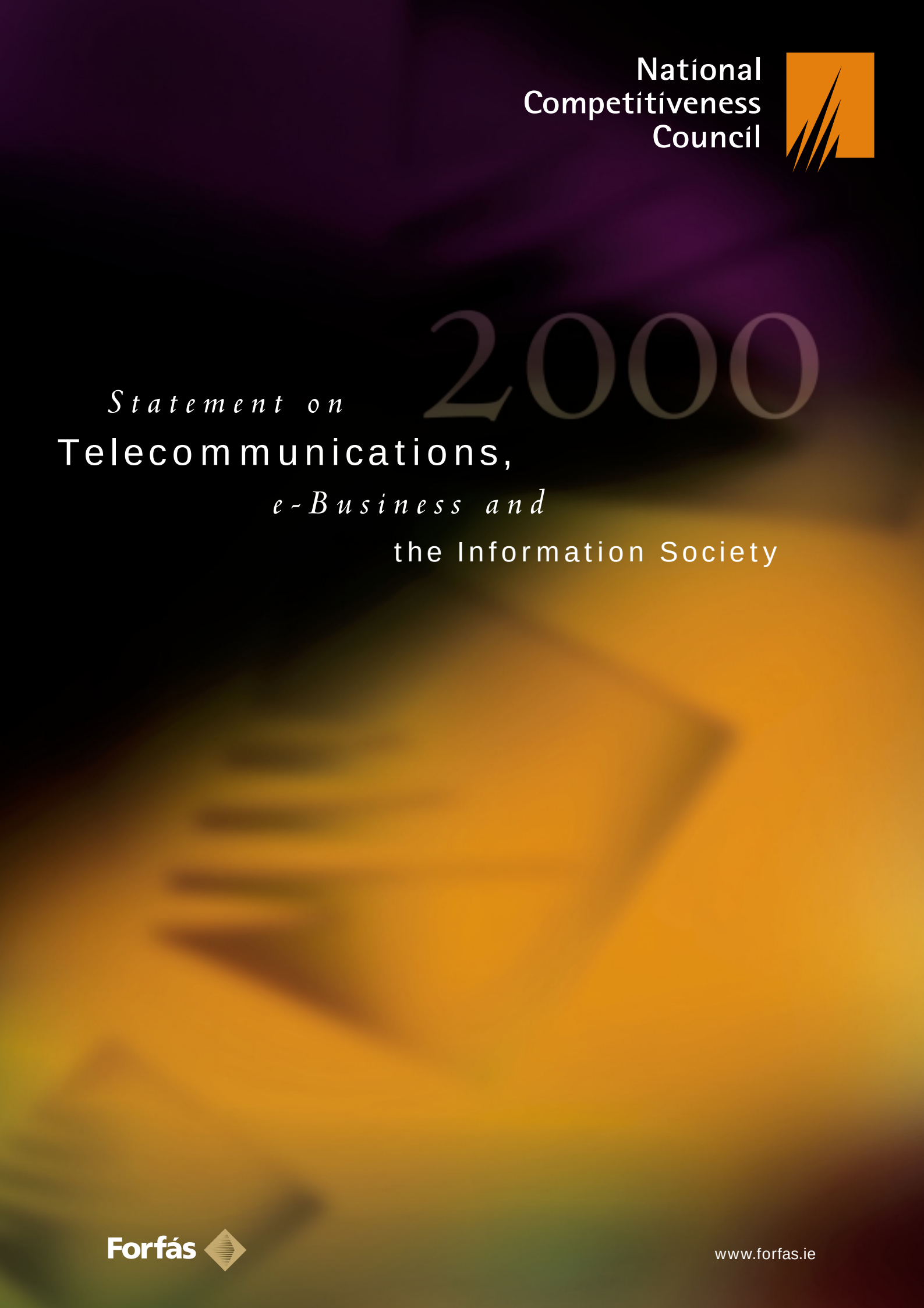
National Competitiveness Council

2000

Statement on Telecommunications, *e-Business and* the Information Society



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National Competitiveness Council

Statement on Telecommunications, *e-Business and* the Information Society 2000

July 2000

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1 Summary of Key Proposals

The National Competitiveness Council in its *'Statement on Telecommunications - A Key Factor in e-Commerce and Competitiveness'*, published in November 1998, set out two broad objectives for Ireland:

- to be a world leader in the provision of broadband telecommunications services; and
- to be a world leader in digital business and as a hub for electronic commerce.

The Council notes and commends the significant progress being made across a broad range of issues.

This Statement focuses on the action required on a number of priority issues to improve Ireland's competitiveness in telecommunications and e-Business and thereby close an emerging and widening competitive gap.

