

**Identifying factors
Of success and failure
In European IST-related
National/Regional developments**

FINAL REPORT

Prepared by



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Executive Summary

Important early foundations for the information society in Ireland can be traced back to a number of events:

- ❑ In 1958: Initial consideration given to Foreign Direct Investment (FDI) as means of creating employment and driving the modernisation of the economy;
- ❑ In 1967: from the decision to expand the national education system initially at second level and then at third level;
- ❑ In 1973: Year of Accession to the EEC, now EU

More recently, it was against a backdrop of emigration, un-employment and national indebtedness in the 1980's that led to the first of a series of *National Partnership Agreements* in 1987 which laid the foundations for the economic turnaround of the early 1990's. Through the combination of factors from the mid-1990's, the country was in the fortunate position of having a young educated workforce, a strong presence of FDI companies – particularly in those industries which would be relevant for the Information Society (e.g. IT, Software), and the fiscal resources to make strategic investment. In effect, the those factors which caused the *Celtic Tiger* period from the mid 1990's also provided a fertile ground in which to launch an information society initiative.

Ireland's Information Society initiative commenced with a report to Government in 1996 which defined a vision for the country in the information society as follows:

Vision

*Ireland is a unique community,
rich in culture learning and creativity,
Where the information society is embraced
To support the talents of our people,
To create employment, wealth and vibrant inclusive communities
And where citizens participate more actively in Government*

The report further highlighted five key areas ('pillars') supporting the vision, and needing to be addressed, namely: Awareness, Infrastructure, Learning, Enterprise and Government. A wide range of required activities were identified within this framework in the report.

Following the publication of the first Information Society report, Government quickly recognised the potential of the Information Society in its own right, and as an important vehicle with which to address other key policy areas: for example Employment, Competitiveness, Inclusion, Regional Development. As a result, delivering the Information Society agenda became an integral part of Government policy which was underlined by the prominence attached to the Information Society in the most recent National Partnership Agreement: the *Programme for Prosperity and Fairness*.

Several recent international benchmark studies suggest that, notwithstanding the significant momentum behind the Information Society, the activities have not been sufficient to propel the country to become a leading Information Society. Moreover, in two of the recent benchmark studies, Ireland's relative standing has deteriorated between 2001 to 2002 suggesting that there may be reduced momentum behind the national Information Society agenda.

From the analysis of data, and the feedback of interviewees, a synthesis of the key factors and other important factors contributing to the success and failures of the Information Society in Ireland is set out overleaf.

- ❑ **National Education System:** The maintenance of a high quality national education system which is responsive to the needs of Industry during a period of significant expansions in from 1970's through the 1990's
- ❑ **FDI:** Ireland has been able to successfully leverage the presence of the FDI companies in Ireland, many of whom were involved at the forefront of the technological revolution driving the Information Society.
- ❑ **Government** has played a key role in embracing the Information Society agenda by implementing mutually interlocking and reinforcing actions across a range of activities from Taxation, Healthcare, Education, Legislation, Research and Enterprise development.

The factors contributing to failure of the Information Society in Ireland include:

- ❑ **Inclusion:** The Information Society exists against a persistent backdrop of social exclusion. Without appropriate interventions, the Information Society can exacerbate the exclusion problem.
- ❑ **Infrastructure:** While larger enterprises and cities are reasonably well served with modern telecommunications infrastructure, access to high-speed/low-cost bandwidth by smaller enterprises, by home users – particularly those based in the regions – is more problematic. Hence Ireland's internet presence, as measured by Internet users and hosts, does not compare favorably internationally.

A wide variety of lessons can be learned from the Ireland experience implementing the Information Society (IS) agenda. Because it impacts in so many areas, it is important to be able to address many issues simultaneously: e.g. Inclusion, Education, Ecommerce, and in developing the necessary Legal & Regulatory Framework.

FDI companies can play a useful role the developing the national IS agenda. However in order for them to do so, it is necessary to implement supporting policies & processes aimed at engaging the management of FDI companies so as to leverage and diffuse the insights they can contribute. Exemplar Projects that are led by empowered local communities can deliver efficient, cost effective, locally relevant projects (e.g. Farming Communities, Older people, and Disabled people); successful projects should be scaled up nationally to extend reach and impact.

Government itself plays a key role in ensuring that a proper balance is maintained between the *needs of enterprise*, and the *needs of individuals and the wider community* in the Information Society. Government should take a *client-centered* approach to re-engineering and delivery public services so that they can better serve the community in a more efficient and effective manner.

The availability of a modern, cost-competitive telecoms infrastructure is also an essential ingredient for the development of the Information Society. Securing such an infrastructure nationally in a deregulated market requires that early investments are made, notwithstanding the difficult investment environment which currently exists in the industry.

1. An Introduction to the Study

1.1 Purpose of this report

Fundamentally, this study, which is one of five¹ parallel studies, seeks explore those lessons that can be learned from the success and failure of the Information Society initiative in Ireland, such that they can help stimulate IST-related developments in the EU Candidate Countries.

1.2 Sources of Information

Quantitative Research:

The report draws on various regional, national and international data, derived from a wide range of sources, but predominantly from relevant EU, Government departments, State bodies and International research reports. CIRCA has made particular effort to identify or compile the most current country data, published up to and including December 2002.

Qualitative Research

To complement and augment the desk research, CIRCA interviewed representatives from public and private sectors. The interviews covered members of the original Information Society steering committee, members of the Trade Union movement, from the enterprise sector (both Indigenous and Foreign-owned), from Government and Semi-state bodies and from community organisations. The interviews were particularly valuable in enabling CIRCA to develop a narrative for the Information Society in Ireland: past, present and future.

1.3 Structure of the Report

Chapter 2:

Outlines the important historical context of the Country prior to and during the development of the Information Society agenda that first emerged in 1996.

Chapter 3:

Seeks to trace the development of the IS agenda in Ireland to the present. It highlights the original Agenda, overall progress, and Ireland's relative standing via à vis other countries using international benchmarks, including the IDC World times information imperative index.

Chapter 4

Provides an assessment of Information Society developments in Ireland. It explores those factors which have contributed to the successes and failures of the initiative, seeking to understand how and why these occurred.

Chapter 5

Attempts to draw some conclusions derived from both qualitative and quantitative information sources, and sets out some of the current challenges that remain.

Chapter 6

Defines some key messages from the Ireland Information Society experience that might be useful to others in devising and implementing national Information Society initiatives.

¹ Other parallel studies are taking place in Greece, Austria, in the Dresden region of Germany and Flanders region of Belgium.

2. Ireland's Strategic context

It is impossible to understand the development of Information Society in Ireland without first considering the wider contextual environment and issues which pertained in the country prior to during and since the launch of the first Information society report, completed in December 1996².

Anyone returning to Ireland in the year 2000 after a 10 years gap would encounter a dramatically different country. One could sense a palpable atmosphere of economic activity, of a developed affluent country, an increasingly self-assured people, confident about themselves and about a prosperous future. It was an Ireland transformed from the country featured on the infamous cover feature on *The Economist* in the late 1980's that described Ireland as 'the sick man of Europe'.

By 2000, following a period of unprecedented economic success, it seemed that Ireland, had, at last, turned the corner and in the process solved those most in-tractable problems which had plagued the country since its foundation eighty years earlier: namely emigration and unemployment. Table #1 below provides a brief overview of key statistics for the country.

Population:	3.91m [Source: Census 2002]
Land Area	70,280 Sq.Km.
GDP [2002]	€124.6bn [2002] ³ ;
Un-employment Rate	4.5% [Source: CSO , November 2002]
Economic Growth Forecast	GDP +3.8% (2002) and +3.8% (2003) ⁴
National Debt to GDP Ratio	33.8% at end of 2002
Consumer Price Inflation	5% p.a. to January 2003
Government Budget [2002⁵]	Receipts: €33.078bn; Expenditure €33.214b n
Year of Accession to the EU	1973
Independence	6 December 1921 (from U.K. by Treaty)

Table #1: Ireland in 2002

2.1 Ireland's Vicious Circle

For nearly 40 years after independence in 1921, Ireland experienced what has been described as a 'post-colonial type growth without development', indicated in Figure #1 overleaf. The lack of opportunity at home - particularly in rural Ireland, caused many young people to emigrate, thereby removing much of the essential vitality required by the country to develop. For many that left the country up to the 1980's, theirs was a *one-way-journey*.

² Information Society Ireland : Strategy for Action [December 1996]

³ Source: ESRI Quarterly Economic Commentary , Winter 2002

⁴ OECD Autumn 2002 Economic Forecast

⁵ General Government Receipts & Expenditure Source: Department of Finance December 2002

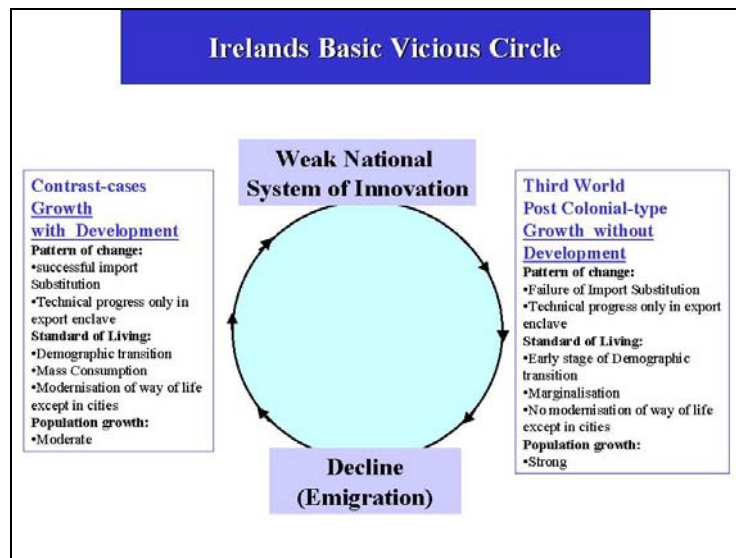


Figure # 1:⁶

Up to the 1950's, the country retained a strong dependence on the UK as a trading partner, operated protectionist economic policies, and continued to be heavily dependent on the Agriculture sector. However a new development model was pursued in the period after 1958 which involved the opening up and modernisation of the economy, the preparation of the country to join the EEC, and the beginning of the effort to attract foreign investment.

Joining the EEC in 1973 was a particularly important milestone in Ireland's recent history. On becoming a member, Ireland also became a convenient point of entry for many US multinational companies looking to expand their operations into Europe. Membership also afforded Ireland an opportunity to learn from the policies of the EU and of partner countries. Net inflows of European funding contributed to the development and modernisation of the country at a pace that the country could not afford to self-fund, and in the process helped to break the *Vicious Circle* outlined earlier. The slow *Europeanisation* of Ireland has followed, where the country has gradually moved toward European norms (e.g. birthrate, economic structure, and urbanisation).

