

Beyond the “Information Society”: Selected Atoms and Bits of a National Strategy in Ireland

PASCHAL PRESTON*

Dublin City University

Abstract: This paper seeks to explore a number of key issues related to the direction and components of a coherent information sector strategy and more targeted national innovation networks in the Irish context, with a particular focus on the media and other “content” services. In part, the paper is a critical response to the report of the Irish government’s Information Society Steering Committee, *Information Society Ireland: Strategy for Action*, published in March 1997. This official report set out a strategic vision of the implications of new information and communication technologies (ICT) in Ireland and it also placed a great stress on the role of the media and other “content” services in terms of future job and wealth creation.

The paper begins by exploring some of the problems associated with the “information society” idea and it goes on to outline the key elements of an alternative model which is found to be more practical for economic and policy research purposes. Section IV of the paper applies this model to provide an initial overview of the main components of the information economy in Ireland and its strategic policy implications. Section V describes features of the key media and related “content” industries in the Irish context. In response to the ISSC report, the following section sets out some proposals for a more adequate strategy for this important “content” sub-sector of the national information economy. The final section of the paper sets out some conclusions and discusses the role of economic and social research related to the specific national context of new ICT adoption, production, diffusion and use.

I INTRODUCTION

This paper is a critical response to the recent report of the Irish government’s Information Society Steering Committee, *Information Society Ireland: Strategy for Action* (ISSC, 1997). Amongst other things, this report placed a great stress on the media and other information “content” services and their future role in terms of job and wealth creation in Ireland. Since its

*This paper is based on a revised version of a presentation to the *Ireland in the European and Global “Information Society”* conference, held at the Irish Film Centre, Dublin, 24-25 April, 1997.

publication, the report has led to a number of relatively rapid follow-up actions, including the announcement of the establishment of a more permanent Information Society (IS) Commission and the initiative to link the nation's schools to the new electronic communications networks. These and other recent responses suggest that this is one policy report which will not merely sit on the shelves like many of its predecessors but one whose recommendations are likely to move to implementation stage in the near future. As it is likely to be an important guide and reference point for subsequent policy initiatives, especially those related to new information and communication technologies (ICTs) and multimedia developments, the ISSC report deserves close and critical scrutiny.

This paper explores a number of key issues related to the direction and components of a coherent information sector strategy and more targeted national innovation networks in the Irish context, with a particular focus on the media and other "content" services. In so doing, the paper will also provide a commentary on some issues raised in the recent ISSC report and their underlying conceptions or assumptions, especially those which directly concern the role and characteristics of the media and information content services.

Like its counterparts elsewhere, the ISSC document tends to be high on the rhetoric and hype usually associated with popular discussions of the implications of new ICTs and low in terms of the specificities of the economic, social and cultural dimensions. Yet it is important to develop information sector strategies which are appropriate and attuned to national economic, social and cultural conditions (Melody, 1996; Preston, 1995a, 1995b). Thus this paper will seek to transcend some of the limitations of the analysis of the ISSC report by outlining a more grounded and concrete initial overview or mapping of the information economy and its policy implications in the Irish context. In other words, it will seek to move beyond the rather abstract realms or visions of the ISSC report in order to consider some of the more concrete nuts and bolts (or atoms and bits) of the information sector and related strategy debates in Ireland.

The publication of the ISSC report also coincides with two other important and related sets of policy proposals which have been published in recent months. The first includes the October 1996 White Paper on science and technology and the more recent appointment of a Science, Technology and Innovation Advisory Council. Basically these and other related initiatives follow on from the STIAC report and they aim to develop a more coherent set of national technology and industrial innovation policies. Second, the ISSC report also closely follows the publication of *Clear Focus* by the Department of Arts, Culture and the Gaeltacht. This document sets out the government's

proposals for new broadcasting structures and policies and explicitly seeks to respond to the changing economic role and policy environment of broadcasting activities, including some of the implications of convergence tendencies associated with new information and communication technologies.

