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# Overview of opportunities offered by Information Society Technologies (IST) for European peripheral areas

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*Abstract.— While well-informed policy intervention can have a significant impact on the prospects arising from IST for peripheral areas, it is essential to realise that the underlying logic of IST is profitability, competitiveness and productivity. Although there is no doubt that IST is bringing about a revolutionary change in the geography of economic activity, with huge implications for less favoured regions, the benefits and opportunities for such regions arising from IST can only be exploited by consistent and forward-looking investment in capacity-building, infrastructure and skills. With 25 years of such investment in IST skills and infrastructure, Ireland presents an interesting and rather successful case study for other European peripheral areas. A significant part of Ireland's impressive employment creation has been based on IST-related FDI in sectors such as software and internationally traded services. Much of this growth has been recent and around 80% of IST-related employment creation is concentrated in the eastern urban region around Dublin. Regional provincial centres are beginning to show signs of benefiting from IST activity, but the challenge for rural areas remains daunting.*

*Keywords.— Information Society Technology (IST), peripheral areas, capacity-building, Foreign Direct Investment (FDI)*

## INTRODUCTION

The new Information Society Technologies are transforming the geography of economic activity, so that companies are being forced to operate globally in order to be competitive. The restructuring of transnational corporations is resulting in the decentralisation of back office activities as companies seek more competitive

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locations for outsourcing non-core transaction processing. This restructuring has presented semiperipheral countries like Ireland with opportunities to attract increasingly sophisticated foreign investment, which allows the productive exploitation of its well educated labour force, and the accruing of managerial and technical skills required for building up the indigenous sector. The relative attractiveness of peripheral regions for IST investment is associated with the availability of suitable skills and access to sophisticated telecommunications infrastructure.

Much of Ireland's impressive economic performance has been associated with the attraction of significant levels of inward investment in IST sectors such as software, international financial services, and teleservices of various types including shared services. In terms of teleservice activity Ireland has shifted from the initial attraction of back offices to the more recent inflow of call centres and shared services, with the International Financial Services Centre in Dublin being the most significant cluster of backoffices. In addition to foreign investment, employment growth in the indigenous IST sector has also been impressive, particularly in the software and internationally traded services sectors.

**THE INFORMATION OR KNOWLEDGE-BASED ECONOMY**

Information Society Technologies, and in particular, broadband services, are now regarded as key determinants of competitiveness and of economic growth in the global economy. As computing, telecommunications and communications media converge, they are having a profound effect on business structures, business models and business interactions. Computer networks are opening up new markets for international trade and enabling business to go global. It is widely expected that e-commerce will be the most substantive sector of industrial activity in the next five to ten years. Countries with low cost capacity and high speed access to these infrastructures are attempting to establish a 'first mover advantage' by exploiting the opportunities presented by e-commerce. New business opportunities that are highly dependent on broadband telecommunications are emerging such as multimedia, content and IST industries, while opportunities are also arising in remote back-office, fulfillment services and digital support entities.

As production, technology and markets are organised on a transnational basis, a more or less fully integrated global economy has come into existence. Localities, firms and individuals, with the capacity to develop their skills and competencies and to build connections to centres of excellence in the world economy, have the possibility of becoming 'world class'. These connections could be based on virtual work teams and organisations, or on corporate organisational structures. Some would argue, however, that semi-peripheral regions like Ireland have only limited potential in developing a knowledge-based economy and that their only option is to integrate themselves fully into global networks. It should not

be forgotten, however, that a significant part of the activities of daily life still have a substantial regional dimension: it has been estimated, for example, that 60 per cent of the companies in the region around the city of Basle, Switzerland, carry out 80 per cent of their business with local and regional customers.

Corporate reorganisation will be a significant factor in the redistribution of service employment opportunities across space. The concentration of corporate functions into specialised offices from core regions will provide opportunities for rural and peripheral regions. European policy has facilitated the trend towards shared services operations. As part of wider regulatory processes involved in the creation of a single market for financial services, the EC implemented a number of directives within the banking, financial services and insurance sectors. The introduction of the Commission's UCITS (Undertaking for Collective Investments in Transferable Services) Directive was designed to open up domestic financial markets to competition.