1.1 Telecommunications Infrastructure, Services and Costs

The Council proposes the following actions (the details are set out in the main text) over the next six months to improve Ireland's telecommunications infrastructure, service and cost competitiveness:

- the introduction of legislation to underpin the operations of the telecommunications regulator;
- the introduction of legislation by year-end to allow full physical and effective unbundling of the local loop throughout Ireland and completion of the necessary regulatory work by the ODTR to make it happen;
- the introduction of the Telecommunications (Infrastructure) Bill 1999 to speed up the deployment of telecommunications infrastructures;
- a common set of local and planning authority guidelines for the deployment of telecommunications infrastructure to provide consistency, transparency and certainty;
- roll-out of infrastructure funded under the National Development Plan in a way that permits open access for all operators;
- a strategic approach to the granting of Next Generation Mobile Licences to promote social inclusion and to bolster Ireland's competitiveness in mobile commerce;
- encourage the introduction by operators of flat-rate Internet charges for 'always-on' high-speed access;
- a rapid reduction in the cost differential of leased line connections for different regions of the country;
- the rapid roll-out of Digital TV services is essential to the development of the Information Society;
- the provision of information on the critical importance of infrastructures, such as masts, to advanced telecommunications services outside the major centres.

1.2 e-Business

The Council proposes the following actions to accelerate the adoption of e-Business in Ireland and to develop Ireland's competitiveness as an e-Business hub:

- the establishment of an overall co-ordinated awareness budget of £1 million per annum for three years to move enterprises from awareness of e-Business to its full adoption;

- Ireland to advocate to the EU that VAT on digital services to personal consumers be levied at the rate applicable in the country of consumption. Any other approach would distort trade in the internal EU market;
- the further development of private and public equity markets for Internet start-ups and the encouragement of existing funds in Ireland to link with key international Dot Com/ICT seed funds and institutions;
- development of programmes by business organisations to raise awareness on the Boards of all companies of the strategic implications of the Internet and ICTs for their businesses;
- a second-level ICT skills standard should be made compulsory for all transition year/fifth year students;
- appropriate e-Business modules should be introduced in all third-level courses: especially business and ICT modules in art and design courses; e-Business modules in IT and Multimedia courses; and ICT and multimedia modules in all business disciplines. The output of graduates with Networking/IP Management skills also requires to be increased.

1.3 Information Society and e-Government

The Council proposes the following actions to accelerate the development of the Information Society and e-Government in Ireland:

- a new integrated vision for the Information Society in Ireland should be articulated. This must set out a road map to take full advantage of the opportunities for economic and social advancement presented by the development of the Information Society and e-Business;
- the appointment of a Minister for State reporting to the Taoiseach with responsibility for e-Business and the Information Society supported by the appointment of a high level advisor;
- each Government Department and State agency should have its e-Government strategy developed and in the process of implementation by end-2000. Explicit guideposts are essential to assess progress on a regular and systematic basis. Direct accountability and responsibility is essential;
- the provision in the public sector of a wholly electronic interface with enterprise and the public must become an overarching priority in the ICT plans and resource allocations of all Government Departments, State Agencies and semi-state bodies;
- the required personnel and financial resources should be allocated to the implementation of the 'e-Broker' initiative, providing integrated public services to citizens and to businesses from end-2000;
- all government procurement (including government departments, agencies, health boards and and semi-state companies) should be on-line by mid-2001;
- forms for all state services should be capable of being completed on-line by mid-2001; and
- the establishment of Information and Communication Opportunity Centres in areas of social disadvantage, equipped and resourced to provide general access, relevant content and training for all citizens in the use of the Internet.

2 Overview: Why Telecommunications and e-Business are important

e-Business and the information and communications technologies (ICTs) that support it will be one of the most significant drivers of enterprise over the next three to five years. Ireland's success in exploiting the opportunities will be a critical determinant of future competitiveness, economic growth, incomes and employment.

e-Business provides a major opportunity for the development of business in Ireland. It will provide stable, well paid employment in both existing firms and in new start-up businesses. e-Business is also critical for future productivity growth. The Irish economy is facing a major productivity challenge, as noted in *Enterprise 2010*, the Forfás strategy report for the development of enterprise in Ireland[1]. It advocates the need to accelerate the rate of labour productivity improvement, if the economy is to continue to grow strongly in the face of labour shortages and if real incomes are to increase without undermining business competitiveness. The need for accelerated productivity improvement is particularly urgent in Irish-owned manufacturing and in domestically traded services.

e-Business has the potential to provide part of the solution. e-Business is not just about trading on-line. It is also about leveraging technology to reduce costs and waste[2], to improve customer value and to restructure markets to make them more efficient. This means improved productivity.

e-Business will have a significant positive macroeconomic impact. Based on evidence from the US economy, the OECD has concluded that the adoption of information technologies, including e-Business technologies, allows an economy to grow faster through increasing the rate of growth in labour productivity (see Box 1). The trend labour productivity growth in the US has doubled from the rate seen in the 20 years prior to the mid-1990s. This has been assisted by the surge in IT capital equipment and software available for each worker. The OECD conclude that advances in information technology and associated organisational change have resulted in sharp declines in the price of investment goods. This has boosted growth

Box 1 Gauging the Growth of e-Business

The US Department of Commerce concludes that the rapid pace and proliferation of innovation associated with the Internet economy, and the substantial increases in US productivity and growth associated with IT-related innovation, now appear to be persistent.

