out the rights and obligations of all players in the market. The ODTR has recently initiated a consultation and licensing process for the award of licences in urban, suburban and rural areas based on Fixed Wireless Access. These licences are aimed at addressing the need to improve telecommunications service delivery to rural locations and to provide for the growing needs of business customers of all sizes through competitive service provision.

- ***Spectrum***

Wireless connections for broadband transmission can be used in rural locations where fibre is not available and can also be used on a temporary basis pending the installation of fibre in larger centres. Licenses have to be issued by the ODTR and the availability of spectrum/airwave space is a limiting factor. The ODTR is to carry out a review of the use to which the national spectrum or airwaves are put. This should include the possible recovery of airwave space allocated to existing users that is no longer needed and the development of a simple, transparent and effective licensing and pricing regime.

- ***Infrastructure Sharing***

There is clearly a need for a rationalisation in the deployment of infrastructure and a sharing of facilities between network providers. It is important that a planned approach is taken to infrastructure sharing. Indiscriminate digging of city streets can cause unacceptable disruption and social and economic costs. Ultimately it is consumers that pay for these infrastructures through higher costs. A proliferation of masts and other telecommunication infrastructures in rural areas should also be avoided. Duplicate infrastructures should be provided only where absolutely necessary due to capacity constraints. Agreement needs to be reached between the regulator, the planning authorities and the operators on the sharing of facilities such as masts and ducts. This should also cover the provision of access to key infrastructure access points and pinch-points such as street corners, bridges and building ducting. The Department of Public Enterprise is preparing a bill in this regard and the Council supports this.

Statement on Telecommunications

A Key Factor in Electronic Commerce and Competitiveness

Promotion of Investment in Advanced Telecommunications

Greater competition is critical to accelerating the required investment in advanced telecommunications. Steps must be taken actively to promote investment in advanced telecommunications to prepare now for future demand.

Competition alone will not be sufficient to ensure the development of a national broadband infrastructure. The Council believes that there is a strong case for making additional EU Structural Funds available, particularly for ATM switches and SDH in the regions where the private sector may be unwilling to invest quickly enough, as discussed above. Projects where private financing could be encouraged should also be developed through private finance initiatives for large projects.

IDA Ireland, in consultation with the Department of Public Enterprise, must actively market Ireland as an attractive location for investment in telecommunications infrastructure to the major transnational telecommunications and Internet Service Providers (ISPs). Specifically they should focus on attracting the major transnational operators to invest in the provision of additional national and international capacity. The Department of Public Enterprise and the development agencies need to lead in the development of peering facilities that global telecommunications operators and Internet Service Providers can connect into for the exchange of global Internet traffic and sharing of capacity. Encouraging the development of consortia of telecom operators and ISPs to use these facilities will be important.

The Peace Process in the North and the likely positive impact on economic growth for the whole island present opportunities for telecom operators to develop all-island investment strategies and alliances. These should enable operators achieve economies of scale, particularly for the provision of broadband services in the North-West and Border counties. As telecommunications policies North and South are increasingly constructed within the framework of EU policies this should provide a consistent and transparent environment in which investors can have confidence in developing all-island investment plans.

The planning and development of all-island networks will be an important enabler of increased cross-border trade, for opening up an all-Ireland market for business and for increased business-to-business and personal communications. Telecom operators north and south of the border need to be encouraged to co-operate in the provision of broadband in the country. This is of particular importance to increase the competitive provision of broadband services in the North-West, West and Border counties. There are also well developed international telecommunications links from the North that could be utilised by enterprises in these areas. It is therefore important that co-operative initiatives that could have significant economic benefits for the whole island, such as the proposed Dublin-Belfast digital corridor, are actively pursued. Practical measures such as the introduction of short dialling codes and shared freephone numbers for the whole island and an agreed policy on cellular roaming should also be pursued.

The emergence of a number of large **global telecommunications operators** is one of the most striking features of the global telecommunications market in recent years. These operators are building world-wide networks for their corporate clients and have established "hubs" in Europe through which this traffic is routed. Ireland needs to be directly linked to these hubs so that companies here have access to the networks as quickly and at the same price as their competitors in other countries. This is also important because some multinational companies have appointed a single supplier for their world-wide telecommunication requirements. Their interest in locating in Ireland will be greatly reduced if their telecom supplier does not have a direct link from Ireland to its European hub. These operators need to be encouraged to invest in international connections to Ireland providing the required interconnection with their global networks including peering arrangements.