2.2 Population, Demographics & Migration

For many years, one of Ireland's greatest exports has been its people. From the time of the foundation of the modern state in 1921, the population declined steadily from 4.22m (in 1926) reaching an historic low of 2.81m people in the 1961 census. Other than for short periods in the 1970s, and late nineties, emigration has been an enduring feature of the country both before and since independence. To illustrate the extent of the *Irish Diaspora*: in the 1841 census, the population of the island of Ireland (which at that time was part of the UK and included Northern Ireland) was 8.175m. During the period 1820- 1945, an estimated 4.5 million Irish emigrated to

⁶ A strategy for competitiveness, Growth & Employment NESC November 1993 pp107

the US, comparable in magnitude to the population flows from Britain and Italy⁷, creating an Irish-American community thought to number somewhere between 20⁸ and 40 million people today.

The constant haemorrhaging effect of emigration was not just a question losing so many young economically active people who could contribute to Ireland's development; it impacted on the psyche of country. It posed a fundamental question: Would it ever be possible for Irish people to build a future for themselves and their families in Ireland, or was it the perennial destiny of the country to lose many of its young people through emigration.

The most recent census [2002] reveals a rather different trend, summarised in Figure #2 below: it shows that the population of the Republic of Ireland⁹ has risen to 3.91m¹⁰. During the period between 1996 and 2002, while the natural population increase (birth over deaths) was 139,182 the actual increase in population in the same period was 291,249. The main cause of the difference is explained by a new phenomenon of *net immigration* of 153 thousand, or about 25,000 per annum during the period. In 2002, the net migration rate of +0.68% was the highest of the 44 members of the Council of Europe¹¹.

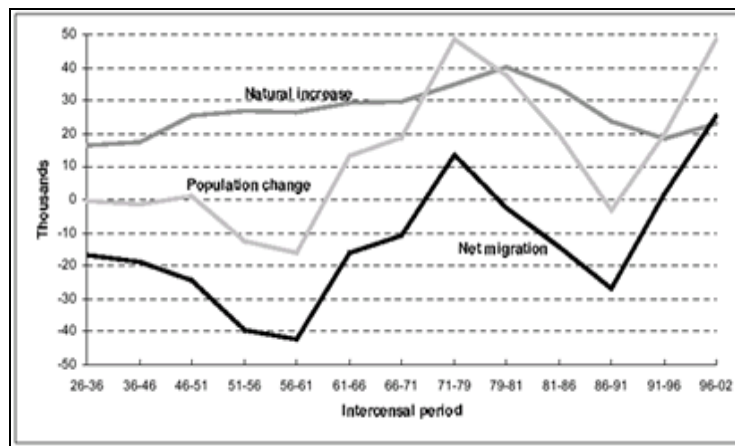


Figure 2¹²

2.3 Dublin & the Regions

Ireland is a country of contrasts: by some estimates as much as 40% of the population is concentrated in the greater Dublin area, comprising an area roughly 50 Km North to South and 15Km East -West. The country's three other main cities are small by international standards: only one city (Cork) has a population greater than 100 thousand people, while only two cities have populations greater than 50 thousand (Limerick and Galway). The balance of the population is

⁷ The economy of Ireland ; policy and performance of a european region ed W. O Hagan pp20 ; numbers do not include emigration to other destinations : UK, Canada & Australia

⁸ US Census bureau report for 1990 indicates 22.7m Americans claim Irish ancestry and that 62.3% of them were in managers, professional or technical , sales & admin occupations. The number is usually stated as 40 m .. Without a source

⁹ Population of Northern Ireland is 1.6m; [Source : UK Census 1991]

¹⁰ Source CSO : Census 2002

¹¹ Source : Council of Europe Demographic Yearbook 2002

¹² Source CSO

distributed around many small towns and villages, but also comprising many individual dwellings.

As well as emigration, there have also been considerable levels of internal migration *within* the country, mainly from rural areas to the larger cities, notably to the greater Dublin area, but also to Galway, Cork and Limerick (Ref Figure #3). The decline in income derived from farming (11.4% in the period 2001/2002)¹³ has caused many young people from rural Ireland to come to the cities, often to college initially, and then into the workforce.

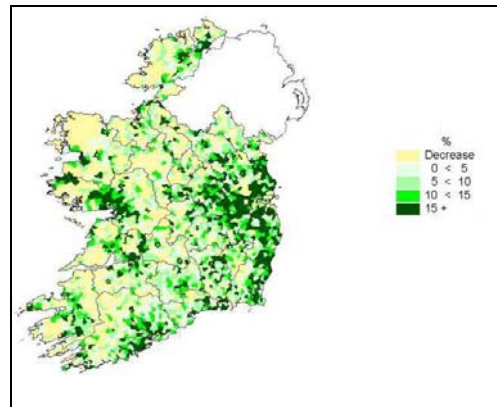


Figure #3¹⁴

The population movement into Dublin and surrounding counties recent years has contributed to considerable problems with traffic congestion, house price inflation, and in mobilising necessary infrastructure (childcare, Schools, Utilities) leading to an erosion in the capital city's *Quality of Life*. A further consequence of this migration has been to alter the population profile of many rural areas such that sustaining services like Post offices, Schools and Hospitals have difficulties achieving a scale required to remain viable. Hence one of Government's current key initiatives is to devise and implement a national spatial strategy¹⁵ which has the benefit both of reducing the pressure of population inflows to Dublin, while also establishing a more sustainable, regionally-balanced form of economic development.

2.4 Employment & Un-Employment

Between 1980 to 1987 Ireland's unemployment rate increased steadily to over 18%, and continued upward to 21% in 1992 (279,300 people)¹⁶. As recently as 1995, at a time when Ireland's unemployment rate had reduced slightly to 15.4%, the ILO was still predicting an unemployment rate of 17.9% by 2000. Behind the overall figures some other trends emerge, such as *long term un-employment* (defined as those without work for more than 1 year). By the late 1980's, the proportion of un-employed men classified as long term unemployed was close to 50%.

¹³ Source: Eurostat December 2002

¹⁴ Source: CSO Data

¹⁵ On November 28, 2002 Government published a report '*People, Places and Potential*' designated nine regional 'gateways', including Dublin, Cork, Galway, Limerick/ Shannon, Waterford, Sligo, Dundalk, Letterkenny, and Athlone/ Mullingar/ Tullamore

¹⁶ A change in the calculation method lowered the headline number from 20% to 16.9% in 1993

Fortunately, un-employment began a dramatic decline until during the first half of 2001, reaching a low of 3.8 % - the lowest level since the foundation of the state. The full-year average for 2001 was 4% showing that unemployment began to edge upwards during the second half of that year.

1997	1998	1999	2000	2001	2002
9.8	7.4	5.5	4.1	3.8	4.6 ¹⁷

Table #2 seasonally adjusted annual Un-employment rates [Source CSO].

Ireland's employment level had remained almost flat between 1961 (1.05m employed) and 1986 (1.08m employed). There followed an unprecedented growth in employment of 25% during the period 1993-1998. By mid 2002, employment levels had risen still further to 1.827 m, an increase of 200 thousand people at work since 1998.

Year	Q1	Q2	Q3	Q4
1998	1621.6	1621.1	1688.6	1650.7
1999	1650.1	1688.1	1770.3	1736.1
2000	1732.1	1745.6	1815.6	1779.1
2001	1775.5	1781.9	1866.1	1825.5
2002	1825.4	1827.0		

Table #3 Labour Force All Persons (in 000)

Several other factors are worth noting in the context of changing nature of Ireland's workforce:

- ❑ The much greater level of female participation in the workforce: during the period 1988-1998, women's employment grew on average of 6% per annum, compared to 2% growth rate for men – although starting from a low base. (In the 1999 EU Labour force Survey , Ireland had ranked only 11th of the 15 EU in terms of female participation in the labour force)
- ❑ Rapidly expanding FDI: Over 1200 foreign-owned companies are now employing more than 300 thousand people¹⁸;
- ❑ Changing Occupation: for example a continuing decline in employment in agriculture offset by increases in Professionals and of people involved in other sectors (ref Appendix #1)
- ❑ The largest growth in employment took place in services, particularly in market services, and services often mediated by ICTs;
- ❑ Manufacturing employment, which had declined during 1980s, expanded again in the 1990s.

2.5 Economic Crisis Late 1980s:

By 1986 the national debt had grown to IR £24bn (€30.48bn¹⁹), three times larger than in 1980 representing 125% of annual GNP. Interest repayments alone had risen from 7% of GNP in 1980

¹⁷ Unemployment level per November 2002 Central Statistics Office Quarterly Household survey published on November 28 2002. The ESRI Quarterly Economic Commentary (QEC) of the summer 2002 has forecast an annualised rate at 4.6% in 2002, reducing slightly to 4.5% in 2003.

¹⁸ Source: IDA Ireland

¹⁹ Converted at Standard EMU conversion rate of €1.27 to Ir £1.

to 12% in 1986.²⁰ The backdrop of chronic unemployment and servicing large debt presented a particularly difficult starting point for the new Government returned by a slender margin in 1987.

The extent of the *sense-of-crisis* can be gauged from the fact that the incoming Government secured the tacit support of the main opposition party to pursue the austerity measures required to restore confidence in the country. It also led to the conclusion of the first of a series of *National Partnership Agreements* which have existed right through to the present time (December 2002).

2.6 The ‘Celtic Tiger’ period: Mid 1990’s to 2001

From 1994, the momentum of a turnaround started to build into a rapid economic expansion that would become known as the ‘*Celtic Tiger*’ (ref Table #4). At this time there was greatly increased consumption as a result of the low personal tax/Low Interest rate regime in the domestic economy, combined with significant export-led growth.

National Income (Current Market Prices)				
Gross Product	1998	1999	2000	2001
GDP – Value (€m)	77,569	89,770	102,910	114,479
GNP – Value (€m)	68,187	76,552	87,934	96,802
GDP - per capita	20,936	23,971	27,175	29,820
GNP - per capita	18,404	20,441	23,220	25,216

Table #4

While the rate of economic growth has slowed in the past 18 months, the forecast for the next two years continue to show an expansion of the economy above the EU average.

Economists consider that Ireland’s remarkable economic progress from the late 1990’s to 2001²¹ was caused, not by one, but by a broad range of factors, including:

- ❑ Strong supply of educated young people;
- ❑ Success in attracting many leading US firms, particularly in the in the ‘high tech’ (Information and Communications technologies or *ICT*) & pharmaceutical sectors;
- ❑ Ireland’s well established ‘Social partnership’ model , which among other things, contributed to predictable public policies;
- ❑ In-flow of funds from the EU;
- ❑ Improved performance by indigenous Irish companies, both in the manufacturing and service sector; one economist explained it in the following terms: ‘ the scale and durability of this [sic] improvement is without precedent in 20th century Ireland’²²
- ❑ Social change that increased greater flexibility in the workforce and greater participation of women in the workforce;
- ❑ Significant organisational change in adopting more modern high performance work practices.