In this author's view any coherent proposals for a future national information strategy must also be directly related to policy debates and initiatives concerning the direction of both industrial innovation and broadcasting policy initiatives. So far, there has been little attempt to relate these convergent industrial and policy fields within a coherent strategic framework in the Irish context. Hence, in what follows, I will also indicate some of the implications of these other recent national policy initiatives as they relate to the development of a more coherent information strategy, with particular reference to the media and "content" sub-sectors.

Because of time and space constraints, my treatment will be necessarily selective and will focus on employment and industrial development issues and on the specific socio-economic and institutional implications of new ICTs which appear most relevant to the Irish context. But, of course in so doing, I will have to touch upon the broader global developments, and especially the important role of the European Union's "information society" (IS) project. Compared to most other member states, the EU context is particularly important in any consideration of national information sector strategies in Ireland. Not only is it the crucial nexus in industrial and employment terms — it has shaped the key developments in the information economy in Ireland over the past 10-20 years, not least the major expansion of the ICT supply sector located in Ireland. But the EU policy context is also crucial to any understanding of the development and orientation of most recent national policy initiatives in Ireland related to new ICTs and other aspects of the information economy.¹

II LIMITS OF THE "INFORMATION SOCIETY" IDEA

There is little need here to stress the increasing popularity of the "information society" notion (and related information superhighway/infrastructure metaphors) within EU and more global policy debates over the past 3-4 years. But, the growing popularity of such notions must be greeted with a mixture of apprehension as well as a critical welcome. For however fashionable they have become, such notions and conceptions must be held up to critical scrutiny in terms of their adequacy as guides to understanding and

1. Indeed, the appointment of the IS Steering Committee in Spring of 1996 was closely linked to the impending Irish presidency of the EU, despite many prior proposals for such a national initiative.

action by politicians, industrialists and ordinary citizens. This is one of the important lessons of the work of many social scientists who have addressed the competing models and approaches to the socio-economic and policy implications of new information and communication technologies (ICTs) for some time.

Take the core notion of the “information society”, which was first advanced more than 20 years ago. It was thoroughly and sharply criticised by many researchers in the early 1980s, including some of the participants at this conference (e.g., Garnham, 1981; Melody, 1985; Bannon, 1981; Douglas and Guback, 1984). For sure, there were many dimensions to this early criticism of the “information society” idea (Preston, 1985; 1989; 1995a; 1996a). But for present purposes, I will simply note the fact that many of the criticisms focused on:

- (a) The tendency to adopt a highly abstract and idealised analysis of the changing role, characteristics and implications of information and knowledge production, as well as its control, distribution and management in advanced capitalist economies; essentially the notion involves a neglect of the important political, economic and institutional settings of information production, ownership rights, and management/control questions;
- (b) The reliance of very partial ethno-centric (socially and temporally-specific) assumptions about what constitutes “information” and “non-information” work, occupations as well as social and cultural activities;
- (c) The lack of coherence and adequacy of this notion as a guide to a practical understanding of the implications of new ICTs in the context of the key socio-economic and policy challenges of the early 1980s;
- (d) The availability of better and more empirically and historically grounded models for examining the characteristics of the economic and social changes (and continuities) associated with the emergence and adoption of new ITs (Hall and Preston, 1988; Preston, 1984, 1985; Preston *et al.*, 1989).

But, of course, despite these earlier criticisms of many social scientists, the “information society” notion is very much alive and well today. Indeed, as this special issue of the journal testifies, it has become an ever more fashionable item on the menu of political rhetoric in the late 1990s. In the EU context, the “Information Society” — with accompanying capitals — has been ascribed an enhanced role and status (and aura) as a central reference point or meta-text for many if not most areas of policy debate and planning (Garnham, 1997).

What does this mean — apart from the clear reminder that we should not overestimate the power and influence of mere academic researchers despite the many robust claims about growing autonomy and power of such “knowledge workers” in the info age? For one thing, the popularity of the “information society” idea amongst the political and economic elites in the late 1990s is a social and political fact that cannot be ignored. But does it mean that the previous criticisms of the concept have now been rendered invalid in the light of subsequent technological and socio-economic changes?