Statement on Telecommunications

A Key Factor in Electronic Commerce and Competitiveness

Public Private Partnerships should be developed for financing large-scale telecommunications projects along the lines proposed by the Department of Public Enterprise. These will be of particular importance for accelerating investment in telecommunications projects for relieving capacity constraints in both the national and international infrastructure.

The redirection of £18 million of **Structural Funds** in 1998 to co-finance telecommunications projects on a competitive tendering basis during 1998 is expected to leverage total investment of between £40-£50 million. Forfás and the Department of Public Enterprise have jointly commissioned a study to identify future Structural Fund requirements post-1999. The recommended policy framework for advanced telecommunications deployment needs to be made a priority area with regard to Ireland's submission for Structural Funds post-1999 and so ensure adequate funding for the rapid development of this critical infrastructure.

Summary of Actions Proposed

9. A national policy framework should be developed for the rollout of broadband telecommunications infrastructure in Ireland. The objectives of the policy should be to enable the:
 - Putting in place of a world-class broadband telecommunications infrastructure, in advance of demand, that would provide Ireland with the infrastructural base necessary to ensure the long-term competitiveness of the economy and in so doing sustain strong growth into the future;
 - Achievement of a more balanced spatial spread of economic growth in the future by ensuring that areas outside the main urban centres have as much access to broadband infrastructure as is technically and economically feasible;
 - Account be taken of the social and economic opportunities for development of broadband infrastructures in co-operation with Northern Ireland;
 - Make the recommended national policy framework for broadband development a priority area with regard to Ireland's submission for Structural Funds post-1999;
 - The Departments of Public Enterprise and Enterprise, Trade and Employment need to develop this policy framework and facilitate its implementation by telecommunications operators.
10. The scope and legislative basis of the Office of the Director of Telecommunications Regulation should be reviewed as follows:
 - The overall objectives should be set out more explicitly;
 - The overriding responsibility should be to encourage the development of a competitive and liberalised telecommunications market so that the benefits of a competitive market are delivered to end-users;
 - The power to monitor and regulate telecommunications prices to end-users, including control of the Price Cap Mechanism, should be transferred from the Minister for Public Enterprise to the Director;
 - The Director should have the power to regulate interconnection terms between different networks, the power to benchmark prices charged and in particular to set interim rates where the process of cost examination is taking an unduly long time;
 - The enforcement powers of the Director should be reviewed. They should include the power to impose fines for breach of licence conditions, power to administer Codes of Conduct, power to require service level agreements between operators and customers and the power to require accounting structural separation;

Statement on Telecommunications

A Key Factor in Electronic Commerce and Competitiveness

- Adequate resources should be provided to implement effectively the functions of the Office.
11. There is scope and a need for greater coherence between the Office of the Director of Telecommunications Regulation and the Competition Authority. The roles and responsibilities of each in respect of the telecommunications market need to be clearly determined and communicated. Both offices should consult continuously to ensure that account is taken of general competition policy and experience in Ireland.
 12. Competitive costs and terms of interconnection between telecom networks require to be monitored and maintained to ensure Irish rates remain competitive relative to other European countries.
 13. A number portability facility and carrier pre-select (equal access facility) need to be effectively implemented and monitored as soon as it is technically feasible after the date of full liberalisation, 1 December 1998, so as to facilitate the emergence of effective competition in the market.
 14. IDA Ireland, in consultation with the Department of Public Enterprise, should actively promote Ireland internationally as a location for investment in broadband infrastructure.
 15. The £18 million allocation from EU Structural Funds, announced in mid-1998, should be supplemented by additional allocations to fund infrastructure projects in regional and rural areas, to ensure balanced spatial development. Additional funds should be provided on a competitive tendering basis.
 16. The sale of Cablelink should be conditional on the provision of open and fair access to the network and on its development.
 17. There is clearly a need for a rationalisation in the deployment of infrastructure and a sharing of facilities between network providers. The Office of the Director of Telecommunications Regulation, the planning authorities and the telecommunications providers should agree a market-based guideline for the sharing of facilities such as masts and ducts to optimise the development of national telecommunications infrastructure. They should take account of the provisions of the Infrastructure Sharing Bill being brought forward by the Department of Public Enterprise. The ODTR should have a clear role in dispute resolution.
 18. Telecommunications service providers north and south of the border need to be encouraged by the development agencies and government departments to co-operate in the provision of broadband services, in particular for the provision of broadband in the North-West and Border counties and in enhancing international broadband connections. Telecommunications operators should be encouraged to develop telecommunications investment strategies for the whole island of Ireland. Initial measures, such as the development of the proposed Dublin-Belfast digital corridor, should be actively pursued. Practical measures such as the introduction of short dialling codes, of shared freephone numbers for the whole island and of agreed policy on cellular roaming should also be pursued.
 19. The introduction of low-rate charges for access to the Internet by business and consumers, set at a reasonable level for specific levels of high capacity access and usage will be of benefit and should be rapidly introduced to encourage extensive use and as a competitive imperative to develop a first mover advantage in electronic commerce. This should be pursued with suitable adjustments over time for new enhancement technologies such as xDSL on the copper network and cable modems.
 20. An Irish peering facility developed by, and providing access for, all telecommunications providers and ISPs in Ireland and involving global operators is required. Policies should be considered and developed by the Department of Public Enterprise, IDA Ireland and Forfás, in consultation with businesses and telecommunications operators, for the rapid establishment of a national facility.