²⁰ Source European Employment & Industrial Relations glossary : Ireland [1994]: Publ European Foundation for the Improvement of living and working conditions, pp4

²¹ It is commonly accepted by economic analysts that Ireland’s boom period has passed and that more modest growth will pertain in the short term

²² ESRI Quarterly Economic Commentary April 1998: The revival of Irish Indigenous Manufacturing 1987-1997 by Eoin O’Malley

It is important to note that Ireland's information society agenda first emerged in the 1996/1997 period during Ireland's 'boom years'. During this time, Ireland's Government, enjoying the luxury of an exchequer surplus for the first time in 50 years, had both the mind-share and the necessary resources to devote to more strategic issues. As Ireland's economic growth slows, the strength of commitment to the *Information Society* agenda will be measured by the manner in which the agenda is pursued during times when the public purse is more constrained.

One manifestation of the '*Celtic Tiger*' has been the impressive export performance (Ref. Table #5). After Singapore and Hong Kong, Ireland registered the highest per capita merchandise exports in the world in 2000²³, exporting merchandise goods worth € 21,824 for every man, woman and child in the country.

The export performance of the ICT industry based in Ireland has been equally impressive: during 2000, exports from the ICT sector accounted for €22.1bn or equivalent to half the ICT exports of Germany; Ireland's ICT trade surplus that year at €7.14bn was the largest of any EU country.

Balance of Trade Year	Imports	Exports	Trade Surplus €m
1993	18,900	25,179	6,279
1994	21,945	28,891	6,946
1995	26,181	35,330	9,149
1996	28,480	38,609	10,129
1997	32,864	44,868	12,004
1998	39,715	57,322	17,607
1999	44,327	66,956	22,629
2000	55,909	83,889	27,980

Table #5

2.7 Context Summary

On the eve of the Information Society agenda, a fertile ground existed in which to launch such an initiative in Ireland. The national partnership model had begun to pay dividends in terms of improved competitiveness and economic stability. With the amelioration of the pressing problems of emigration, un-employment and debt, Government could afford to adopt a more strategic approach to investment.

Both in terms of employment and value creation, the indigenous and foreign enterprise sectors had grown rapidly, particularly in those industries that would be relevant for the Information Society: namely ICT industries, Software and Finance. There was increasing recognition of the need for more regionally balanced form of economic development and that the new Information and Knowledge enterprises could become an important part of that development.

Finally, there was an increasing level of national self-confidence that the country had the potential to become, not just a peripheral player, but a central player in the emerging global Information and Knowledge economy.

²³ Source: Forfäs' International Trade and Investment Report 2001

3. The Information Society in Ireland

3.1 Foundations of the information Society Agenda

The idea of the Information Society formally emerged in Ireland via the *Bangemann Report*²⁴ in 1994. The following year, Ireland's leading economic policy think tank, Forfás, was completing a seminal policy document, *Shaping our Future*, which first promoted the idea of a national information society initiative.

3.2 Lighting the Fuse- The original Information Society Report:

In March 1996 an expert steering group comprising 21 people drawn from a wide variety of backgrounds was appointed by Minister Richard Bruton with the following *Terms of Reference*:

- ❑ Identify the issues associated with the emergence of the IS;
- ❑ Assess Ireland's preparedness;
- ❑ Identify appropriate strategic responses and actions required to derive maximum benefit from the Information Society.

The steering group made its report to Government in December 1996. Their report described the irresistible nature of the Information society, and the significant challenges that lay ahead for Ireland in effecting a transition into a successful Information Society. The report identified Ireland's strengths and weaknesses at that time regarding the Information Society (Ref Table #6 below)

Strengths	Weaknesses
<ul style="list-style-type: none">❑ Success in attracting industry as the heart of the IS❑ Cluster of Information Intensive industries in Ireland❑ Success of call centres illustrates attractiveness of Information Services❑ Indigenous Software sector❑ Irelands share of ICT Trade❑ Ireland creative flair❑ Fibre telecoms backbone❑ Culture places strong emphasis on education❑ People are open to the potential of new technologies	<ul style="list-style-type: none">❑ Low levels of awareness❑ Lack of competitively priced bandwidth for the enterprise sector❑ Broadband to the home❑ Low integration of ICT into teaching practice❑ Emerging skills shortage in ICTs and languages❑ Low levels of Investment in training by Irish firms❑ Absence of telecom regulator❑ Legal framework

Table # 6

²⁴ Europe and the global information society – Recommendations to the European Council; May 1994

The report established a *Vision* for Ireland in the information Society toward which all other supporting frameworks, strategies and actions were directed.

Vision
*Ireland is a unique community,
rich in culture learning and creativity,
Where the information society is embraced
To support the talents of our people,
To create employment, wealth and vibrant inclusive communities
And where citizens participate more actively in Government*

The report further highlighted five key areas ('pillars') supporting the vision, and needing to be addressed as shown in Figure #4 below.

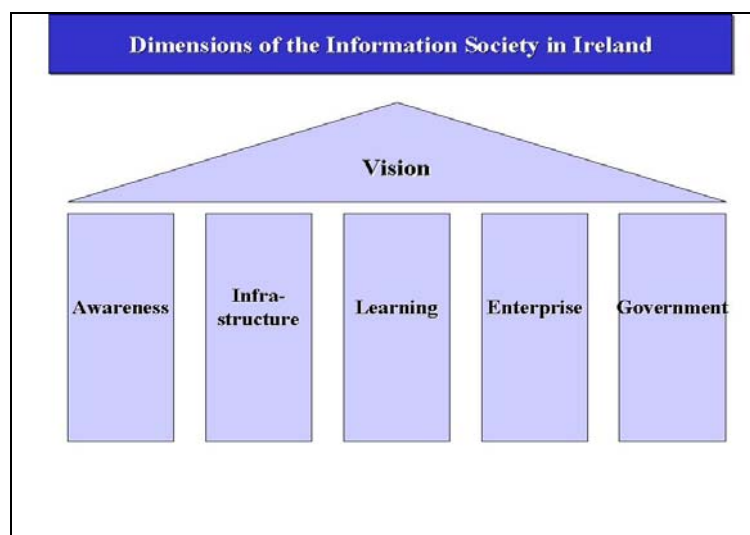


Figure #4

For each of the five 'pillars', a series of objectives were defined, and strategies supporting each objective, as set out in Table #7.

Pillar	Objectives
Awareness	<ul style="list-style-type: none"> ❑ Secure a high level of public understanding of the full potential of the Information Society (IS) in working and living ❑ Provide every citizen and enterprise with affordable access to information networks and services ❑ Facilitate the enterprise sector in becoming alert to and ready to exploit the opportunities presented by advanced technologies and services
Infrastructure	<ul style="list-style-type: none"> ❑ Create a fully competitive telecoms market ❑ Provide widespread access to low-cost , high capacity bandwidth ❑ Provide access to broadband services for the majority of Irish Households
Learning	<ul style="list-style-type: none"> ❑ Provide all citizens with access to technology-mediated education & training designed to equip them for LLL²⁵ in the IS ; ❑ Encourage third-level institutions to act as enablers of the Information society; ❑ Ensure an inclusive IS through the widespread adoption of Lifelong learning ❑ Create a culture of <i>Learning Organisations</i> among enterprises in Ireland
Enterprise	<ul style="list-style-type: none"> ❑ Secure the full adoption and use of ICT's by the enterprise sector ❑ Secure a strong leadership position for the Irish content industry ❑ Support the development of Indigenous software enterprises ❑ Maximise the job potential of the IS
Government	<ul style="list-style-type: none"> ❑ Promote the widespread adoption of the IS by all sectors of Irish society ❑ Ensure the full application of advanced technologies to public services ❑ Foster the creation of an inclusive IS

Table # 7

In addition to setting out this *five-pillar strategic framework*, the report made specific recommendations about those actions requiring immediate attention, particularly:

- ❑ Establishment of a new body, the *Information Society Commission* to monitor and oversee implementation of the report's findings;
- ❑ Implementation of a series of Awareness Campaigns (TV Show, Conferences, Events);
- ❑ Establishing an Independent Regulator for the Irish Telecoms industry (ODTR since renamed COMREG);
- ❑ Developing Exemplar projects: Virtual Cities, Net TV, Cyber Schools;
- ❑ Skills: Enable people to realise their potential: FAS²⁶ programmes, and Higher education authority to expand ICT graduands.
- ❑ Creation of a *Digital Park* : An Exemplar bandwidth-rich business location in which the potential of the Information Society could be demonstrated.

²⁵ LLL: Lifelong learning

²⁶ FÁS Is Ireland's Training & Development Agency <http://www.fas.ie>

Despite a change of Government in early 1997, the incoming government moved quickly to implement the policy framework and actions set out in the Information Society report.

One important reason for this continuity was that the *link between the Information Society and many other key policy issues had been firmly established*. The agenda set out in the Information Society Report appeared to under-pin many other important elements of the national policy agenda, for example:

- ❑ It afforded both the employment & wealth creation potential so needed by the country;
- ❑ It supported new 'service' employment which has expanded rapidly in recent years;
- ❑ It could help overcome Ireland's 'peripherality' with respect to the rest of Europe, and the additional peripherality experienced by Ireland's regions, and hence contribute to a more regionally balanced form of economic development;
- ❑ It could enhance the overall competitiveness of the economy;
- ❑ It was consistent with emerging thinking from within the EU, and also within the US administration (e.g. Global Information Infrastructure initiative led by Vice-President Gore)
- ❑ It facilitated the development of other high potential industries: e.g. Financial services and Multimedia;

A very wide range of activities flowed from this framework; these are presented in summary form, by year, in Appendix # 2.

3.3 Information Society Status 2002

At the time of announcing the new Commission in November 2001²⁷, which comprised completely new members, Government highlighted the following achievements since 1997:

- ❑ An increase from under 5 percent to over 40 percent in the level of internet access amongst the general population²⁸;
- ❑ A rise to 80 percent in the number of companies recognising that information and communication technologies (ICTs) are very important or essential to their business²⁹
- ❑ The publication of the first Government Action Plan on the Information Society;
- ❑ The liberalisation of the telecommunications market;
- ❑ A fifteen-fold increase in Ireland's international connectivity via the Global Crossing project³⁰
- ❑ The linking of all primary and secondary schools to the internet. By early 2001 post-primary schools had an average of 42.7 computers per school while primary schools had an average of 8.6 and special schools 10.7.
- ❑ The general availability of access to the internet through public libraries³¹
- ❑ The adoption by Government of the Public Services Broker model for integrated delivery of public services through multiple access channels.

²⁷ The term of the first *Information Society Commission* expired in December 2000.

²⁸ *How the General Public is adapting to the Information Society in Ireland*, Information Society Commission (October 2000)

²⁹ *How the Business Community is adapting to the Information Society in Ireland*, Information Society Commission (September 2000)

³⁰ Global Crossing Project: A contract (won by Global crossing) to deploy additional undersea cable to enhance connectivity off the island of Ireland.