While the new economic geography of the IST raises many opportunities for non-core regions to compete for jobs and investment, these new opportunities need to be placed within a balanced economic development strategy. The lower overheads of non-metropolitan locations provide these areas with a competitive advantage with firms using IST to 'borrow size' by getting access to most of the services, information and computer power available in big cities. There are concerns, however, about the inward investment into non-core regions of mainly backoffice operations. In addition to having the reputation of being footloose, such work can often be relatively low-skilled and low paid with few multipliers into the local economy. While policy makers need to be fully aware of the double-edged nature of IST-development, the focus should be on ensuring that peripheral areas are sufficiently well connected in terms of both high quality infrastructure and the necessary skills in order to exploit the available opportunities.

## A CRITICAL INTERMEDIARY ROLE

Within this increasingly globalised economy, dominated by corporate restructuring, one of Europe's most peripheral regions has succeeded in exploiting the decentralisation of economic activity from core regions to an impressive degree. Irish economic performance in recent years has been most impressive with export growth between 1996 and 1999 almost double the growth of Ireland's export markets, leaving the country at the top of the OECD league. Employment growth during the same period was seven times the EU average and unemployment has been halved to seven per cent. In 1997 there were one quarter million more people in the workforce than in 1990, and this jobs boom has been largely fueled by an influx of IST companies together with the development of indigenous companies reflecting software, computing and communication skills. Despite this impressive progress, GNP per capita is still10 per cent below the

EU average, while it is 20 per cent below that of the four small EU economies of Austria, Belgium, Denmark and the Netherlands.

The dominance of overseas companies in the economy is revealed by the fact that they account for 75 per cent of manufactured exports, 55 per cent of manufactured output, and 45 per cent of manufactured employment. In 1998 there were more than 1,200 overseas companies in Ireland, employing 127,000 directly, and with exports worth £21bn. The attractiveness of Ireland for US companies can be summarised by the fact that they received a return on investment four times the EU average during the past ten years. It is argued that the State's low rate of corporation tax at 10 per cent has been the single most important factor attracting MNCs to Ireland, but the fact that Ireland's labour force has been growing while that of many European countries has been shrinking has also been significant.

**INFORMATION SOCIETY TECHNOLOGY INDUSTRY IN IRELAND**

In Ireland the services sector has been the main source of employment increase during the 1990s, accounting for 40 per cent of the growth between 1989 and 1999. In 1997, the international services sector accounted for more than two thirds of net employment growth with rapid growth in software, financial services, telemarketing and shared services. Employment in these sectors more than doubled during 1994 and 1998. Since 1998, the software industry shifted from third to second place as the biggest internationally-traded sector in Ireland after food.

One of the main reasons provided for Ireland's recent economic success was the early identification of the potential of the IST sector 25 years ago. Beginning with the electronics sector in the 1980s, the Industrial Development Authority (IDA) shifted its targeting of FDI to software firms and personal computer manufacturers in the 1990s and to call centres and shared services from 1995 onwards. The most recent area to be added is e-commerce. Apart from having the lowest level of corporation tax in the EU, one of the main determinants suggested for Ireland's success in attracting FDI in the IST sector is the quality of its human resource base. Ireland's education system has been rated second only to Singapore out of 46 countries, in terms of its contribution to competitiveness, according to the World Competitiveness Report 1996.

Despite the impressive performance in attracting IST-related FDI, and also the impressive growth in the indigenous IST sector, particularly in software, IST industry in Ireland is positioned at a relatively low point in the value chain, since it deals in relatively mature technology that has been developed elsewhere. It is expected that in the years to come there will be intense competition at this end of the value chain and that Ireland will be unlikely to be able to compete, unless it increases the value-added component in IST products and services. Also, because of their scale and limited market size, Irish indigenous companies can succeed only by addressing specific market niches in which they have specialised

knowledge. Policy makers are concerned that sufficient Irish firms are not achieving the growth rate and scale vital to sustainable competitive advantage.