Statement on Telecommunications

A Key Factor in Electronic Commerce and Competitiveness

Leadership in Adoption of Electronic Commerce

Introduction

Information and communications technologies are now significant determinants of economy-wide competitiveness and are a major driver of economic growth. The information technology sector (narrowly defined) is estimated to have accounted for around 40 per cent of the growth in the US economy in recent years and is considered likely to be the main driver of economic growth into the future. The impact of electronic commerce on every aspect of the enterprise sector and the development of new electronic commerce businesses is likely to be the most substantive part of industrial development over the next five to ten years. It is essential that industrial policy have regard to these changes and that it be a strong component in this context. Many of the required policy changes are urgent, but in addition to these a long-term framework for policy is needed. The Department of Enterprise, Trade and Employment should therefore undertake the preparation of a white paper on electronic commerce.

Electronic commerce is set to have a profound impact on all businesses. It is becoming far easier for any company, regardless of size, to reach new customers anywhere in the world. Outsourcing is increasing, allowing companies to benefit from the superior efficiency and economies of specialised suppliers, giving rise to increased co-operation between firms and growth of business networks. ICTs will also give rise to new opportunities in a number of new markets. Consumers are starting to purchase information, goods, entertainment, banking and other services on the Internet through their own personal computers and digital televisions. In addition, a whole range of products in the software, learning and entertainment sectors, which are now mainly purchased in book and CD form, will increasingly be delivered over the telephone line to personal computers and digital television in offices and homes throughout the world.

Ireland is part of this trend. Business-to-business communications and information exchange has been the first to develop. Newspaper companies, bookshops and others selling goods and services are beginning to use the Internet to reach potential customers. Orders and invoices are frequently exchanged electronically and more and more payments are being made electronically.

Ireland should aim to become a global centre for the developing digital business. This would involve, as outlined in Section 1, the early adoption of electronic commerce by all business and government organisations. It would also involve attracting overseas companies and developing Irish-owned companies in the digital business. The type of businesses to be targeted and the key requirements for success are outlined below.

Target Markets

- ***Electronic Commerce***

Electronic commerce includes a wide range of activities such as the electronic trading of goods and services and electronic funds transfer. "Business-to-business" electronic commerce is already well established in many industries. Billions of dollars are electronically traded every day in the financial sector. The airline industry is critically dependent on computer reservation systems. The rise of the Internet is accelerating the expansion of "business-to-consumer" and "business-to-government" services that will be provided by the companies themselves. The market is still expected to grow dramatically. Market analyst Forrester Research has forecast growth from \$22 billion in 1998 to \$350 billion by 2002. A wide variety of support projects will be required to service this industry.

Statement on Telecommunications

A Key Factor in Electronic Commerce and Competitiveness

- **Multimedia**

Multimedia is the term used to define the convergence of the information and technology, media and communications industries.

There are opportunities to build and attract businesses that combine video, sound and text to create and electronically distribute education and training, entertainment and corporate communications products. Ireland is well positioned to exploit emerging opportunities in this area due to our strong position in software, media and creative arts.

The development agencies need to make every effort to support the growth of an indigenous base of multimedia companies, by creating links with the major overseas players. Without the development of home-grown multimedia talent, there is less prospect of attracting significant inward investment.

- **On-line Data and Information services**

Information companies throughout the world supply a wide range of products and financial and business-related information through the telecommunications network. Publications of all kinds will also be distributed electronically. The corporate sector in general is moving towards communicating a wide variety of marketing and corporate information in the same way.