³¹ Now over 1400 internet access points, up from 108 in June 1999

In March 2002 Government published a new action plan for the development of the Information Society. The plan is divided into two parts: Key infrastructures and supporting frameworks, per Figure 5.

- Key Infrastructure** provide the necessary basis for progressing as an information society
- ❑ **Telecoms Infrastructure** developing the capacity necessary for delivery of advanced telecommunications services;
 - ❑ **Legal & Regulatory Environment:** ensuring a secure and predictable legal framework for electronic transactions which provides the necessary confidence for both business and consumers;
 - ❑ **eGovernment:** a key leadership role for Government in driving wider engagement with ICT's through its own business processes and service delivery arrangements.

Supporting frameworks: to address the frameworks where its necessary to

- ❑ **ebusiness:** To support and underpin the competitiveness of business, particularly indigenous enterprise, in meeting the challenges of a new competitive environment
- ❑ **R&D:** providing a basis for innovation through science and technology to support knowledge-based economic activity
- ❑ **Lifelong learning:** to ensure the availability of knowledge and skills , to support the process of adapting to ongoing change, and to build on the potential of ICT's to enable new ways of learning
- ❑ **eInclusion:** to ensure that Ireland's development as an information society is inclusive and builds on the potential of ICT's to address issues of dis-advantage and exclusion

[Source: New Connections Action Plan, March 2002; pp4-5]

Figure #5

3. 4 Assessing Ireland's Progress

3.4.1 Gains & Losses

There is no doubt that considerable progress has been made in advancing the national Information society agenda. However, there is also a sense that more remains to be done to effect the anticipated 'breakthrough' that would propel the country to a leadership position in the Information Society. Table #8 (overleaf) summarises positive and negative issues across a range of factors.

Factor	Positives	Negatives
Connectivity	Improved Off the Island	Access to broadband especially 'always-on' services. Cost of services in the regions
Entrepreneurship	Improving, especially in the ICT area	Very Low overall score (GEM) ³²
Inclusion	Greater levels of overall awareness	Information Society exists against a backdrop of social inequality
Technology use	Mobile telephony ; growth in internet use	Relatively Low levels of Internet access, and internet hosts per capita
High-Tech Industry	Very Strong FDI presence; High Value add contribution	Excessive reliance on FDI?; shifting pattern of FDI into Europe
Education & Training	Relatively modern, flexible & efficient system ; future output of technical graduates slowing	Many people never experienced the modern system; expected shortage of technical graduates.
Driving the IS Agenda	Regional / Local initiatives increasing	National momentum weakening; reduced funding situation
Research	Investment starting from a low base but increasing rapidly especially in ICTs.; Investments in SFI ³³ and MLE ³⁴	Time taken to grow the R&D base , assumes no funding interruption; Expected future shortfall of Graduates in ICT area
Exemplar Projects	Some good : Tramlines ³⁵ , CAIT ³⁶	Slow to scale up nationally; Availability of funding to do so
E-commerce	Progress on Legal Framework	Ireland not yet a major e-hub
Government	Progressive, proactive approach. Action across most Government activities	Increasingly constrained by budgets. Challenging change agenda (e.g. re-engineering public service). Reduced momentum.

Table #8

3.4.2 International Benchmarks

The acid test of Ireland's progress can be found using International benchmark studies. One particularly useful benchmark is one used in the original 1996 Information society report (IDC / Information Society Imperative Index) which placed Ireland in 23rd position of countries evaluated and in the *Third Division*. By 2002, Ireland's relative position on that scale had improved only 2 places (a decline from 2001) into the *Second Division* (Ref. Figure #6).

³² GEM Global Entrepreneurship Monitor

³³ SFI : Science Foundation Ireland <http://www.sfi.ie/home/index.asp>

³⁴ MLE: Media Lab Europe – the European arm of MIT's Media Lab <http://www.mle.ie>

³⁵ A Training initiative that originated in Ballymun , Dublin aimed at providing a chance for dis-advantaged youngsters to learn about IT and to gain employment in the IT industry.

³⁶ Community based in initiative

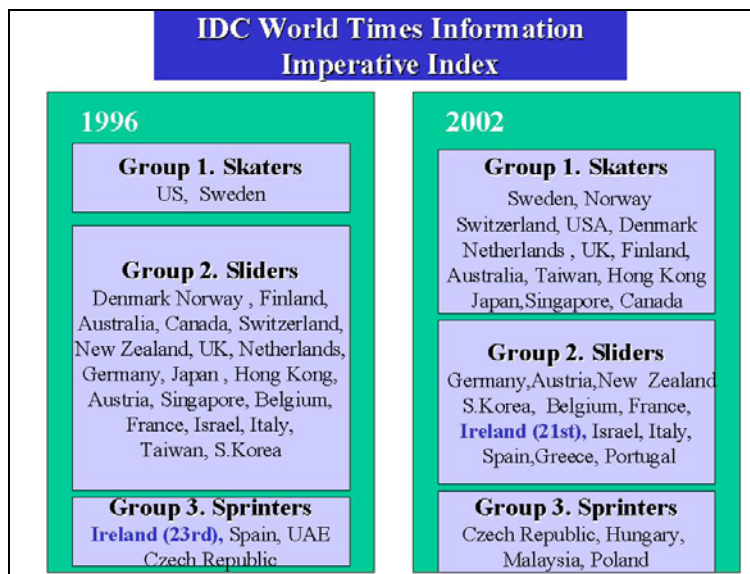


Figure #6

There are other measures which provide useful inter-country progress comparisons :

- ❑ The Economist's eReadiness Index ranked Ireland in 15th place from 60 countries surveyed in 2002³⁷, a reduction of one place on its position in 2001;
- ❑ The Harvard Networked readiness Index rated Ireland in 19th place in 2001³⁸ of 75 Countries surveyed.
- ❑ In the most recent report of Ireland's Information Society Commission³⁹, Ireland was ranked 9th of 14 EU countries (excluding Luxembourg).

The picture which emerges from these benchmark studies suggests that while there has clearly has been a great deal of activity to progress the Information Society Agenda in Ireland, these activities have not yet been sufficient to propel the country to a status as a leading Information Society.

Moreover, in two of the benchmarks studies, Ireland's relative standing has deteriorated between 2001 to 2002, suggesting that there is reduced momentum behind the overall national Information Society programme – a view which was underlined during the interviews conducted in the course of completing this assignment.

³⁷ Source: http://store.eiu.com/index.asp?layout=pr_story&press_id=430000643&ref=pr_list

³⁸ <http://www.cid.harvard.edu/cr/profiles/Ireland.pdf>

³⁹ Source Building the Knowledge Society, pp28 ; Published December 2002

4. Factors of success and failure that have influenced Information Society developments in Ireland

From the analysis of data, and the feedback of interviewees, a synthesis of the key factors and other important factors contributing to the success and failures of the Information Society in Ireland is set out in Table # 9 below.

Factor	Success	Failure
Key	<ul style="list-style-type: none"> ❑ National Education System ❑ FDI ❑ Pro-active Government 	<ul style="list-style-type: none"> ❑ Inclusion ❑ Infrastructure development:
Other	<ul style="list-style-type: none"> ❑ Demographics ❑ Proactive Implementing body: Information Society commission ❑ Favourable Macroeconomic Environment ❑ From 'Crisis' to Sense of Confidence and self belief ❑ Being <i>Multi-media ready</i> through presence of Core industries : Animation, Music 	<ul style="list-style-type: none"> ❑ Breakthrough Irish indigenous companies ❑ Spatial distribution of the population (connectivity)

Table #9

The *other factors* are shown merely to provide the reader with an insight into those factors which emerged from the research/ interviews but were not, in the final analysis, considered to be as vital. The remainder of this chapter is devoted to exploring the *key factors* in greater detail.

4.1 Factors Contributing to Success:

4.1.1 National Education System

The development of the national education systems, in the 1960's through to the 1980's is seen as a key catalyst for the development of the country⁴⁰. The introduction of free secondary education in 1967 opened up second level and then third level education to people who, heretofore, would not have been in a position to attend. While completion rates of secondary education are now at a high level by international standards, the relatively late introduction of universal second level education has one noteworthy consequence: there remains a significant cohort of people with only primary education still in the workforce. Of the 279k males only achieving primary level of education, some 162k of these males are in the 45-64 age category.

In thousands	Male	Female	Total
Primary	279.4	250.2	529.6
Lower Secondary	311.7	277.8	589.5
Upr. Secondary	312.6	348.1	660.7
Further Education /Training	114.5	125.6	240.1
Third level (non degree)	68.7	88.6	157.3
Degree or above	140.7	127.7	268.4
Other / Not Stated	24	24.2	48.2
	1251.6	1242.2	2493.8

Table #10: Highest level of Educational Achievement Age Category 15-64 years

⁴⁰ since the 1960's, the share of national income devoted to Education has doubled.

Another important recent trend is the much greater level of female participation in the Education system, at all levels, causing changes the gender balance in many historically male-dominated professions such as Medicine and Engineering.

	15-24	25-34	35-44	45-54	55-64
Primary	44.1	22.1	40.3	71.5	73.3
Lower Secondary	100.5	45.6	55	49.8	26.9
Upr. Secondary	114.4	85.4	77.1	46.2	25
Further Education / Training	24.4	42.4	30.6	17.8	10.3
Third level (non degree)	16.3	29.9	20.9	14.1	7.4
Degree or Above	19.9	47.1	32.1	19.2	9.4
Other	1.9	4.5	3.6	2.9	1.4
Not Stated	1.5	2.4	1.8	2.4	1.8

Table #11 Source: Female Population 15-64 Estimated level of Educational Attainment (Q2 1999)⁴¹.

According to FÁS, the proportion of the workforce with only a primary level education in 1991 was 22%, slightly more than the 21% who had a third level qualification. By 1997, however, the proportion of the workforce with a third-level qualification was almost twice as large as those who had only attained primary level of education at (29% vs 15%)⁴².

The structure of Ireland's second level education, where students pursue a broad rather than narrow subject range, is also seen as a key differentiator:

*Ireland's system of broad-based secondary education. [...] produce a large number of young people every year who have a knowledge of languages, history, geography, mathematics, art and music and sciences. This broad base, upon which the third level education system can build, is agreed to be one of Ireland's strengths.*⁴³

The Primary and secondary school system moved quickly to address shortcomings highlighted in the 1996 Information Society report, through initiatives like the Information Age schools project (sponsored by Telecom Eireann⁴⁴ the incumbent national Telecom Operator) , and by establishing the *National Centre for Technology in Education*. By January 1999 every school had been provided with a computer and 96% have a physical Internet connection (of which 16% were ISDN).