The information and communications technology (ICT) producing industries that enable e-Business, while accounting for just 8 percent of US GDP, have contributed nearly a third of real US real economic growth between 1995 and 1999.

New investments in the production and use of ICT are estimated to have contributed to half or more of the acceleration of US productivity growth in the second half of the 1990s.

ICT producing industries have accounted for almost 40 per cent of the acceleration in R&D investment in the US in the late 1990s, with annual average growth in R&D expenditure increasing from 0.3 per cent in the early 1990s to 6 per cent per annum between 1994 and 1999.

Falling prices in ICT-related industries in the US reduced general inflation by 0.5 per cent on average over the last four years, or from an annual average of 2.3 per cent to 1.8 per cent per annum.

US employment in ICT, software and computer services doubled between 1992 and 1998 and are producing higher paid employment. Average annual wages for workers in IT producing industries in the US are 85 per cent higher than those in all industries.

Source: Digital Economy 2000, US Department of Commerce June 2000.

1 Enterprise 2010 – A New Strategy for the Development of Enterprise in Ireland, Forfás, 2000.

2 For example, research by Goldman Sachs suggests that Business to Business (B2B) electronic procurement may save 29% to 39% of the cost of electronic components, 10% of the cost of chemicals and 3% to 5% of the cost of food ingredients. *E-Commerce/Internet, Goldman Sachs 1999.*

of the capital stock and thus labour productivity in the high-technology parts of the US economy. As these gains spread into other sectors, they offer the possibility of maintaining or boosting for some time to come the high overall growth of labour productivity and hence of real incomes in the US.[3]

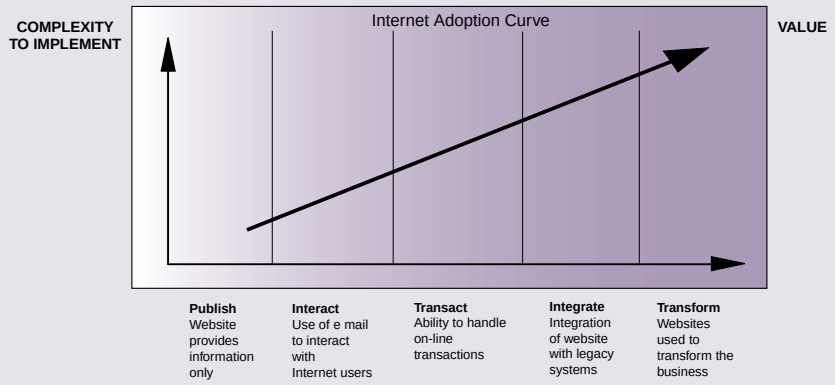
Many Irish companies are finding that they need to develop an e-Business strategy just to stay in business. e-Business is being recognised by these companies as not just involving the use of the Internet for e-mail and web brochures but the use of ICTs throughout all business processes to create real, sustainable competitive advantage, as illustrated in figure 1.

There are two major practical implications for e-Business policy:

- it must be directed towards the whole economy, citizens, enterprises and public administration. There is a competitive imperative for e-Business developments in the public sector to mirror those in the enterprise sector;
- it must go beyond enabling companies to trade and the public sector to provide services on-line. It must enable all enterprises and the public sector to leverage technology to reduce costs and increase customer value.

The opportunities are immense for economies that embrace the new technologies and the new ways of doing business. As e-Business becomes the international norm, the consequences for companies that do not take advantage of the opportunities to improve their performance could be fatal.

Figure 1 Stages of Internet Adoption by Government and Business



Source: Anderson Consulting, www.ac.com

3 Economic Survey of the United States, OCED, 2000.

3 Achievements to date: What is being done?

The *Programme for Prosperity and Fairness* sets out a very broad agenda for accelerated progress in the following areas:

- enhancing competitiveness in Telecommunications Infrastructure, Services and Costs;
- supporting the adaptation by enterprise to e-Business; and
- promoting and deepening the Information Society.

3.1. Telecommunications Infrastructure, Services and Costs

Major strides have been made in improving the competitiveness of Ireland's national and international telecommunications connectivity. Ireland was recently ranked among the top four countries in the world in terms of creating a hospitable, high growth environment for the new economy - one of the 'broadband four'[4] along with the Canada, the US and the UK.

Key achievements include:

- Over the last year, Ireland's international connectivity has increased fifteen-fold. The landing of the Global Crossing cable in Ireland, a project initiated by Government, connects Ireland directly to the Internet backbone and provide direct connections to the US and to 24 European cities. As telecommunications operators continue to put additional international connectivity in place, the increased competition will lead to further downward pressure on prices. Ireland also now has its own telehouse/peering[5] facilities for the direct exchange of both national and international Internet traffic;
- Progress is being made in developing telecommunications infrastructures in areas where the market is not meeting the needs of businesses quickly. In 1999, over £50 million of investment in regional broadband networks was encouraged by the Department of Public Enterprise, funded by £20 million from EU Structural Funds and £30 million from operators. Projects include an optical fibre ring in the North-West and the Western Digital Corridor connecting Dublin to Galway, Athlone, Limerick and Shannon;
- The National Development Plan allocates a further £120 million (now increased to £150 million) investment to regional broadband networks, which should leverage additional investment of over £300m during the next 3 to 4 years;
- The decision of the Supreme Court to uphold the awarding of the third mobile phone licence by the ODTR is welcomed. It will lead to increased competition in mobile telephony services;
- Broadband wireless local loop licences have also been awarded.