**IST INFRASTRUCTURE**

While £2.6bn was invested in the telecommunications infrastructure between 1985 and 1998, and the backbone transmission network is now 100 per cent digital, only some of the main population centres are connected with high grade broadband fibreoptic cable that is required by high technology industries. The scale of the infrastructural inferiority outside Dublin has become apparent in recent times with the Border, Midlands and Western regions being poorly connected. It is little wonder, therefore, that the IDA has had great difficulty attracting high technology industries to these regions.

The recent announcement of one of Ireland's first public/private partnerships involves a £60 million investment to link the Republic into a global telecommunications network. By mid-2000, Ireland will have a telecommunications infrastructure on a par with that of the US and the major EU states, which will allow very large volumes of traffic and of data to be transmitted at a reasonable cost. Significant investment decisions based on a mixture of EU structural funds and private involvement have been announced to extend the broadband infrastructure around the State, linking 120 different towns and cities in 21 counties. These links will help pave the way for a new generation of businesses based on e-commerce and assist the IDA in attracting investment to these regions. This development dovetails with the two central goals of the State set recently for the IDA, to spread the development to regions relatively untouched by recent growth, and to move Irish industry up the value chain, creating more high skill, high-earning jobs.

The shortage of IT skills in Ireland has also given rise to a series of policy measures with a commitment in 1997 to increase technology places in third level education to bring the level of supply to 6,100 per annum, leaving a shortfall of 2,200. An expert group appointed by the government recommended that the existing Enterprise Ireland campaign to attract more software people back to Ireland should be extended to cover the hardware electronics sector and to target EU and non-EU nationals. In 1998, 'Opportunity Ireland' was established to encourage 5,000 skilled software and electronics professionals to return to Ireland.

**SOFTWARE**

Employment in the software industry grew at 15 per cent between 1991 and 1993, by 32 per cent between 1993 and 1995, and by over 60 per cent between 1995 and 1997, when the industry employed almost 20,000 people. Roughly half the employment is in multinational companies, half in indigenous companies. In

1997, the value of software exports from indigenous firms was approximately £400 million, while the value of total software exports was £4 billion. It is estimated that if current growth rates are maintained, by the year 2002, employment could be doubled to 40,000, and total exports could be as high as £10 billion. Availability of skills is the main factor influencing the industry's growth. With the tightening of the IT labour market, there is considerable rivalry between firms, and the average stay of a software engineer is 18 months. Wage inflation is as high as 15 per cent and staff turnover rates as high as 20 per cent.

The Irish software industry is dominated by two different and relatively autonomous global production/innovation chains : MNCs concentrating on localisation, testing and distribution and Irish-owned firms producing niche software products. While Ireland is now the second largest exporter of software after the US, much of the work in the MNC sector, which includes localisation, packaging, logistics and distribution is low down the value chain. Despite this, Ireland has graduated from total dependence on MNCs and has developed a crucial role in managing relations between core regions, playing an intermediary role in the global corporate chain.

The indigenous sector developed simultaneously as that of the MNCs but has few direct links with it. It is involved in technical support, business solutions consulting, and in general it forms a more rounded development model than the overseas sector. The small Irish market, however, has been a factor contributing to the success of the indigenous sector, since it forced many to become export-oriented and product-led from an early stage. A considerable number of software firms emerged from academia, as campus incubator companies, some of which were supported by EU research funding in their early stages. Among the better known examples of this group are Baltimore Technologies and Iona Technologies.

In 1998, 83 per cent of all software employment and 76 per cent of software companies were located in the greater Dublin area, and there was a considerable resistance on the part of software companies to move outside the capital. As a result of the significant migration of software professionals into the city both from other countries and from within Ireland, Dublin has already attained a critical mass of software activity. Because of an increasingly uncompetitive environment, however, there is a growing tendency among indigenous firms to subcontract abroad. Software companies are currently outsourcing £57 million worth of business to cheaper locations like Poland, the Philippines and Northern Ireland, resulting in a loss of up to 1000 jobs.