- **Mirror Sites**

Multinational companies in the United States and around the world are, as explained earlier, increasingly distributing software, information and other products directly to their customers through the Internet. Initially these companies merely supplied their customers with information. However, secure technology is now available to allow the product to be delivered and payment to be made electronically. Rapid growth in this business is causing telecommunications congestion. As a result, many American-based companies are setting up parallel "mirror sites" to service their European customers from Europe.

- **Digital Support Services**

Specialised support services, including the following, are required for the developing Digital Industries:

- Computer animation and graphics;
- Computer modelling and simulation;
- Development of software tools and systems;
- Post-production of film and video;
- Localisation services.

Ireland already has a small but growing number of mainly Irish-owned digital support businesses that include companies in music recording, web publishing, CD creation and localisation services.

Statement on Telecommunications

A Key Factor in Electronic Commerce and Competitiveness

Requirements

- **Skills**

The availability of the required skills is an essential pre-requisite for the development of digital companies, and for the creation of a dynamic telecommunications market. The success of digital companies will be critically dependent on skills availability more than any other single factor. A broad range of creative and technical skills is required to support the target markets. A highly flexible learning approach is required due to the nature of the rapidly evolving digital industries and uncertainty as to how they will evolve in the future. Ireland already has a good base of creative and some other relevant skills. This should be further developed and expanded.

The detailed technical and other skills that will be required for the digital businesses will however need to be assessed further.

There is a need for a significant expansion of the national third-level multimedia infrastructure, in particular of those in the Dublin Institute of Technology, Trinity College Dublin, the Senior College Ballyfermot and FÁS. Consideration should be given to the introduction of conversion courses to allow students from other sectors to pursue a career in multimedia. An important part of the third-level infrastructure will be the establishment of a dedicated national college for multimedia.

Such an expansion of multimedia education would allow students to work closely with companies both through research projects and work placement assignments. Strong links between multimedia and other educational institutions should be encouraged.

- **Broadband and Advanced Telecommunications Infrastructure**

The target markets may be diverse but they all require high-speed access to the Internet, connections to major international telecommunications providers and the ability to transfer large volumes of data at high speeds. This can only be achieved through the provision of advanced telecommunications infrastructure and through the reduction in international tariffs to the levels prevailing in competing countries.

Success in securing a significant share of the rapidly expanding digital business is dependent on the ready availability of fibre and ATM switches in the telecommunications infrastructure as outlined in Section 3 of this statement. It is imperative that we demonstrate that Ireland is a high technology centre and to this end it is necessary to anticipate and provide for future enterprise sector demands. Due to the lead times involved in putting the required infrastructure in place, there is a need to plan at national level for future telecommunications requirements rather than simply respond to demand as it arises. The Government's high-level Advisory Committee on Telecommunications has played a key role in this regard.

- **Transnational Operators**

The large transnational operators are the major drivers and enablers of global electronic commerce as their networks rapidly expand across the globe. Some of these operators have had a presence in Ireland for a number of years. Recent developments include the strategic alliance between Telecom Eireann with KPN and Telia. In addition, the British Telecom/ESB joint venture which will operate as "Ocean" and the acquisition of TCL by WorldCom are all examples of the establishment of these global operators in the Irish market.

High capacity international connections from Ireland to the Internet backbone and to the networks of the major international carriers that control the global Internet

Statement on Telecommunications

A Key Factor in Electronic Commerce and Competitiveness

backbone are essential if Ireland is to develop as a hub for electronic commerce activities. This international connectivity requires to be in place to meet the significantly increased requirements of electronic commerce activities, the huge growth in data traffic, and for the development of the content sectors. Operators at the leading edge in the development of new technologies for broadband communications as in the satellite, wireless and mobile telecommunications areas have to be encouraged to invest in infrastructure development in Ireland, to enable the enterprise sector to exploit fully the technologies available.

- **Peering Facilities**

Internet Service Providers (ISPs) support companies on the Internet. A small number of large ISPs operate on a world-wide basis alongside a large number of small providers in each country.

The large ISPs route telecommunications traffic through various operators at high speeds. They handle traffic for each other to ensure maximum speed and effectiveness. The reciprocal pricing arrangements between these large ISPs are known as "peering arrangements" and generally exchange Internet traffic in dedicated "peering facilities". These major ISPs operate on a no-fee basis on the assumption that traffic flows between them are roughly equal. The smaller ISPs are not part of these peering arrangements. They are charged for connection to the Internet backbone on the basis of capacity rather than traffic.

The challenge for a small country such as Ireland is to be part of the global Internet backbone with the required connections to the large international Internet Backbone Providers that are part of the global network. Peering arrangements are key to the success of this strategy.