4 Legg Mason Precursor Research, 'The Building Blocks of Growth in the "New Economy"'. (Spring 2000). http://www.leggmason.com

5 Where telecommunications operators can exchange voice, data and video traffic and share capacity to meet peak time needs.

3.2. e-Business

It is a key Government objective to position Ireland as the first choice location in Europe for electronic business:

- The Electronic Commerce Act, 2000, makes Ireland one of the first countries to have a transparent and codified legal framework for electronic transactions. This will bring significant benefits. The Act creates legal equivalence between traditional paper-based transactions and electronic transactions. The Act removes all obstacles for e-Business transactions and provides a firm legal base on which the Internet economy can grow;
- The recommendations in the report *'e-Commerce – The Policy Requirements'* prepared by Forfás in 1999 at the request of the Tánaiste are being implemented by the Department of Enterprise Trade and Employment, the development agencies and business organisations;
- The Government recognises that Ireland needs to develop strong research capabilities in the technologies that underpin the development of e-Business. Following the recommendations of Technology Foresight[6] the Government has approved the establishment of *Science Foundation Ireland* and a fund of £560m for basic research in ICT and biotechnology areas. Proposals are also being developed for Ireland to collaborate on research into Next Generation Internet;
- The Government has approved funding for the establishment of a new research and development institute in partnership with the Massachusetts Institute of Technology (MIT), modelled on the highly successful MediaLab at MIT in the US. The new institute, MediaLab Europe (MLE), will specialise in multimedia, digital content and Internet technologies and is expected to attract major international interest and sponsorship. It will lead to new start-up companies and increased entrepreneurship in Ireland; and
- Enterprise Ireland have received approval from the Taoiseach's Information Society Fund for a £10 million e-Business Accelerator Fund to assist up to 120 companies, across a range of sectors, to get started in e-Business. These will act as demonstrator projects of best practice. The County Enterprise Boards have been granted £3 million for the Empower Initiative to provide e-Business education, training and advice to micro-firms;
- In April 2000, the Department of Enterprise, Trade and Employment initiated a major awareness campaign to promote Teleworking.

3.3. Information Society and e-Government

Progress is being made in a number of Information Society and e-Government enabling areas including:

- The Government has allocated £100 million of the Information Society Fund over the next three years for Information Society and e-Business enabling projects in the public sector;
- A number of large projects are underway to provide on-line public services, including on-line filing of tax returns with the Revenue Commissioners and the REACH initiative to provide integrated Services under the Department of Social, Community and Family Affairs. In May, the Government approved

6 Technology Foresight Ireland, Irish Council for Science and Technological Innovation, Forfás, 1999.

proposals, entitled '*e-Broker*', for the on-line provision of fully integrated public services to both citizens and business;

- The Information Society Commission has completed a review, '*IT Access for All*', of the options for providing all citizens with access to the Internet both in their homes and in public places.

4 The Policy Requirements: What needs to be done

Despite what has been achieved, Ireland's competitive position needs significant improvement. There is no room for complacency, as other countries are moving just as quickly.

4.1 Telecommunications Infrastructure, Services and Costs

The May 2000 quarterly report by the Office of the Director of Telecommunications Regulation (ODTR)[7] indicates that Ireland is ranked only between 7th and 9th least costly in the EU across a range of business and residential telecoms tariffs. It is ranked bottom in the EU for national, residential[8] and mobile calls.

Competition in the telecommunications market is critical to bringing prices down into the top quarter of the EU. An aggressively pro-competitive regulatory framework is central to this.

Revised Legislation to Underpin the Office of the Director of Telecommunications Regulation (ODTR) is Essential

The Minister for Public Enterprise is currently drafting a telecommunications regulatory bill. The legislation needs to underpin the ODTR by setting out the objectives of the regulator and guiding principles for its work. The overriding responsibility of the Regulator should be to develop a competitive, liberalised telecom market as an instrument of national economic and social policy. The Regulator should also have a public interest responsibility to oversee the interests of the different categories of consumer. The Regulator must have adequate legal powers of enforcement, including sanctions for non-compliance with decisions of the Regulator. The sanctions should be commensurate with any benefit gained from non-compliance and be an adequate deterrent. Decision-making by the Regulator needs to be fully transparent to give maximum confidence to industry and consumers. The existing legislative basis for the governance and accountability of the regulator and for the handling of appeals against decisions of the Regulator should be re-addressed in the proposed legislation.