**FROM BACKOFFICES TO TELESERVICES**

The international services sector in Ireland is increasingly recognised both for the diversity of the industries within it and the breadth of its commercial activities. Almost 16,000 new jobs have been created in this sector in the past three

years, which accounts for one in three of all new IDA grant-aided jobs. With only one per cent of Europe's population, Ireland has attracted 45 per cent of US investment to Europe in teleservices since 1980. In the initial stages it was mainly traditional back offices involved in insurance related data/information processing which were attracted. Later, it was call centres involved in technical backup for computer hardware and software companies, and more recently it has been shared services operations, many of which are involved in centralised finance, administration and transaction processing support,

Most of the earlier back offices were US-owned and were well dispersed throughout the country, even in small town locations. By 1990, nine such firms employing 1,000 people were in operation. During the 1990s there was an influx of call centres, mainly through US companies seeking a cost-effective entry to European markets. Ireland moved aggressively to get in early on this growth sector and by the end of 1993 there were nine such centres. To date there are 60 pan-European call centres in Ireland, accounting for about one-third of such centres in Europe. Their activities range from sophisticated technical services for computer software and hardware to European reservation centres for travel, airlines and car hire. While some level of dispersal has been achieved in recent years, much of the teleservice activity is concentrated in Dublin and some of the larger urban centres. The indigenous internationally traded services sector is even somewhat more concentrated with 80 per cent of companies and 77 per cent of employment located in Dublin and the Mid East region.

**THE IFSC**

The International Financial Services Centre (IFSC), which is the most concentrated cluster of IST-dependent companies in Ireland, was set up in 1987, at a time when the financial services industry was beginning rapid global expansion as markets deregulated. To some extent the IFSC is regarded as an offshore tax haven where MNCs and institutions, including Irish owned companies, can avail of 10 per cent corporation tax for a relatively small employment commitment. Since collective investment funds domiciled here are exempt from tax on dividends and interest income, as well as capital gains, Dublin has become one of the world's biggest domiciles for offshore funds. Already, 35 companies handle US$55 billion in offshore vehicle, while estimates suggest that Dublin's fund industry will rise to US$100 billion early in the next millennium.

Around 6,500 people are currently employed directly in the IFSC, with many more being employed in areas such as accounting, legal, computer and other general service industries. There are over 300 stand-alone projects with a further 340 managed entities carrying on business under the programme. These projects cover corporate treasury, international banking, collective funds management and administration, life and non-life insurance, captive insurance management and

futures trading and broking. To date 25 of the top 50 banks in the world are located in the IFSC. Corporate treasury management is one of the key financial sectors which has emerged with approximately 300 hundred companies involved in this sector. The ability to market gross roll-up products to the EU is cited by life assurers as an important factor for locating in Dublin, while the captive insurance industry already has over 140 companies in the IFSC.

**CONCLUSION**

The opportunities for peripheral regions arising from IST and the globalisation of economic activity results in intensified competition and accelerating innovation as firms attempt to respond to rapid adjustments in the market. Firms are being forced to become more flexible and innovative organisations, by downsizing, dividing operations into independent units, and becoming 'flexible firms' through different forms of networking with small firms. IST plays a key role in facilitating this restructuring, resulting in new forms of work organisation such as partime and fixed-term contract work. The flexibilisation of work is clearly a two-edged sword and there is considerable concern about casualised contract work which denies workers the status of being an employee. Perhaps one of the dilemmas facing European policy makers in relation to IST and peripheral areas is the apparent disconnection between the realities of the Information Economy and their desire to ensure that an Information Society embracing all citizens develops in an equitable fashion.

On the basis of the Irish experience to date, I would be less pessimistic than other commentators about the prospects for European peripheral areas exploiting the benefits offered by IST. It is true to say that much of the IST activity in Ireland has been driven by foreign investment, but this in turn has helped to generate a small, though dynamic indigenous component in sectors like software and internationally traded services. Ireland has shown that its peripheral location within Europe has not been a major handicap in the attraction of IST-related FDI. In terms of regional development, however, progress to date has been quite modest, with some provincial centres beginning to benefit from the dispersal of IST investment, and with some small clusters of university campus high technology companies emerging. Thus, while the Irish example presents a very optimistic picture of the potential offered by IST for European peripheral areas, this optimism must always be tempered by the realisation that alongside the benign aspects of the Information Society, policy makers must also critically assess the pay, security and conditions of workers who make this society possible.