In Europe, dedicated peering facilities have been established in London, Amsterdam and Stockholm. Internet traffic is generally exchanged or interconnected in these dedicated peering facilities which are known as "telehouses". The facilities, which are not available in Ireland, provide a competitive advantage for their host countries. In order to address this issue, Forfás and the Department of Public Enterprise commissioned a study on the feasibility of establishing a peering facility in Ireland which recommended that a peering facility for global Internet traffic exchange be developed quickly.

It is essential that Ireland establishes international peering facilities with high capacity links to London, Paris, Amsterdam, Stockholm and the US. Given the number of national and international operators in the Irish market already, this could happen over time as the growing volume of Internet business will provide the commercial basis for operators to undertake the costs of the additional links. However, there is a need to establish the required facilities quickly with links to the US and the major hubs in Europe. This is of strategic importance to the development of digital business in Ireland and to the attraction of inward investment in electronic commerce activities. The announcement by WorldCom's Internet division UUNet to establish a presence in Ireland will give Irish-based firms direct access to its global Internet backbone.

- **Legal and Fiscal Environment**

A number of issues need to be addressed when constructing the legal and fiscal framework required for the emerging electronic commerce sector. The Council welcomes the initiatives by the Government to agree a framework with the US Government to promote electronic commerce and to facilitate foreign ICT based businesses to set up here and to serve the US market. The main issues to be addressed are set out below:

Statement on Telecommunications

A Key Factor in Electronic Commerce and Competitiveness

- Tax

The taxation system should neither distort nor hinder electronic commerce. The taxation of transactions conducted over the Internet should be consistent with the established principles of international taxation and should avoid double taxation. Any system of taxation of such transactions should be simple to administer and easy to understand. The Revenue Commissioners are assessing the issues in the context of wider European studies.

- Encryption

Companies and individuals using the Internet are concerned that others may access the private information they transmit. This concern could hold back the development of the Digital Business. A technology called "encryption" is being further developed to scramble the data in transit so that unauthorised persons cannot access it. The EU is expected to approve a Directive on Encryption by late 1998.

The policy statement on encryption developed by the Department of Public Enterprise sets out the broad framework for Ireland in respect of the issue and should give confidence to digital companies and their customers. A legal framework governing encryption, that draws on the EU Directives, needs to be introduced. Policies for the development of databases are needed, in particular, to stimulate imaginative commercial applications while protecting the rights of the individual.

- Certification Authorities and Digital Signatures:

Companies are reluctant to release a product over the telephone lines unless they are sure that payment will be made. Consumers are reluctant to release their credit card details when they do not know the supplier and are concerned that others could use their number.

The Department of Public Enterprise is developing proposals to establish Certification Authorities that would vouch for the identity and credit worthiness of suppliers and consumers. These authorities would issue "digital signatures" or "keys" to consumers which are similar to credit card numbers. The signatures would only be available to the consumer's bank or credit card company and not to the suppliers.

This system is widely seen as vital to the development of electronic commerce as it allows users to guarantee the confidentiality, authenticity, integrity and reputability of electronic communications. Such guarantees will increase user confidence. A legal framework is required to cover the allocation and authentication of digital signatures and ensures the legal validity of such signatures. A framework for the licensing of certification authorities is required. Possible certification authorities include An Post, the banks and the Internet service providers.

- Copyright

The Department of Enterprise, Trade and Employment is currently undertaking a major review of Irish copyright law which will lead to the early enactment of a new Copyright and Related Rights Act. The legislation will bring Irish copyright law into line with best international practice. It will transpose the most recent EU directives on copyright into Irish law and will allow Ireland to ratify a number of international treaties and conventions. This

Statement on Telecommunications

A Key Factor in Electronic Commerce and Competitiveness

legislation should take account of the likely growth in digital distribution and the importance of protecting the copyright attached to such material.

- **Electronic Evidence:**

Electronic evidence is not admissible in civil legal cases in Ireland at present. There is a need for the legislation to be changed so that companies and consumers have confidence in conducting business electronically.

- **Domain Names:**

Although each country has its own domain name or Internet address such as '.ie' for Ireland, the US-based domain name '.com' has established a dominant position as the address of choice for Internet sites. A number of the large Irish sites also use '.com' rather than '.ie', e.g., www.irish-times.com in particular for targeting the US market. The '.com' domain name is more accessible. The annual cost of maintaining an '.ie' site address is three times more than the cost in the US and twice that in the UK. Ireland's domain name requires to be actively promoted on the Internet and among business. The cost to business also requires to be reduced so as to develop a strong brand and base of electronic commerce sites using the '.ie' address and to encourage its adoption by Irish businesses. The '.ie' domain name should be administered on market principles and on the same basis as in the US.