Figure #7 overleaf indicates that since the mid 1970's, ever increasing numbers of children were completing second level education qualified to attend college: the transfer rate from secondary to tertiary increasing from 28% in 1985 to 50% in 1995.

⁴¹ Published in Appendix #1 of the *Learning for Life : White Paper on Adult Education* , July 2000

⁴² Source FÁS Strategy Document.

⁴³ ICSTI (1999). *Technology Foresight Ireland: Report from the ICT Panel*. Dublin: Forfas. p17.

⁴⁴ Now re-named Eircom



Figure # 7 ⁴⁵

Hence, it became essential to further develop the third level system, both through expansion of the Universities and by establishing a new Institutions called *Regional Technical Colleges* (RTCs⁴⁶) around the country from the early 1970's, and continuing to the establishing of further Colleges / Institutes⁴⁷ in recent years.

One of the effects of this expansion was that much of the focus of Ireland's third level system was geared toward managing under-graduate numbers while maintaining quality standards. There was considerably less focus on developing academic research: in 1997 Ireland spent only 0.27% of GDP on Higher Education⁴⁸ R&D (HERD), the second lowest in the EU, and considerably further behind the 0.83% spent by Sweden.

The demographic structure of the country at that time and since has led to significantly increasing numbers attending secondary⁴⁹ level. Moreover, a greater transfer rate from second level education into third level created a ready supply of qualified people ready to take roles that would eventually emerge in Celtic tiger period of the 1990's.

Ireland's Third level Universities and Colleges have made significant contribution toward developing Ireland's Human capital. They have provided the Managerial, Technical and Professional talent capable of developing a leadership position for employers. They have been instrumental in expanding the output of technologists to the extent that Ireland now ranks third in the EU for numbers of Science and engineering graduates (20-29 age group), and considerably ahead of the output levels of Japan and the USA.

⁴⁵ The rate of transfer is estimated by taking total annual intake to all third level colleges as a percentage of the estimated population at age 17. Some persons entering third level may have previously entered. Mature students and entrants from outside the State are also included in these figures

⁴⁶ Ireland's *Regional Technical Colleges* (RTC's) have since been re-branded as *Institutes of Technology*

⁴⁷ Institutes of Technology established in Tallaght, Blanchardstown and Dub Laoghaire (1997)

⁴⁸ Source: Higher Education Authority <http://www.heai.ie>

⁴⁹ Secondary school would normally be attended by those in the age category 12 – 18 years

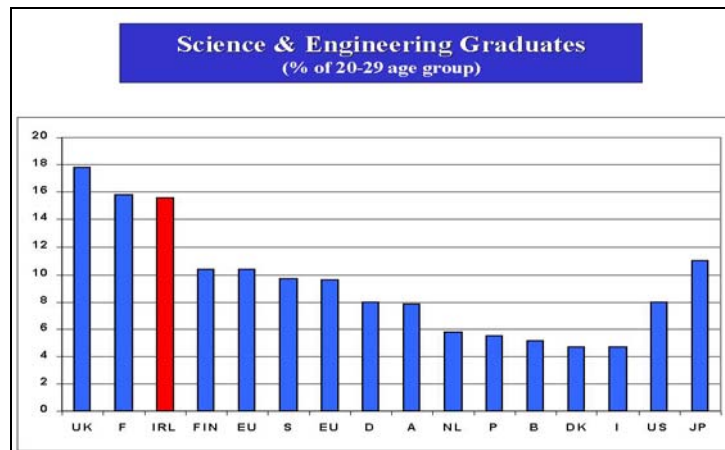


Figure #8

In addition to providing pure science, engineering and business under-graduate courses, many colleges have developed innovative under-graduate programmes that cross traditional ‘faculty boundaries’ but which fulfilled specific needs of industry for example:

- ❑ Combined Computing & Language degrees prepared graduates for the localisation companies,
- ❑ Combined Computing & Business degrees produced commercially oriented technologists;
- ❑ Computing & Design degrees: graduates for Media & Multimedia

At the post- graduate level, Ireland’s colleges have also been creative in designing new courses:

- ❑ Rapidly expanding ICT graduate numbers by developing fast-track ‘conversion’ degree and diploma programmes aimed at helping graduates from non-technical backgrounds work in the ICT Industries.
- ❑ Introducing Europe’s first MBA programme (started in University College Dublin in 1964).
- ❑ Launching an M.Sc. Programme in Technology Management (influenced by the equivalent MIT programme) have been introduced in University College Dublin and online via the *Atlantic University Alliance*⁵⁰.
- ❑ In developing flexible, distance & online learning models: OSCAIL, RACEE and Atlantic University Alliance⁵¹

Ireland’s Education system at both second and third level has proven itself somewhat capable and adaptable. There are still significant challenges ahead with declining student numbers arising from demographic changes, declining interest in Sciences and globalisation of the learning market. A further challenge arises from the need to re-engage with those mainly middle-aged and older people who did not experience a modern education.

⁵⁰ A consortium involving the three Universities on Ireland’s western seaboard: University College Galway, University of Limerick, and University College Cork

⁵¹ Details on : <http://www.oscail.ie> and <http://www.aua.ie/content.asp?id=1> and <http://www.racee.ie/index.html>

4.1.2 FDI & the US Connection

The development agencies responsible for Ireland's inward Investment⁵² has been particularly successful at attracting large numbers of multinational companies to Ireland, especially those involved in the Information and Communications technologies industries, but also in Biotech, and in the Financial services arena. The FDI statistics for Ireland are revealing:

- ❑ By 2001, Ireland's FDI Stock had risen to stood at \$74.8bn, or about 3% of the FDI stock of the EU;
- ❑ The country has won 25% of all ICT-based FDI coming into Europe in the last 10 years⁵³.
- ❑ Inward flows of FDI increased more than threefold between 1998 and 2000, rising from €7.9bn to €26.1bn in 2000.
- ❑ Ireland was the tenth largest recipient of FDI inflows among developed countries in 2000,
- ❑ Ireland's top three exporters (Intel, Dell Computer and Microsoft) are all US multinational companies, and accounted for 22% of manufactured goods exports and 18% of the country's total exports in 1998.
- ❑ More than 300 thousand people (or 16% of the workforce) are employed by foreign companies;
- ❑ 48 % of all Ireland's FDI originates in the US, with UK in second place with 12%⁵⁴
- ❑ The worlds largest industrial Biotech facility (The Wyeth BioPharma Campus) is currently under construction outside Dublin;
- ❑ In little over a 10 years, and starting from a very small base, Dublin has established an International Financial services (Funds) industry that has become the 6th largest⁵⁵ in Europe managing assets of €430bn and employing 11,000 people⁵⁶.
- ❑ The share of ICT Employment 4.5% vs. an EU average of 2.8%⁵⁷

The scale of FDI investment Stocks and net flows is shown in Tables 12 and 13 below.

FDI Flows	1985-1995	1997	1998	1999	2000	2001
Inward (\$m)	656 ⁵⁸	2743	11035	14929	24117	9775
Outward (\$m)	420	1008	3906	4267	3973	5396

Table #12⁵⁹

FDI Stock	1980	1985	1990	1995	2000	2001
Inward FDI (\$m)	1657	2557	3410	9614	65056	74800
As % of GDP	7.9	12.5	7.2	14.4	68.2	

Table #13⁶⁰

⁵² IDA Ireland is the main agency responsible; a separate body : Enterprise Ireland, is charged with the development of the Indigenous enterprise sector

⁵³ Source Brendan Butler, Director ICT Ireland in interview with Sunday Business Post Oct 20, 2002

⁵⁴ Source: North Ireland Economic Research Centre.

⁵⁵ Fitzrovia its 8th annual Funds Encyclopaedia

⁵⁶ Source: Dublin Funds Industry association (DFIA)

⁵⁷ Source: Eurostat Statistics in Focus Theme 4- 34/2001

⁵⁸ Both Inward and outward numbers represent an annual average during the period

⁵⁹ Source: UNCTAD: World Investment Report 2002

⁶⁰ Source: UNCTAD: World Investment Report 2002

The year 2000 was a record year for inward FDI flows into Ireland with Inward flows rising to €26.1bn. As in previous years, the US was the largest single source of inward investment flows. The country was ranked 6th out of the 20 economies for the largest gains in FDI market share between 1985 and 2000.

While the experience for most FDI companies with a presence in Ireland has been mainly positive, it is important to recognise that there has always been some level of attrition of companies and employment. For example: the closure of Gateway 2000, downsizing at Digital Equipment, Xerox & Tellabs. For the most part net job creation has been mainly positive, although IDA Ireland reported a net decline of 2.2% in employment in FDI companies in 2002 - the second consecutive overall jobs decline in fifteen years⁶¹.

Who are the Companies?

Many of the of the most important global companies from the ICT industry have come to Ireland over the years including Apple, IBM, Motorola, HP (and Compaq), Nortel Networks, Oracle, Sun Microsystems, Siemens, Xerox⁶². Three of the most important companies in this sector: Dell, Microsoft and Intel have a substantial presence in Ireland are profiled below.

Dell in Ireland⁶³

Dell is ranked as Ireland's second largest company in the Business and Finance Top 1000 listing, March 2002. The Company employs a total of 4,700 people at its locations in Ireland which include Dell's European Manufacturing operation located in Limerick City as well as Sales and Support centres in the greater Dublin area. It has been estimated that Dell contributes over 5% of Irish exports, 2 % of GDP and over 4 % of all expenditure in the Irish economy. Dell's annual total salary bill in Ireland is €111.5m.

Microsoft⁶² in Ireland

Microsoft first established a presence in Ireland in 1985 through its European Operations Centre, which includes the area manufacturing and distribution. Since that time the Irish operations have grown and developed to the point where Microsoft Ireland is the one of the largest employers in software in Ireland, employing over 1500 staff. Within three years of its arrival in Ireland, the company expanded its activities to include software localisation for European markets. Today, over one hundred different software products are localised into twenty-seven different European and South American languages at Microsoft's European Product Development Centre (EPDC) in Dublin. Exports in 1999 amounted to 5.5 % of the total Irish exports of goods and services.

Intel⁶⁴ in Ireland

The Intel Ireland campus, located outside Dublin City, is Intel's fourth largest manufacturing site overall, and the largest outside the US. Since starting operations in 1990, the company has grown to employ over 3,000 people with a further 1,000 employed with long-term subcontractors. In April 2002, Intel announced the resumption of construction on their latest semiconductor facility known as 'Fab 24' in Ireland. The new facility, costing \$2bn, will utilize 90-nanometer technology enabling the development of microprocessors capable of operating at speeds greater than 3 GHz.

⁶¹ 11,700 new jobs were created with 14,700 jobs lost in 2002 ; Source: IDA End of Year Statement 2002

⁶² All company Trademarks and Copyrights acknowledged

⁶³ Information on the companies sourced from their respective company websites.

⁶⁴ All company trademarks and copyrights acknowledged.

Why do they locate in Ireland ?