It is essential to the development of a pro-competitive telecommunications market in Ireland that this Bill be given a high priority and be passed into law by end-2000.

New Legislation Needed to Provide for Physical Unbundling the Local Loop

Local loop unbundling is an effective mechanism to open up for use by competing operators, the copper wires into businesses and homes (local loop) of an incumbent operator, such as eircom. Physical access to the copper local loop is the only way that competing operators can access the customer in a manner unconstrained by

7 ODTR, Review of the Irish Telecommunications Market. (March-May 2000). http://www.odtr.ie/

8 Based on cost of the first minute in each country.

the technology deployed by the incumbent. To be effective, the ODTR need to ensure that the price of access to the network is sufficiently low retail line rental prices to allow newcomers make a return and/or drop prices to consumers. Business would benefit strongly from the introduction of local loop unbundling as competitor operators use innovative technology to create high value broadband services. This will particularly be the case for small and medium sized businesses, where it may be uncommercial to deploy new infrastructure directly to them.

In July 2000, the EU Commission mandated the full unbundling in all Member States before the end of 2000. In June, the Government committed to providing primary legislation in the autumn for full local loop unbundling. The required legislation must be introduced with the regulatory bill in the autumn. It must ensure that the ODTR will have sufficient powers to effectively implement the physical unbundling of the local loop.

The ODTR needs to accelerate the work required to implement full physical unbundling, in line with the legislative deadlines set out above.

Legislation Needed to Facilitate Rapid Infrastructure Roll-Out

The rapid rollout of new infrastructure is vital to achieve balanced economic and social development. It is critical that this new infrastructure is rolled-out in a planned way throughout the country. A framework is required to allow for the sharing of infrastructures by operators to avoid unnecessary and social undesirable digging of roads and a proliferation of infrastructures across the country. The Telecommunication Infrastructure Bill 1999, withdrawn for amendment, is essential to the speedy rollout of infrastructure. It should include provisions to allow rights-of-way on public property for underground infrastructures and set out a regime for the sharing of both underground and overground infrastructures such as ducting and masts.

When deploying infrastructures, telecommunications operators are experiencing problems with the consistency, transparency and speed of the planning, administrative procedures and differing payments due to local authorities. The Department of the Environment and Local Government and the Department of Public Enterprise need to develop a consistent set of guidelines for use by local planning authorities to provide certainty as to costs and administrative requirements. The public concern over mobile masts and the uncertainty thereby generated is a particular issue.

Advanced deployment of ducting for optical fibre by local authorities in the regions where the market is unlikely to provide such infrastructure quickly requires to be considered as part of the National Spatial Strategy and for investment under the National Development Plan. The deployment of such ducting infrastructure in a planned way between towns in the regions could stimulate the provision of competitive broadband services to those centres.

The critical importance of infrastructures, such as masts, to the provision of advanced telecommunications services to business and society outside the major centres needs to be more widely understood. The ODTR currently monitors and publishes the levels of emissions from masts on an annual basis. The Director has highlighted on a number of occasions that local opposition to masts could economically disadvantage parts of the country. Government should also support research in this area. Business organisations, representative associations and

telecommunication operators need to develop and implement a co-ordinated public information campaign on the role and importance for economic development of communication mast infrastructures.

Next Generation Mobile Licences Must Facilitate m-Commerce

Ireland has witnessed a rapid take-up of mobile phones over the last two years. Most current mobile phones only allow voice and text message calls. The next generation of mobile technology will allow full Internet access. Mobile devices are also forecast to become the primary means of accessing the Internet[9].

This is forecast to lead to a rapid rise in mobile- or m-commerce over the next three to five years. Ireland is well positioned to be ahead of competitor countries and to become a European centre for m-commerce. Ireland needs to take a strategic approach to the granting of licences for next generation services to allow full internet access on mobile phones. Ireland needs to establish as strong a presence in m-commerce in the future as it has in international financial services and telemarketing in the past.

The process of awarding licences should not have the maximisation of revenues as its sole objective. It must also take into account the achievement of future economic and social objectives. A highly complex process that might be subject to appeal could stunt the development of the market and the attraction of mobile investment in hardware, software and back-office activities. The Council strongly recommends an approach that:

- ensures a rapid roll-out of new services;
- encourages innovation and investment in the communications sector in Ireland;
- promotes enterprise and inward investment in new and emerging sectors in the m-commerce environment, including content creation and distribution, value added service providers and hardware and software suppliers;
- ensures the highest level of services and coverage, at costs that are benchmarked to the lowest in leading countries;
- achieves widespread social inclusion in the Information Society in both economic and geographic terms; and
- ensures a fair valuation and return on the State's asset, i.e. airwaves.