- ***Logistics and Fulfillment, including Postal Services***

Ireland needs to have postal and courier services that can provide the necessary quality of services to cater for the growth of digital business and the use of ICTs. The development of an electronic business infrastructure will require an efficient postal and courier service to deliver goods that cannot be distributed electronically. The network of post offices already established across the world provides the option of an affordable service to meet the requirement of most business.

In this context, having an efficient and effective logistics and fulfilment sector in Ireland including the postal sector that is responsive to business requirements in the digital age is important.

- ***Digital Park***

There is a need for Ireland to move quickly to secure a first mover advantage in exploiting the new digital businesses.

Exploration of opportunities in the digital business requires the installation of a sophisticated telecommunications infrastructure with advanced international telecommunications links. It is not feasible to provide this everywhere in the country at once. A start should, therefore, be made by establishing a Digital Park with the required advanced telecommunications support and with links to the transnational telecommunications operators.

A Forfás study examined the feasibility of establishing such a park and concluded that clustering advantages would result from having specialised support companies working together with their customers on the same site. There would also be marketing advantages in promoting a highly visible and sophisticated park. IDA Ireland in conjunction with Enterprise Ireland is already advanced on the design and costing of the necessary telecommunications infrastructure. IDA Ireland has selected the Dublin Docklands and the CityWest Business Park as the sites for this Digital Park.

Statement on Telecommunications

A Key Factor in Electronic Commerce and Competitiveness

The development agencies need to encourage the extension of the required telecommunication support infrastructure throughout the country as quickly as possible so that companies are then free to locate their digital activities in the most appropriate locations from the point of view of their own companies. The most advanced and highest capacity users should be encouraged to locate in strategic business and information parks where the highest levels of capacity can be provided in the most cost-effective manner.

Summary of Actions Proposed

21. IDA Ireland, Enterprise Ireland and Shannon Development should proactively target electronic commerce, multimedia, digital industries and Internet related businesses with a view to establishing projects. Executive, planning and budgetary resources within the agencies require to be redirected to support these areas and monitored over time.
22. The Expert Group on Future Skills should identify the specific skill requirements of the digital sector.
23. The creative and technical skill base needs to be developed in the following ways:
 - The expansion of existing multimedia activities, particularly in the Dublin Institute of Technology, Trinity College Dublin, Senior College Ballyfermot and FÁS;
 - The introduction of conversion courses to allow students from other disciplines to pursue a career in digital business;
 - The development of courses that include modules where students would learn the business benefits of advanced applications.
 - The need and options for establishing a higher level dedicated National College of Multimedia requires to be examined;
24. The Departments of Public Enterprise; Enterprise, Trade and Employment; and Justice and Law Reform should introduce a legal framework for electronic commerce and introduce a system of licensed certification authorities for digital signatures.
25. The Department of Justice and Law Reform should take the necessary steps to ensure that electronic evidence is admissible in civil legal cases.
26. The Department of Public Enterprise need to develop the policy framework for the full liberalisation and development of the postal services market, within a pro-competitive regulatory framework.
27. IDA Ireland and Enterprise Ireland should develop the National Digital Park in the Dublin Docklands and CityWest Business Park as quickly as possible. It is an important step in developing a strong base of firms in the multimedia, electronic commerce and information communications technology sectors. It should serve as a demonstration and should be extended to other industrial parks across the country. It should also provide a stimulus for the take-up of sophisticated telecommunications services and infrastructure required to support the new digital businesses.
28. In addition to the other actions needed, the Department of Enterprise, Trade and Employment should examine and set out an action plan on future industrial development policy for the development of electronic commerce businesses in consultation with all other Departments. It needs to set out the required government and development agency actions to ensure the enterprise sector fully realises the potential productivity and new business opportunities in electronic commerce.

Statement on Telecommunications

A Key Factor in Electronic Commerce and Competitiveness

Development of Digital Television

Introduction

The introduction of digital broadcasting is likely to have a profound impact on mass communications in Ireland. It is revolutionising the delivery of TV and interactive services and giving rise to a dramatic increase in the number of available channels. The technology will not just increase the choice, quality and control of television content for consumers but will also open up a whole range of new business opportunities and broadband telecommunications services for the enterprise sector.