While every foreign company will have its own reasons for coming to Ireland, the most common reasons cited include:

- ❑ Easy point of entry to European markets;
- ❑ Low tax rates ;
- ❑ Low cost base - although this argument is becoming less sustainable;
- ❑ Skilled People: young, knowledgeable, adaptable with a 'Can do' attitude;
- ❑ Highly supportive state infrastructure: Government, Development agencies;
- ❑ Platform of High education;
- ❑ Grant Assistance: e.g. Training, Equipment

In the FDI context, Ireland has been able to establish for itself an important intermediary role between the US and Europe because of its strong historical, political, social and cultural connections in both directions. While the presence of FDI companies is important in its own right, it is Ireland's ability to leverage the presence of the FDI Companies that makes a vital difference. Many of the FDI companies located in Ireland are managed by Irish people, not people transplanted from international headquarters. These managers have been ready to contribute their insight and know-how in support of Information Society agenda, to network locally with other companies and colleges on the basis that it would create an environment favourable to their business, and to their community. Thus it has been possible for executives from these FDI companies to have a more influential voice in aspects of national technology and economic policy than is possible in other countries.

A New Focus on higher Value-Add

Historically, much of the focus of development agencies like IDA Ireland has been directed toward *maximising employment creation of FDI companies*. That focus is changing toward *developing new higher value-added work*, including R&D. Underpinning this transition is the need to rapidly expand the country's research capability. Ireland's expenditure on technological Research and Development (R&D) in the business sector (BERD) amounted to € 784m in 1999, was equivalent to 1% of GNP according to the most recent report published by Forfás. While there has been an increase in recent years, Ireland's investment is lower than both the EU and OECD averages of 1.2% and 1.5% respectively.

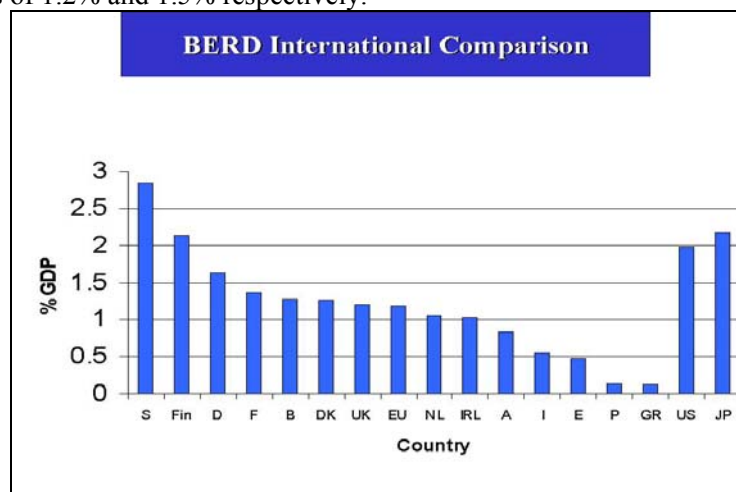


Figure #9

The following table summaries Ireland's relative R&D performance as reported in Ireland's Annual competitiveness report 2001.

FACTOR	POSITION / TOTAL
Government Spending on R&D as % of GDP	22/24
Increase in R&D Spend as proportion of GDP increase	21/25
# Researchers per unit population	9/21
Business Spending on R&D as % of GDP	13/27

Table# 14 ⁶⁵

A similar picture is evident regarding Patents. Ireland's Patent Application performance, while growing 12.8% in the period 1990-1998, still places Ireland 11th of 15 EU Countries with a performance of 124 per million people employed. The country's patent performance is less than half the EU Average of 261, and approaching one quarter the level of Germany and Sweden (493 and 478 respectively)

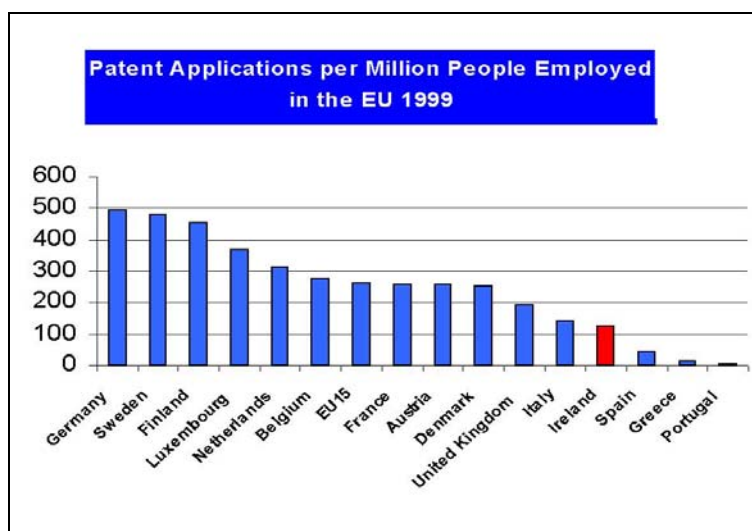


Figure # 10⁶⁶

Government has moved decisively to improve the Ireland's R&D standing by making a number of strategic investments including:

- ❑ The Technology Foresight fund, managed by the Science Foundation of Ireland,
- ❑ Digital Hub is considered Ireland's leading enterprise development project for the digital media district with funding of €83.5m in the period 2001-2003.
- ❑ Media Lab Europe (MLE), the European arm of MIT's Media Lab, functions as high-tech research centre, receiving funding of €35.55m in the period 2000-2003.

⁶⁵ Source: Annual Competitiveness Report 2001, National Competitiveness Council 2001 compiled from OECD data from report of ICT Ireland 'R&D: Securing the future of ICT Ireland'

⁶⁶ Source: Eurostat, Statistics in focus, Science and Technology, No 4/2001, "Patent activities in the EU: international, national and regional perspectives".

Building up the country's research capability to support the transition to higher value-add work will take time. It remains to be seen if the country can create new higher value-add FDI activities (e.g. R&D) at a rate faster than the country's rising cost base erodes the viability of low value-add activities.

4.1.3 Proactive Government

Government has been a key player in progressing the Information society agenda by

- ❑ Establishing and maintaining the partnership process right to the present day;
- ❑ Making the connection between Information Society and wider Government policy agenda;
- ❑ Using the insights from both the EU and the US

While various forms of national wage agreements had existed prior to 1987, the difficulties faced by an incoming Government that year necessitated a unique response. The Government initiated a new more broadly-based discussion framework with the Trade Union movement ⁶⁷, the national employer's organisation IBEC⁶⁸ and national farmer bodies, which have since become known as the *National Agreement*⁶⁹s. There have been five successive agreements:

- I. Programme for National Recovery (1/1/1987 to 31/12/1990)
- II. Programme for Economic and Social progress (1/1/1991 to 21/12/1993)
- III. Programme for Competitiveness & Work (1/1/1994 to 31/12/1996)
- IV. Partnership 2000 (1/1/1997 to 31/3/2000)
- V. Programme for prosperity & fairness (Period 1/4/2000 to 21/12/2002)

The bedrock upon which the first and subsequent agreements were concluded was that

- ❑ Only through collective, holistic and co-ordinated action could the problems faced by the country be addressed;
- ❑ A much greater level engagement between 'opposing groups' and the enhancement of mutual understanding was needed than existed heretofore.
- ❑ *Proactive, Problem-solving approach* : Agreements were not inert documents re-visited every 5 years but continually progressed throughout the term of the agreement ;
- ❑ The idea that *Everything & everyone is included* characterised the discussions leading to the national agreements, and hence each partner was free to bring forward any topic they wanted addressed within the context of each agreement.

The agreements have focussed principally on incomes, fiscal, social, economic and competitiveness policies negotiated between Government and the 'Social partners'. Without the partnership framework, which was established almost 10 years before the Information Society agenda first emerged at the end of 1996, it is doubtful that the *Information Society* agenda could have progressed to the extent it did.

The most recent manifestation of Partnership programmes in Ireland is the '*Programme for Prosperity and Fairness*⁷⁰ 2000-2002' or PPF addressed five operational frameworks and featured

⁶⁷ ICTU: Irish Congress of Trade Unions: the umbrella organisation for most trade unions in Ireland
<http://www.ictu.ie>

⁶⁸ IBEC: Irish Business and Employers Confederation <http://www.ibec.ie>

⁶⁹ In formulating the current National Agreements, a fourth group The community and voluntary sector became a partner for the first time

⁷⁰ http://www.nesc.ie/41213_benchmarking_ppf.pdf

for the first time, the Information Society agenda : The PPF identifies the importance of the Information Society setting as its policy goals (Framework IV, 4.4)

- *“To build the human capacity to manage and shape the emerging Information Society and to participate in eBusiness, eOrganisations and eGovernment.*
- *To foster affordable and inclusive Information Society infrastructure and services*
- *To enable the participation by those currently excluded.”*

The prominence given to the *Information Society* agenda in the current national agreement testifies to the importance attached by all the social partners. It marks a polarity shift in thinking about the Information Society and the ICTs enabling the Information Society, where the *Information Society* agenda was no longer perceived as just the preserve of a ‘vertical industry’ but had become an important ‘horizontal’ agenda which had profound implications in multiple other areas of public policy including national Competitiveness, regional development, Employment and Social Inclusion.

Government has shown a willingness to take a holistic approach to the Information Society, and to move on many fronts simultaneously: e.g. New legal framework, deregulating the telecoms market. It has been able implement a complementary, interlocking and mutually reinforcing policy agenda (Information Society Commission, Science Foundation Ireland, National Competitiveness Council, Expert Group on Future skills needs). During the announcement of the establishment of a Media Lab (Media Lab Europe) in Dublin in December 1999 Mr. Nicolas Negroponte of MIT ‘s media lab reflected the quality of government thinking:

"I am extremely impressed with the Irish government's clear understanding of the need to develop a flexible, far-sighted program to attract tomorrow's digital entrepreneurs. The MIT Media Lab's decision to work with Ireland to establish MediaLabEurope reflects our view that Ireland provides the kind of intellectual, economic and governmental environment ideally suited for this ambitious international effort....."

4.2 Failures:

4.2.1 Inclusion

Ireland remains an increasingly unequal society: a recent UNDP⁷¹ shows contradictions in wealth & poverty. In the study, Ireland had 4th highest per capita GDP in the world, but has 15.3% of its people living in poverty - the second worst score of 17 countries surveyed (only the US, at 15.8% had a worse score). To underline the in-equality, the report further noted that the richest 10% of the population in Ireland is 11 times wealthier than the poorest 10%. Given that the most economically advantaged members of society are also those most likely to derive the benefits of the Information Society, there is a danger that Ireland’s economically ‘excluded’ people are likely to become even more excluded in the Information society. The lack of progress has been noted by the

⁷¹ Human Development Report 2002 Deepening Democracy in a Fragmented World

National Economic and Social Council (NESC) in its study *National progress indicators for sustainable economic, social and environmental development*, published in March 2002 in the context of the most recent national partnership agreement, which noted ‘....Little or no change has been experienced in relation to a number of the social indicators⁷²’. Within the overall community, those people understood to be at greatest risk of exclusion would include the ‘late adopters’ category shown in Table 15 below.