Here, in keeping with the reflexive and critical tradition of research in the social science and humanities fields, we must be prepared to question and look behind both (a) the surface and gloss of the fashionable conceptions, self-images and conventions of our times (however influential); and (b) the adequacy of our existing theories, methods and models of inquiry in the light of socio-economic change and continuity.

Both these sets of questions leave plenty of scope for further debate in this particular forum and elsewhere. Indeed I will engage in this debate here by suggesting that, despite the increasingly pervasive and hegemonic role of the “information society” notion in official policy circles and debates, it is still valid and important for social and economic researchers to critically question and challenge its coherence.

This is not some question of scoring a mere academic point concerning the adequacy of different conceptual models of the nature of current changes (and continuities) in the social and economic landscape at the close of the twentieth century. Given the context, my argument here is primarily based on some pressing practical considerations, even if it is necessarily brief. It focuses on the practical adequacy and utility of the concept for policy-makers, industrialists, and especially, the vast majority of workers and citizens concerned with addressing the most pressing socio-economic and indeed cultural, issues of the day.

First, it is clear and beyond question that the past 20 years has witnessed the emergence and diffusion of an ever-growing cluster of radical new information and communication technologies. Cumulatively, and in combination with appropriate social and institutional innovations, these new technologies provide many opportunities for a radical restructuring of economic processes and the social cultural processes underlying everyday life outside the sphere of paid employment.

Second, it is also generally agreed that the economic and social structures and processes and policy challenges in the advanced capitalist industrial countries (ACCs) are very different in the mid-1990s compared to those prevailing the mid-1970s. Some of the highlights of these changes include:

- (a) The emergence of high-levels of unemployment in many advanced industrial economies, often matching those which prevailed in inter-war slump years;
- (b) A significant slowdown in measured productivity growth rates compared to those prevailing during the long post-war boom;
- (c) Increasing inequality in terms of the distribution of income and wealth and general life opportunities in many, if not most advanced industrial economies (often as the direct result of neo-liberal policy regimes); this has been accompanied by an increasing marginalised “under-class”, growing social tensions, and rising prison populations in many ACCs;
- (d) There has been a rapid growth in some ICT and information service markets, at least in terms of output, but the vast majority of new employment opportunities in the ACCs have been located in low-tech and low-pay “service” sector industries;
- (e) Expanding production and consumption of material goods (with short life-cycles) and continued exhaustion of limited resources, despite increasing awareness and rhetorical gestures towards ecological concerns;
- (f) The continued marketisation (commodification) and commercialisation of various forms of information resources and products, the expanding role of intellectual property rights, and growing pressures on the public information sphere (including increasing pressures on the industrialisation of university research activity);
- (g) At the international level, there has been: the growing globalisation of economic, social and cultural relations, including the expanded role of multinational corporations; the emergence of new industrial powers outside the traditional “North/West” axis; the break-up of the USSR bloc and the end of the Cold War.

Yet, when we examine the “information society” concept in the light of these two sets of changes, we find that it certainly engages directly and fully with the first only. It emphasises the (undoubted) importance of new ICTs and the products and services of related “high-tech” sectors and stresses their benign impacts or implications in relation to key dimensions of change in the socio-economic landscape. But it has relatively little to say about the second set of pressing socio-economic changes and the related challenges which they pose for citizens as well as policy-makers in the late 1990s. Indeed in concrete terms, many such social and economic problems cannot be addressed within the technology-centred (or abstract “information” centred) assumptions which underpin the “information society” idea. Essentially, these pressing socio-economic changes and challenges tend to be either ignored or treated as

relatively minor “threats” on a fundamentally benign and harmonious futuristic landscape. At best, they tend only to be recognised issues of potential (rather than actual) exclusion and issues which are re-defined as being related to a failure to adjust to technical change.