Ireland has fallen behind other countries, in particular the UK, in developing its strategy for the digital TV age. From a national development perspective, policy for the future of digital broadcasting needs to be strongly co-ordinated with telecommunications policy. This section of the statement concentrates on the implications of the introduction of digital TV in Ireland for the enterprise sector.

Enterprise Opportunities

The benefits of digital broadcasting for the enterprise sector will be far-reaching. Digital broadcasting will result in more efficient delivery of services and content requiring broadband as well as traditional broadcast services. It will be a major platform for delivering broadband services to residential customers and small businesses.

It is likely that Internet access by digital television rather than by personal computer (PC) will be the way to the mass market for business. This is due to the significantly higher penetration of TVs than PCs in the home. In Ireland almost 98 per cent of households had one or more TV sets in 1995 compared with 16 per cent of households having a home computer. Digital TV delivered over many platforms will be interactive and will effectively be a gateway to the Internet in every home including those that do not have a PC. This will provide new opportunities for Irish companies to sell their products direct to consumers but will also significantly increase the number of competitors.

Digital broadcasting will create its own new business opportunities. The introduction of digital television means that it will be possible to introduce a range of interactive services that require broadband communications including home banking, home shopping and specialist local broadcasting. It can also provide a channel for broadband services for small companies to access databases and information services around the world.

Businesses are already preparing for this change. In the US some companies are arranging their Internet content to resemble TV channels so as to be accessible by either PC or digital TV. Irish-owned businesses need to formulate and implement business strategies that take account of this new medium. Ireland should also seek to attract the large digital TV content production, editing and localisation functions to locate here.

Digital TV Services

Digital broadcasting is part of the convergence of telecommunications, computing and broadcasting technologies. There are many possibilities for delivering digital TV services to viewers. In addition to digital cable there is also Digital Terrestrial Television (DTT), digital wireless (MMDS) and the deployment of enhancement technology (xDSL) on the copper telephone links to businesses and homes. Cable TV companies can become telecommunications providers making broadband services available to small businesses with greatly reduced Internet charges. Likewise telecommunications operators can become

Statement on Telecommunications

A Key Factor in Electronic Commerce and Competitiveness

broadcasters of information and interactive video-based services. Some of the new digital channels could also be used to distribute software, educational aids and entertainment products.

Digital TV services are now available in other countries such as France, Italy, Germany and the UK. Digital broadcasting had already commenced in Britain and Northern Ireland from late 1998 and will, as a result, also be available to Irish viewers. Similar services are unlikely to be available in this state until the year 2000. It could be difficult for Irish companies to get their digital broadcasts into Irish homes and small businesses if UK services become established first in the Irish market. A coherent national strategy for digital broadcasting is required to ensure Ireland does not experience a loss of national sovereignty and increased dependency on broadcasting technologies and content from abroad.

The Council welcomes the Government's announcement of the establishment of a broadcasting regulatory body. The Government's decision to allow RTE to proceed with the establishment of a joint venture company to provide a common digital broadcasting transmission network is an important first step and one that should avoid the unnecessary proliferation of infrastructure. There is a risk that foreign interests could dominate the Irish market by distributing foreign programming into the Irish market by satellite. This would not be in the interests of Irish businesses in the content industry or of those businesses investing in Ireland for digital TV transmission.

Future Strategy

The development of digital TV services in Ireland requires a clear national policy on digital broadcasting, one that would set out a course for future growth in this field. The convergence of telecoms, computing and audio visual in the digital age is blurring the distinctions between these areas from a policy perspective. Policy for the move to digital TV therefore needs to be closely co-ordinated between the Department of Arts, Heritage, Gaeltacht and the Islands, the Department of Public Enterprise, the Department of Enterprise, Trade and Employment, the Office of the Director of Telecommunications regulation and service providers.

An indicative timetable for the transition from analogue to digital broadcasting, including digital radio is needed. Until a definite date for a full switch-over to digital is announced the amount of airwaves, made possible by digital broadcasting, will be artificially restricted.

As noted above regulation in respect of digital broadcasting requires to distinguish between infrastructure and public broadcasting policy issues. The priorities of the Office of the Director of Telecommunications Regulation (ODTR) in this area should include licensing, consumer choice, supplier competition and ensuring efficient use of national airwaves, which is increasingly valuable as alternative communications uses are identified. The ODTR should ensure that the new digital TV services are not distorted by unnecessary or burdensome regulation. The licensing regime for TV transmission should be closely linked to that for telecommunications services and consistently applied in both sectors so that other operators and the enterprise sector can make the best economic use of all platforms and competing media.