Characteristics of Early adopters	Characteristics of Late adopters
Young	Older
Urban	Rural / Deprived urban
Employed	Outside workforce (e.g. Housewives)
Professional	Non-professional (e.g. farming, manual workers)
High-Income	Low Income
High educational attainment	Low educational attainment

Table #15⁷³

Ireland’s Education system had been focussed to a large extent on people in the age group from junior school (age 5 years old) to University graduate (normally aged 21/22 years). It is only since the late 1990’s that consideration has been given to issues like the needs of older people, atypical learning, *second-chance* learning to the many people still active in the labour force who did not have the opportunity to benefit from a modern secondary education.

Because of the presence of powerful other actors – notable Industry, it has been argued that their interests have been given greater priority to the extent that the needs of individuals and communities, particularly dis-advantaged individuals and communities, have not been sufficiently addressed.

4.2.2 Widespread Availability of Low cost / High Speed network

As a result of de-regulation of Ireland’s telecom industry, there was an expectation that major improvements in the availability of high-speed low-cost infrastructure throughout the country would follow.

The continued presence of large multinationals, especially in the larger urban areas, suggests that their bandwidth needs are being satisfied, for example via leased lines. However, there is evidence to suggest that the needs of smaller users (e.g. Home users, small business) especially those in the regions are not

Moreover, Ireland’s overall standing relative to other countries regarding the level of development of its telecom infrastructure has dis-improved, for example:

⁷² Source: NESC Press Release of March 8 , 2002

⁷³ Source: Third Report of Ireland’s Information Society Commission , December 2000, pp16

- ❑ According to a report by the National Competitiveness Council in November 2002, The country ranks 15th out of 16 countries surveyed for access to broadband lines, and is the seventh most expensive of 16 countries for telecommunications costs;
- ❑ Ireland is the last EU country to move on 3G licenses; the license competition results were announced spring 2002, following a delay of almost 12 months; hence 3G networks are incomplete in Ireland when they are becoming operational elsewhere in Europe;
- ❑ Ireland is among the slowest countries in the EU to progress un-bundling the local loop⁷⁴.
- ❑ ‘Always-on’ access is not available: internet is still, for the most part, metered on a per minute basis, hence internet usage is only half the level which exists in Sweden;
- ❑ Enterprises in the regions outside Dublin experience particular difficulties securing access to high speed networks.

The cost of access to & use of the Internet for citizens in Ireland remains one of the highest in the EU⁷⁵, published in the recent EU Telecoms Regulatory Package Implementation Report. Hence one of the main reasons that Ireland’s Internet usage pattern is considerably lower than that in the UK and US (Ref Table #16).

	USA	Ireland	UK
Number of Sessions per Month	21	8	14
Number of Sites Visited	46	25	42
Time Spent per Month	11:06:06	3:38:43	6:56:56
Time Spent per Surfing Session	31:39	25:46	28:58
Duration of a Page viewed	00:54	00:43	00:47
Active Internet Universe	104m	588k	16.3m
Current Internet Universe (Est)	166.4m	1.32m	29m

Table #16 Source: Nielsen/ NetRatings

At present, small users, including many small businesses, still have limited access to broadband services, while the costs that bigger users face varies considerably depending on location. Mr Brian Patterson, Chairman of Ireland’s National Competitiveness Council summarised the problem in 2001 as follows:

*‘We have set ourselves the objective of being a hub for e-business’,
‘But how can that be possible when we do not have competitive
broadband access at this late stage.’*

While updating an earlier report "Broadband Investment in Ireland" Forfas noted that while significant progress has been made over the previous three years in opening the Irish telecommunications market for investment, the desired outcome of establishing a world class

⁷⁴ Source: ECTA ULL scoreboard 2001

⁷⁵ Source EU Telecoms Regulatory Package - VIII Implementation Report, Annex I December 2002 : Chart 72: 20 hours Off peak residential charge was 35 Euro per monthly

broadband services and coverage at prices among the most competitive in the OECD had not been achieved. The difficulties faced by people and businesses in the regions in accessing affordable broadband services was further highlighted in a study of infrastructure for the Southeast region of Ireland⁷⁶ which reported

.....existing provision of advanced broadband services was extremely limited because of infrastructural deficiencies (e.g. limited availability of 'dark fibre', both in the backbone network and at the level of the 'local loop' or 'access network',. Lack of access, or inequality of access, to high-speed, broadband telecommunications facilities across the region...

A similar picture emerges in Ireland's western region. The report "An Update on Telecommunications in the Western Region"⁷⁷ makes recommendations to tackle the growing 'digital divide' which is threatening to leave the west of Ireland seriously disadvantaged in terms of telecommunications infrastructure and services. It cites problems like poor service, low levels of competition among telecommunications companies, high prices and significant delays in providing basic services. In terms of Internet hosts *.ie* hosts per capita is one of the lowest in the EU, and compares poorly with countries of similar population like New Zealand and Singapore which have between 3 and four times the number of hosts per capita.

	Internet Hosts (000)	Pop. (m)	Internet Hosts per 1000
Fin	986.29	5.17	190.73
Dk	872.33	5.33	163.66
Se	1187.94	8.86	134.08
NL	2150.38	16.15	133.18
At	720.59	8.03	89.71
Be	832.85	10.31	80.79
UK	2508	58.79	42.66
De	2923.33	82.44	35.46
Fr	2052.77	59.34	34.59
Pt	266.91	10.36	25.78
Ie	96.97	3.91	24.80

Table 17⁷⁸

In effect, a picture emerges in which it appears that the bandwidth needs of large companies, especially those located in the cities are being satisfactorily addressed, while the needs of smaller users (Residential and small business) are not. Similarly, while Internet usage has increased quickly albeit from a relatively low base, the country has yet to establish an Internet 'presence' comparable to EU or international best-in-class.

⁷⁶ Source: SEISS

⁷⁷ Source: Western Development Commission

⁷⁸ Compiled by CIRCA using current population data from populationdata.net and Internet host data from the Internet Software Consortium from September 2002

5. Conclusions on the Ireland Case Study

5.1 The reasons for Ireland's Progress

Ireland's recent progress as an information society can be traced not to one, but to a confluence of factors, some planned, some fortuitous, including:

- ❑ The influence of FDI, particularly companies active in the ICT industries from the United States, and the ability to leverage the presence of these companies through developing additional high value activities and clustering with indigenous companies;
- ❑ The effect of successive national partnership agreements, extending over a period of 15 years, which gave significant focus to the Information Society agenda across Business, Community, Government, Farming and Trade Unions constituencies;
- ❑ The Country's demographic structure, especially when compared with other EU countries, constituted a relatively youthful population open to the new ideas and opportunities afforded by the Information Society;
- ❑ Previous and ongoing investments in the state's Education system provided a relatively large cohort of young people with a recent quality education relevant for the Information Society;
- ❑ Government momentum: In particular embedding the Information Society agenda as an important vehicle supporting the implementation of many Government policies for example Public service efficiency, National Competitiveness, Employment, Regional development;
- ❑ Existence of a nucleus of indigenous and multinational Information Industries: IT, Animation, Audio-visual, Financial, Software, localisation made Ireland a 'multimedia ready';
- ❑ Active presence of a hard-driving steering body, the Information Society Commission
- ❑ Increasing national sense of self-confidence and self belief, and, crucially,
- ❑ To a period of almost unprecedented economic progress which provided Government with both the mindshare and finances to pursue the Information Society Agenda.

There is no doubt that considerable progress has been made that might otherwise have happened without an information society initiative. However, that progress does not, as yet, constitute a 'breakthrough'. Ireland has yet to fulfill its promise of becoming a truly world class Information Society.

5.2 Current Challenges for the Information Society in Ireland

The context in which the current Information society agenda is being addressed has deteriorated considerably at the end of 2002, for example:

- ❑ **FDI:** Flows into Ireland have reduced, and several established Multinational companies already located in the country are undergoing consolidation (Xerox, Nortel Networks) or even closure (e.g. Gateway 2000, Tellabs). Further planned investments are 'on hold'. A recent Ernst & Young report⁷⁹ showed that Ireland won only 26 new projects in the first half of 2002, compared to 36 projects the same period in 2001; the report also indicates that the countries of central and eastern Europe are winning much of the new FDI investments in Europe. Ireland also remains dependent – in the view of some - excessively dependent - on US foreign investment, and thus on the overall US economic climate.
- ❑ **Ireland's rising cost base:** Ireland has gained the dubious distinction as one of the most expensive economies in the EU; this, combined with the accession to the EU of new countries with lower cost base in 2004, suggests a much more competitive environment for new FDI investment into the future. With Inflation levels at 5%, it is possible that wage demands in excess of that figure become the norm during 2003, adding further upward pressure on costs.
- ❑ **National Partnership Agreement:** The current partnership programme expired in December 2002, with no new follow-on agreement in place. It is un-certain whether a new agreement can be concluded, or if so, what shape it might take, and whether the Information society agenda will feature as prominently as it has in the past;
- ❑ **Infrastructure:** Financially troubled Telecom operators are un-likely to incur front-loaded costs associated with adding new networks capacity. For many businesses and people, the much-heralded benefits of open liberalised markets have yet to materialise;
- ❑ **Forward Momentum from the Information Society Commission:** Government waited almost 11 months to appoint a new Commission to replace that whose term expired in December 2000, creating a perception that the initiative has 'lost' some of its earlier momentum';
- ❑ **Public Finances:** The share of public expenditure in national output has fallen from 58% of GDP in 1986 to 46% in 1996. By 2001, Ireland's public expenditure had reduced to 31.8% one of the lowest in the EU - 10% below the EU average. By starting from a smaller funding base than in other countries⁸⁰, Government is more likely to encounter tradeoff decisions between other competing funding priorities, including Information Society.
- ❑ **Economic slowdown & cutbacks:** The economic tide has slowed considerably in the past 12 months, leading to Ireland's Finance Minister to declare recently that the '*Celtic tiger is over*'⁸¹, with real GDP growth reduced to 4.2% in 2002, reducing further to 3.8% in 2003⁸². In the context of the emerging exchequer shortfalls, it remains unclear the extent to which longer term initiatives like the Information Society are sacrificed on the altar of short-termism. The recently published Book of Estimates⁸³, published as a precursor to the

⁷⁹ Ernst & Young European Investment Monitor, November 2002

⁸⁰ In 1999, Tax receipts represented only 31.2% of Irish GDP; [Source OECD in Figures 2002 pp35]

⁸¹ Minister Charles McCreedy TD Speaking at a function 14/10/2002

⁸² Source: ESRI Quarterly Economic Commentary, Winter 2002

⁸³ Published by Irelands Minister for Finance November 14, 2002

Government budget, set out a wide range of cutbacks within the Information Society programmes, including:

- ❑ Regional Broadband were reduced from €44m to €32.5m
- ❑ Department of Communications has reduced its allocation to Information Society & telecoms by 57%
- ❑ eCabinet initiative is being reduced from €2.5m to €1.6m
- ❑ eCommerce spending is being reduced from €6.7m to €3.4m
- ❑ 86% reduction off an allocation to community-based IT projects
- ❑ Dept of Social Community & Family affairs reduced its allocation to Comhairle for a project on e-Government.