Lack of Flat-Rate Charges Hindering SME Competitiveness

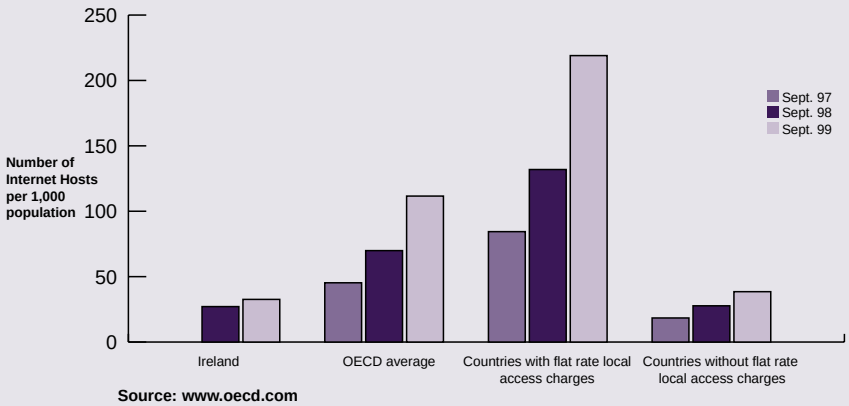
As noted above, overall telecommunications costs in Ireland remain high. Irish business is at a particular disadvantage in adopting e-Business due to the absence of flat rate Internet charges, comparable to those available to SMEs in other countries. Research by the OECD indicates that those countries with flat-rate access also have higher levels of Internet take-up, as illustrated in figure 2.

Businesses need cheap, always-on-access during business hours. SMEs in Canada can pay just CDN$40 (€29) per month for high-capacity broadband services with unlimited Internet access. SMEs in the US benefit from free local calls. SMEs in the UK can pay a flat rate package, for example stg£39.99 per month, for always-on high-speed connections. In Ireland, businesses pay for monthly rental and per usage charges thereafter. For always-on dial-up access this can cost over £122 (€155) per month[10].

9 Mobile e-Commerce, Analysys Publications. (February 2000). http://www.analysys.com

10 Illustrative example assuming eight hours per day for twenty working days a month.

Figure 2 Internet Adoption and Flat Rate Access in Ireland and OECD Countries, 1997-1999



Source: www.oecd.com

While many Irish businesses still use dial-up access to the Internet, new technology solutions are being rolled-out in competitor countries. These allow high-speed access for a flat rate charge. Ireland is lagging in the rollout of broadband services through the slow deployment of Digital Subscriber Lines (DSL) technology, which allows broadband to be provided on the copper telephone network, and cable modems, which allow broadband to be provided on the cable television network. Telecommunication operators will not be in a position to provide competitive DSL services throughout the country until full physical local loop unbundling is implemented. For example, prices have been driven down in Canada by the Canadian regulator forcing the former monopoly operators to unbundle DSL services and charge cost-based rates to other Internet Service Providers. The required regulatory powers to facilitate this in Ireland should be provided for in the new regulatory legislation referred to above.

Higher Leased Line Tariffs in Regions Impacting on Inward Investment

Businesses with large Internet capacity requirements use leased lines rather than dial-up services. These high-speed leased line connections to the Internet are more expensive outside Dublin and are placing regional locations at a disadvantage for e-Business. This is affecting inward investment. Similar prices for similar high-capacity leased line services regardless of the location of enterprises will be central to promoting balanced spatial development of e-Business in the future.

Leased line charges should be set and maintained at the lower end of the EU benchmark figures. Conditions should be attached to allow open access to telecommunications infrastructure investment that is part-funded under the National Development Plan. Alternative means of providing broadband services should continue to be encouraged, such as satellite and wireless local loop, so as to increase competition and bring prices down.

Quick Decision on Digital TV Needed

Currently, the proportion of Irish people that access the Internet at home, less than one-fifth, is among the lowest in the OECD, as illustrated in Figure 3. This is accentuating an emerging digital divide. As almost every household in the country has a television, the introduction of Digital TV has a key role to play in providing all citizens with access to the Internet and the public services that will be provided on it and harnessing the enterprise opportunities that Digital TV offers. Ireland is between two and three years behind countries such as the UK. The development of

Digital TV is dependent on the outcome of discussions between Government and RTE, whose transmission network will be used to provide these services. Agreement between RTE and the Government is needed quickly. Legislation is required to provide a statutory basis to the body that will manage the transmission network in the future. This must be given a high priority.

Figure 3 People with Internet access at home, % of population, 2000

Source: Nua Internet Surveys, March 2000

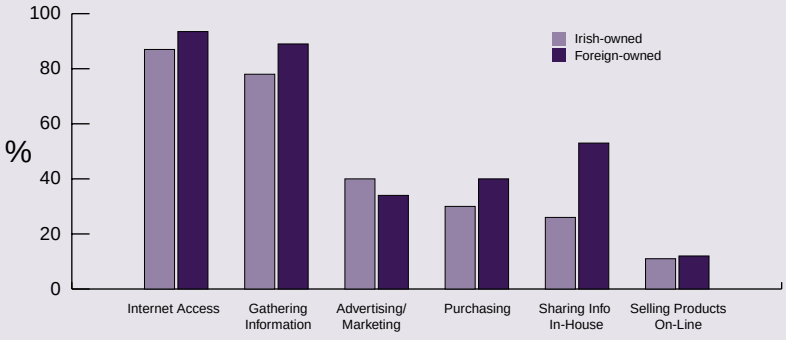
4.2 e-Business

Need to Encourage SMEs to move from Awareness to Action

While recent surveys by the Information Society Commission and the Chambers of Commerce have found relatively high levels of awareness of e-Business among enterprises, there is still a low level of use and adoption of e-Business by enterprises in Ireland. For example, 90 per cent of internationally trading manufacturing companies have Internet access, only a third use e-Business for their input purchases and less than a tenth use the Internet for selling products on-line, as illustrated in figure 4 below.