Subject to the optimum use being made of national airwaves for digital broadcasting, the regulatory environment should be technology and medium neutral, ensuring an optimum level of competition in the provision of digital TV services. The market must be left to decide which technologies and which service providers or operators will succeed. It is not appropriate to attempt to choose between digital cable, digital MMDS, xDSL technologies or DTT. Willing investors should be permitted to invest. Only through competitive provision will costs to the consumer be driven down and a high level of choice and quality offered. The regulatory framework must ensure that competition between the different systems is fair and equal with access provided to Irish businesses wishing to trade on the Irish market. Proposals for broadcasting regulation should be published as soon as possible.

Statement on Telecommunications

A Key Factor in Electronic Commerce and Competitiveness

Summary of Actions Proposed

29. Policy, the lines of responsibility for infrastructure issues and content issues require to be made clear from a public policy perspective relating to the development of digital broadcasting. They need to be kept under continuous review between the Departments of Public Enterprise; Arts, Heritage, Gaeltacht and the Islands; Enterprise, Trade and Employment and the Office of the Director of Telecommunications Regulation.
30. The roles and functions of the proposed broadcasting regulatory body need to be clearly defined vis-à-vis those of the ODTR and the Competition Agency.
31. An indicative timetable for a full transition from analogue to digital is required to provide certainty to the enterprise sector and to encourage businesses to develop new services and content for digital TV and to free-up valuable spectrum.
32. The regulatory framework for digital TV should ensure fair access for competing technologies, make efficient use of the radio frequency spectrum and enable the benefits of a competitive market to be enjoyed by consumers.
33. The new business opportunities for the Irish audio-visual and content industry, as a result of the rapid expansion in the number of television channels and the delivery of content and multimedia via the Internet, should be assessed by the development agencies with a view to developing new or expanded projects.

Statement on Telecommunications

A Key Factor in Electronic Commerce and Competitiveness

Glossary

ATM	Asynchronous Transfer Mode: a broadband switching technology which allows voice, data, audio, video and other kinds of telecoms traffic to be carried on the same network.
Bandwidth	(Also known as "capacity") In simple terms, how much information or traffic can be carried on the telecoms infrastructure in a given amount of time. The simple rule is that the greater the bandwidth, the greater the opportunities for commerce. As a specific example: with low bandwidth, transferring the contents of a music CD via the Internet is not feasible; with higher bandwidth, it is entirely feasible.
Convergence	The "coming together" of formerly distinct technologies, industries or activities; the most common usage refers to the convergence of computing, communications and broadcasting technologies.
Digital	Information expressed in binary patterns of ones and zeros.
DTT	Digital Terrestrial Television: digital television broadcast from ground- based antennae.
EDI	Electronic Data Interchange: allows information in agreed formats to be exchanged between organisations.
Electronic Commerce	Consumer and business transactions conducted over a network, using computers and telecommunications.
Fiber Optic	A modern transmission technology using lasers to produce a beam of light that can be modulated to carry large amounts of information through fine glass or acrylic fibres.
ICT	Information and Communication Technology.
Internet	A vast international network of networks that enables computers of all kinds to share services and communicate directly.
Internet Service Providers (ISPs)	Organizations which provide individuals and businesses with access to the Internet. (including commercial web sites). ISPs may be wholesalers or retailers or both. A wholesaler normally resells bandwidth and certain other services to smaller ISPs who act as retailers. The most significant component of the sale price is the amount of bandwidth purchased.

Statement on Telecommunications

A Key Factor in Electronic Commerce and Competitiveness

LAN	Local Area Network: a network which allows the sharing of computer information within a building or business site.
MMDS	Multi-channel Microwave Distribution System: an analogue broadcasting medium which allows distribution of a number of analogue television channels (typically ten). Used to provide 'cable television' in areas where cable-laying is not viable.
ONP	Open Network Provision: a European Commission policy initiative to provide open access to the networks of dominant telecom operators.
Peering	A 'Peering' facility allows the sharing of telecom capacity between major telecom users (even if they are competitors) to deal with peak-load problems and for the exchange of Internet traffic.
SDH	Synchronous Digital Hierarchy: A telecommunications transmission technology that allows transmission speeds of 34Mbit/s, 140 Mbit/s and higher.
WDM	Wave Division Multiplexing - extremely high speed transmission technology that utilises the full spectrum of light for transmitting broadband services along fibre.
World Wide Web	Web, or WWW: graphical interface to information on the Internet.
xDSL	Digital Subscriber Loop: a digital communications technology, which allows broadband communications over conventional copper telephone lines at various capacities depending on the technology used - x.