In essence, the “information society” notion places an exaggerated emphasis on the inherent technical characteristics and benefits of new ICTs and it involves a very particular and technocratic vision of society and the processes of change. Its understanding of what constitutes “information” (as good, service, resource) and knowledge and its relation to socio-economic wealth, welfare and well-being is very partial and specific. As an attempt to theorise socio-economic and cultural change, it starts off and ends up confusing ends (goals and values) with means. It is inherently focused on the pace and scale of production and adoption of information technologies, services and products. Whilst this may well help to further expand the sales and markets of new ICTs products and services and the related high-tech sector, it fails to address the wider public interest issues involved in developing a progressive strategy for macro socio-economic change and development in the ACCs at the close of the twentieth century. Its ultimately flawed and narrow “vision” is marked by one key irony: on the one hand it extols the revolutionary power of new ICTs to transform social and economic relations and yet, on the other hand, it combines it with an extremely conservative set of political-economic and cultural orientations and values (Preston, 1994, 1995b, 1996a).

III ELEMENTS OF AN INFORMATION SECTOR/ECONOMY APPROACH

One of the more practical problems with the information society notion is the real difficulty involved in seeking to apply or operationalise it for the purposes of empirical research or practical policy analysis. In brief, it is a flawed concept when it comes to concrete attempts to map and measure the key contours of socio-economic change and continuities (Preston, 1985; 1989).

In this regard the concept of an information sector or economy can provide a more concrete and illuminating alternative in seeking to explore many key aspects of the socio-economic implications and historical specificity of new ICTs. It is also one which carries much less ideological baggage. This is particularly the case when it is combined with a more historically grounded conception of new ICT as a major new technology system within a neo-Schumpeterian “long waves” approach (Hall and Preston, 1988; Preston *et al.*, 1989).

I believe that a reworking of the information sector/economy concepts can provide a useful framework for many kinds of empirical inquiry and research

addressing the strategic industrial and policy implications of new ICTs. It can be especially useful in exploring the blurring of industrial and policy boundaries related to product and process innovations which are linked to the diffusion of a major new technology system such as new ICT (Hall and Preston, 1988; Preston 1996c). It can be utilised to move beyond the rather singular and simplistic conceptions of "information" industries and activities which are often implicit or explicit in many recent "information society" policy documents and debates. In brief, the latter tend to lump together many industries and products with quite disparate characteristics and market structures etc.

I will apply this concept here in order to arrive at some initial strategic location of the media and "content" industries in contemporary Ireland. But I believe that the kind of model proposed here can be fruitfully applied to many kinds of empirical explorations of the nature and extent of the new "convergence" trends (and the important counter-tendencies) such as those related to the complex field of multimedia developments. It can also be applied in a manner which fully recognises that the material production still matters and that the socio-economic system still comprises atoms as well as bits (as in the notion of the secondary info sector). The application and potential benefits of this approach for research and policy purposes can be briefly indicated by referring to Table 1. This outlines some of the basic but distinctive component sub-sectors which can be identified in such an information sector/economy approach.

IV AN OVERVIEW OF THE IRISH INFORMATION SECTOR/ECONOMY

In applying this model it is possible to outline an initial overview of Ireland's position in relation to the basic components of the EU and more global information economy. Although the analysis must remain rather tentative at this stage, I suggest that it does provide a more grounded indication of the nuts and bolts (or "atoms and bits") of the Irish information economy which goes beyond the rather abstract analysis provided in the recent ISIC report.² The highlights of this initial review of the national information economy are indicated in the following paragraphs.

2. Again, it should be stressed that any such analysis is only indicative at this stage. It must remain at the tentative and very general level given the paucity of independent socio-economic research on socio-economic dimensions of ICTs in the specific national institutional etc., contexts.

Table 1: *The "Content" Industries in the Overall "Information" Economy*^(a)

BROAD COMPONENTS OF THE "INFORMATION" ECONOMY or SECTOR

(1) THE PRIMARY INFORMATION SECTOR (PIS)

The "Primary Information Sector" (PIS) covers the supply and production of those goods and services "which intrinsically convey information" (e.g., new ICT-based devices, systems and networks, books; newspapers, etc.) "or which are directly useful in the production, processing or distribution" of information (e.g., computers, telecommunications networks). The PIS comprises four basic sub-sectors:

1(a) SUPPLY OF ICT DEVICES, SYSTEMS, "TOOLS" AND SERVICES

The first sub-sector comprises the industries supplying both new and mature ICT devices, systems, tools and services. It includes the "high-tech" industries involved in the production of ICT hardware, software, components and electronic (tele)communications facilities, networks and services. It is concerned with the supply of devices, (blank) media, systems (& components) required for the storage, processing, manipulation, distribution and communication of all kinds of information (services, products and resources).