Emerging shortage of skilled people in the ICT industry

The current cohort of children in secondary school are increasingly deciding to study non-science subjects, and those who do choose science based subjects in school, are not pursuing ICT qualifications at third level. The adverse effect of the 'dotcom' bubble, combined with high profile industry layoffs & downsizing has created a negative impression of the ICT industry, making young people less disposed to pursue qualifications & careers in the sector. A recent report *IT Practitioner skills in Europe*⁸⁴ found that Ireland could face an un-satisfied shortfall of up to fourteen thousand IT professionals. For the intake in September 2002 to Ireland's colleges and universities, applications to ICT courses in Science and Engineering were down 25% on previous years⁸⁵.

Research Spending:

A major weakness is via publicly funded research where Ireland is ranked last in EU in terms of Public expenditure on R&D (0.29% of GDP vs. EU Average of 0.66%). Similarly, Ireland's patent performance is well below the EU average, while the country is not rated as a Top ICT Research area, suggesting that the country's ICT industry remains excessively reliant on research carried out elsewhere. While this deficit is beginning to be addressed via major new investments, the benefits of these investments will take several years to flow through.

Ireland's competitiveness The country's competitiveness has been eroding over recent years. In April 2002, the IMD World Competitiveness Scoreboard 2002 ranked Ireland 10th place from a high of 5th place in 2000. More recently The *National Competitiveness Council's* Annual Competitiveness Report⁸⁶ reviewed Ireland's current relative position under a number of benchmarks: revealed a number of worrying trends.

Becoming a net contributor to EU:

Since accession in 1973, Ireland has been a net recipient of significant levels of EU funding; in the period between the 1980's and mid 1990's, Ireland's net receipts from the EU stood at 6% of GDP. As national per capita income levels have now surpassed the EU average, net inflows under the Community Support Framework will no longer apply to the country as a whole.

⁸⁴ Source: Dr Matthew Dixon, CEPIS : Council of European Professional Informatics Societies May 2002

⁸⁵ CAO: Central Applications Office – the Bureau that co-ordinates all applications to Ireland's Third level Universities and Colleges

⁸⁶ Published November 2002

6. Applicable Lessons from the Ireland's Experience with the Information Society

A Multi-faceted Agenda:

Because the Information society changes so many aspects of the economic and social life of a country, delays or failures implementing the *Information Society agenda* could significantly impact national competitiveness, employment and social cohesion. In the case of eCommerce for example: a country's poorly developed legal infrastructure could neutralise the benefits of a well-developed telecom infrastructure.

FDI:

Multinational corporations can contribute greatly to the development of Indigenous Industry and the developing IS agenda. However in order to do so, it is necessary to implement supporting policies & processes aimed at engaging the management of FDI companies so as to leverage and diffuse the Technical, Organisational and commercial insights they can contribute.

Exemplar & Pilot programmes:

These can be particularly useful in addressing the issue of people-centred IS, and in relation to the issue of inclusion. Initiatives that are led by empowered local communities can deliver efficient, cost effective, locally relevant projects which can be scaled up nationally to extend reach and impact.

Benchmark Progress:

It is important to track progress both qualitatively and quantitatively – for example using international measures, and to be constantly alert to discovering and embracing international best practice.

Education:

The National Education System needs to be constantly updated to reflect changing needs, otherwise it is at risk of becoming irrelevant to the needs of citizens & employers. Because there are multiple learning contexts – (Formal education system, learning in and for the workplace, and learning in the community) the national Education system should address a broad agenda in the Information Society including: equipment provision and service, teacher training, curriculum relevant courseware; remedial, second chance and Lifelong learning.

National Demographics

Demographics are an important consideration in the approach to the issue of Inclusion. Young people teenagers/ young adults are, almost invariably, 'early adopters' of emerging information technologies behind the information society. Specific effort should be made to identify potential 'late adopter' groups within the community, and then implementing targeted programmes designed to engage these groups.

Role of Government:

While many actors ultimately determine a nation's successful transition into an Information Society, Government, and the extent to which it adopts modern progressive practices in relation

to the ICTs can have a decisive influence in building momentum or, indeed, be a powerful brake on progress. Governments should adopt a holistic approach to the Information Society by ensuring that initiatives taken are consistent, interlocking and mutually reinforcing. Only Government can ensure that a proper balance is maintained between the *needs of enterprise*, and the *needs of individuals and the wider community* in the Information Society.

Telecom Infrastructure:

The availability of a modern, cost-competitive telecoms infrastructure is an essential ingredient for the Information Society. Securing such an infrastructure in a deregulated market is challenging, particularly in the light of the recent telecom industry downturn. Ensuring that the necessary Telecoms infrastructure available when needed require a creative approach to ensure investments are made perhaps before a sound business case has been established.

Economic Climate:

The economic climate which pertains during the implementation of the Information Society programme can have an over-riding effect on the progress of the Information Society Agenda. However, in times of economic downturn, it could be argued that progressing the Information Society agenda is even more imperative. Indeed, Information Society benchmarks may be seen as an important proxy measure for modernity and competitiveness of the wider economy;

Focal Point:

A strong proactive *Focal Point*, preferably with own resources, is essential to lead, report, plan, research, to communicate and to orchestrate all those activities necessary to advance the IS agenda nationally. A Key part of this role lies in educating the political, economic and social leadership about the changes likely to occur in the new world of the Information Society.

Regular On-going Communication:

There is real value in keeping the Information Society agenda to the fore in the public consciousness in order encourage greater community awareness of and active involvement. This can be achieved through a variety of Conferences, Local Events, Reports, best Practice Awards and *Branding*.

In-equality & Exclusion

The Information Society will almost invariably tend exacerbate existing social inequality, since better-off members of society are better placed to benefit. However with appropriate targeted interventions, it is possible to mitigate these effects.

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Appendix #1

Employment by Occupation

Trends and Forecasts⁸⁷

Employment by Occupation, 1993-2005					
Occupational Group	1993	1997	2005	Change 1997-2005	
		(000)		(000)	%
Agricultural	136	131	109	-22	-16.8
Managers	75	92	138	46	50.3
Proprietors in Services	43	40	47	6	15.9
Professionals	152	163	215	53	32.5
Associate Professionals	63	83	113	30	35.7
Clerical	156	178	216	37	21.0
Skilled Workers (Maintenance)	51	63	85	22	35.2
Other Skilled Workers	90	114	152	37	32.7
Production Operatives	91	115	145	30	26.0
Transport & Communications	47	59	79	19	32.2
Sales Workers	95	104	157	53	50.6
Security Workers	32	35	46	11	31.8
Personal Service Workers	83	113	161	48	42.4
Labourers	38	47	54	7	14.3
Total	1151	1338	1716	378	28.2

⁸⁷ Source: Central Statistics Office

Appendix 2.1

Information Society Timeline

Period 1979-2000

Summary Timeline

Year	Activity / Event
1979	Government decision to build a national Digital telecoms network
1994	Third 'National Partnership' agreement is established: <i>Programme for Competitiveness and Work</i> Europe and the Global Information Society: Recommendations to the European Council (The Bangemann report)
1995	<i>Shaping our Future</i> : original reference to Information Society in Ireland
1996	Abolition of Fees for those partaking in full-time under-graduate education December: original Information Society report completed
1997	<ul style="list-style-type: none"> ❑ <i>Information Society Commission</i> Established ❑ May : <i>National Competitiveness Council</i> was established as part of the partnership 2000 agreement ❑ National Telecom Regulator ODTR⁸⁸ established on July 1st 1997.
1998	<ul style="list-style-type: none"> ❑ Second 2G mobile phone license (ESAT Digifone) ❑ May 98: Good Friday Agreement in Northern Ireland (Referendum) ❑ Enterprise Ireland identifies Multimedia opportunity in Ireland ❑ December 1; Liberalisation of telecom market ❑ The Higher Education Authority (HEA) co-ordinating the allocation of a new £180m (€230m) Programme for Research in Third-level Institutions (1999-2001)
1999	<ul style="list-style-type: none"> ❑ June Flotation of telecom Eireann resulting in formation of Eircom ❑ Project to enhance connectivity off the Island of Ireland via new \$80m undersea fibre-optic connection connection to the UK managed by Global Crossing; ❑ Announcement of agreement to establish Media Lab Europe based in Dublin; ❑ Reach agency established to develop strategy for integration of public services and delivery of eGovernment;
2000	<ul style="list-style-type: none"> ❑ BT acquires ESAT Telecom, Ocean ; option to buy ESAT Digifone ❑ Learning for Life: White paper on Adult Education ❑ July : e-commerce Act gives legal recognition to e-signatures and econtracts ❑ November: New Copyright Legislation

⁸⁸ ODTR: Office of the Director of Telecom Regulation <http://www.odtr.ie>

Appendix 2.2

Information Society Timeline

Period 2001-2002

Year	Activity
2001	<ul style="list-style-type: none"> ❑ Feb; BT acquires Esat Digifone, since re-branded O₂ ❑ Meteor (2G) mobile service launched ❑ Eircom sells mobile arm (Eircell) to Vodafone ❑ New Information Society Commission Formed ❑ GPRS services launched ❑ Ennis Information Age town voted one of 7 Intelligent Communities in the world in 2001 by the Intelligent Communities Forum ❑ The Equalskills initiative will provide an introduction to computers for 100k people in the South West of Ireland ❑ New eGovernment services launched : Basis (for business) Oasis for citizens⁸⁹
2002	<ul style="list-style-type: none"> ❑ ‘I-stream’ DSL based high speed service launched by Eircom ❑ Legislation establishing the Digital Hub ❑ March Government announces significant strategic investment initiative to deliver broadband infrastructures and services in 19 towns, to be extended to 67 ❑ March: Government publishes New Connections Information Society action Plan ❑ First trial use of electronic voting at General Election (May), Nice Referendum (October) ❑ Decision on 3G mobile networks : only 3 of 4 licenses awarded ❑ Chambers of Commerce of Ireland launch eBusiness training initiative targeted at SME’s ❑ New Forfás report published ‘A Strategy for the Digital Content Industry in Ireland’ ❑ Ministerial directive on Flat rate Internet access (24/10/2002) ❑ Telecom regulator changes from ODTR to ComReg ❑ Announcement of National Spatial Strategy: People , Placed and Potential

⁸⁹ www.oasis.gov.ie, and www.basis.ie