The Council recommends that an overall 'awareness to action' budget of £1 million per annum for three years be established as part of the Information Society Fund. This should focus on moving businesses and citizens from awareness of the technologies to use at home, at work and in day-to-day business. This is best led by the Information Society Commission and the Department of Enterprise, Trade and Employment, and co-ordinated with the initiatives by Enterprise Ireland and the County Enterprise Boards mentioned above, with training and awareness activities delivered by trade associations at sectoral level.

Figure 4 Internet use in Manufacturing Industry in Ireland, 1999



** Firms employing > 10*

Source: Innovation and e-Commerce, NIERC, June 2000

EU Proposed VAT Regime Threat to Competitiveness

The EU Commission has announced its proposals for the VAT regime for electronic transactions for personal consumers. This will require companies to levy value-added tax on digital services delivered via the Internet to personal customers in the EU. If approved by Finance Ministers, the proposal would require non-EU companies with sales over €100,000 inside the EU to register in one EU country and levy VAT at the rate of that country. Currently VAT ranges between 15% and 25% in different EU countries. Ireland with a VAT rate of 21% could be a disadvantage as a location for these companies. Companies in other low VAT rate countries supplying to Irish consumers could be at a competitive advantage over Irish-based enterprises. Ireland must advocate that VAT on digital services be levied at the rate applicable in the country of consumption. Any other approach would distort trade in the internal market.

Encouraging Entrepreneurship and e-Business Related Start-ups

The digital economy presents enormous opportunities for entrepreneurship and new business start-ups in existing, and new and emerging sectors. Barriers to entry in all sectors of the global economy and in all markets are being eroded. Using e-Business, new businesses around the world are creating new products and services that are instantly accessible by a global audience. Internationally, there is strong entrepreneurial activity in developing technologies and services that support the development of e-Business. New forms of business activity are being created such as electronic marketplaces. New and existing business are using the Internet in innovative ways to transform the provision of traditional products and services and larger business are increasing the outsourcing of their e-Business needs to smaller, specialist technology and support service companies. For example, Fortune 1000 companies outsource an estimated 60 per cent of their e-Business projects[11]. e-Business offers a real window of opportunity for a step change in the number of new start-ups and in the culture of innovation and entrepreneurship in Ireland.

A highly developed seed capital market is central to supporting new e-Business start-ups. While the venture capital market in Ireland is well developed, there is still some gap in the provision of seed funding to Dot Com start-ups and in the provision of incubation centres. There is a need for increased understanding among

11 Saroja Grrishankar, "In Focus: E-Commerce Outsourcing – Internet Time Forces Anxious Enterprises to Seek Outside Help", Internet Week, June 28, 1999.

investment institutions of the importance of Internet start-ups. The development agencies also need to encourage venture capital funds in Ireland to link with specialist Dot Com/ICT seed funds and institutions internationally.

e-Business Skills Needed at all Levels in Business and Society

The single greatest e-Business skills gap across the enterprise sector is at Board and senior managerial level. The change being brought about by e-Business is significant and pervasive. The Boards of all companies need to grasp the strategic implications of the Internet and ICTs for their businesses.

With regard to e-Business skills among school-leavers, very significant progress has been made on ICT deployment in schools and on teacher training. During the last 2 years, more than £40 million has been invested under the IT 2000 Programme. An additional £81 million has been allocated for similar initiatives during 2000-2002.

There is a need to ensure that all students achieve a high level of computer literacy, before they enter the senior cycle. A second level ICT skills common standard should be made compulsory for all transition year/fifth year students[12]. It should be designed to cover the key concepts of computing, its practical applications and their use in the workplace and society in general.

There is a need for appropriate e-Business modules in all third-level and further education. The Council recommends that all universities and third-level institutes examine and reorient course content across all disciplines as appropriate to enable graduates to participate fully in the digital economy, especially, business and ICT modules in art and design courses; e-Business modules in IT and Multimedia courses; and, ICT and multimedia modules in all business disciplines.

The output of graduates with Networking/Internet Protocol (IP) Management skills also requires to be increased.

4.3 Information Society and e-Government

While Ireland has been quick to develop policies and strategies in respect of the Information Society, there remains a perception that it is slow on delivery. On the key IDC Information Society Index[13] of preparedness for the Information Society, Ireland only improved four places over last four years from 23rd to 19th position.

New Vision and Road Map Required for the Information Society Ireland

The Council advocates the need for a new vision for the Information Society, setting out a road map to take full advantage of the opportunities for economic and social advancement presented by the development of the Information society and e-Business and to enable Ireland to catch-up with other countries.

The Council recommends the appointment of a Minister of State reporting to the Taoiseach to act as an advocate within the public administration and in society and to drive implementation of the actions required. The UK has, for example, appointed both a Minister for e-Commerce and an e-envoy to promote the rapid adoption of ICTs by businesses. The proposed Minister of State should co-ordinate the activities of the Information Society Commission and the Assistant Secretary's Inter-Departmental Group[14] that formulated and is charged with implementing the Government's Information Society Action Plan published in January 1999.

12 The European Computer Driving Licence standard provides a useful model of how people from a range of backgrounds can achieve a common standard in ICT usage.

13 The International Data Corporation-World Times Information Imperative Index identifies the key infrastructure elements as well as leading edge investment in computer technology that are critical to success in the information age.

14 Chaired by the Department of the Taoiseach, membership is drawn from all Government Departments at Assistant Secretary level.

The Minister should be supported by the appointment of a high level advisor with the technical expertise and the business and project management experience to deliver on the ambitious agenda for progress. The success of this initiative will depend on the adequate resourcing of this new Ministerial function. As the current Information Society Commission will have served its three year term this autumn, the appointment of a new Commission presents an opportunity to co-ordinate institutional arrangements in this important area.

Action required to Promote Social Inclusion

The lack of computer literacy and access to ICTs will be as serious a disadvantage to participation in society as illiteracy is now. Action now can alleviate this threat. The Internet is not just for commerce, but is also a space where students can learn, people can find employment and where communities communicate. However, as illustrated in Figure 3 above, less than one fifth of the population have access to the Internet at home in Ireland with less than half actually using it[15], which is amongst the lowest in the OECD. The provision of access in communities and relevant content must be a major priority, if we are not to leave sections of society behind. This can best be achieved through the establishment of Information and Communication Opportunity Centres, which could also address the issues raised in *'IT access for all'*. These should be equipped and resourced to provide general access, knowledge and training for all citizens in the use of the Internet. They should be developed in conjunction with local communities in areas suffering from serious social disadvantage.

Figure 5 e-Government Leadership Index*, June 2000

Early Leaders
- Australia
- Canada
- Singapore
- USA

Cautious Implementers
- Italy
- Japan
- Netherlands
- South Africa

Visionary Followers
- France
- Germany
- Hong Kong
- New Zealand
- Norway
- Spain
- United Kingdom

Slow Starters
- Belgium
- Brazil
- Ireland
- Malaysia
- Mexico

**Listed alphabetically in each quadrant.*

Source: e-Government Leadership Report, Andersen Consulting, June 2000.

Delivery on Plans is Now Paramount

A survey by Andersen Consulting in June 2000 tested the electronic availability of over 150 Government services in 20 countries. As illustrated in Figure 5, Ireland is positioned as a 'slow-starter'[16] in the devlopment of e-Government.

15 Neilsen/Net Ratings, April 2000

16 e-Government Leadership, Andersen Consulting. (June 2000). www.ac.com

The Council welcomes the progress made on the REACH and on the e-Broker initiative to date, which is aimed at providing integrated public services to citizens and to businesses and should lead to an improvement in Ireland's position. e-Government and the full implementation of the e-Broker initiative must be delivered quickly. It needs to be integrated throughout the public administration and in the business of Government. Specific targets require to be adopted.

Additional financial resources should be allocated to areas of the public sector charged with formulating and implementing e-Business/e-Government policies. Each Government Department and State agency should appoint an officer with overall responsibility for the implementation of Information Society and e-Business projects in their respective departments/agencies and to co-ordinate implementation of the Government's Information Society Action Plan between departments and agencies.

All government procurement should be on-line by mid-2001. Forms for all state services should be capable of being completed on-line by mid-2001. Each Government Department and State agency should have its e-Government strategy developed and in the process of implementation by end-2000.

5 Conclusion

While recognising that much has been achieved, there is no room for complacency if Ireland is to keep pace with competitor countries. Throughout the world, Governments are putting new policies into place to capture the exceptional opportunities for economic and social progress that e-Business provides. Ireland has the capacity to harness these opportunities fully for all its citizens, if our institutional structures are aligned with, and are capable of responding quickly and effectively, to the challenges of the digital economy.

List of Publications

Annual Competitiveness Report 1998	March 1998
The Competitiveness Challenge Summary Statement 1998	March 1998
Statement on Telecommunications: A Key Factor in Electronic Commerce and Competitiveness	November 1998
Statement on Skills	December 1998
Annual Competitiveness Report, 1999	May 1999
Report on Costs	June 1999
Statement on Social Partnership	September 1999
Proposals on Transport Infrastructure, the Planning Process and Public Transport	March 2000
Competitiveness Challenge, 2000	May 2000
Annual Competitiveness Report, 2000	May 2000
Statement on Telecommunications, e-Business and the Information Society	July 2000
Statement on Regulatory Reform	July 2000