1(b) SPECIALISED "PRODUCER" INFO SERVICES

This sub-sector involves the production and supply and/or distribution of specialised information content (or "content-rich" services and products, which are primarily directed at users based in business or governmental organisations. It comprises the supply of specialised scientific, technical, economic, legal, accounting, financial, marketing etc. knowledge/information.

1(c) MEDIA and OTHER "CONTENT" PRODUCTS/SERVICES DIRECTED AT FINAL CONSUMERS AND CITIZENS

This category covers the sub-sectors involved in the production, publishing and distribution of information content products and services (including mass and specialised media, cultural products etc.) directed at final consumers, households and individual citizens. It is concerned with the supply of information "content" services or products primarily intended for use/consumption by consumers and citizens outside the workplace setting, (sometimes referred to as "the sphere of everyday life").

1(d) HYBRID PROF. ETC /INFO. SERVICES

This category refers to professional, financial, business and other specialised "producer" services with a separate distinctive primary economic function but which are also deemed to be highly/increasingly information/knowledge based. This sub-sector includes consultative (medical, invest, business, etc.) services; monetary and other financial institutions; financial, security and insurance brokers, agents and jobbers.

(2) THE SECONDARY INFO SECTOR (SIS)

This sub-sector of the information economy refers to the increasing role of information resources and inputs and communication functions, networks and services involved in the supply of goods and services which are intrinsically "non-informational" in character (and which are not supplied by or purchased/bought-in from the PIS). It recognises the changing role and various forms of information/communication resources, functions and competencies within all sectors of the economy in advanced capitalist industrial societies.

Notes: (a) As in all such summary typologies, it is recognised that there are some spillovers/leakages between the different categories.

Sources: This particular typology is based on the author's successive modifications to earlier models advanced by Fritz Machlup, Marc Porat, the OECD and other sources (Preston, 1984, 1985, 1989, 1996b, 1996c).

1(a) Supply of ICT Devices and Systems

Overall Ireland has a relatively large ICT supply sector (component 1(a) in Table 1). In essence the percentage share of total employment provided by this particular high-tech sector in Ireland is 3-4 times the average share in all EU countries (Preston, 1995a, 1996b). Ireland is a very favoured location for foreign (especially US) corporations in this sub-sector. The vast majority of the jobs and output here are accounted for by inward investment by multinational corporations. In many ways this sector represents one of the major jewels in the IDA's crown. It contributes to the 36 per cent increase in permanent full time employment within the overall "metals and engineering" sector achieved between 1986 and 1995 (from 59,415 to 80,929 jobs) (Forfás, 1996: Table 4). A certain proportion of the jobs in these industries comprise rather routine assembly and packaging functions and fall far below the image of "high-level, grey-matter" occupations. In comparison to the multinational sector, the performance of the indigenous industries has been relatively weak, but in recent years a few more dynamic and innovative cluster of companies have emerged in the computer software and services sector (e.g., CBT and Iona).

1(b) Specialised "Producer" Information Services

This particular "content" sub-sector appears to be marked by very high economies of scale and highly centralised within a few global corporations and centres. This component of the national information economy is currently very small and poorly developed in Ireland. Compared to the ICT supply industries, it is also marked by a relatively low growth potential in Ireland, at least in terms of the higher level occupations and value-added functions. The sector's highly centralised character globally suggests that this component of the national information economy is marked by low inward investment and/or indigenous growth potential.

1(c) The Media and Cultural "Content" Industries

These particular "content" components of the information economy are widely perceived to possess high potential for growth, at least according to the ISSC report and indeed, many EU and other national IS strategy documents (e.g., CEC, 1994a, 1994b, 1994c; Australia, 1994a, 1994b, 1995; Canada, 1994, 1995, 1996). I will address the issues related to these particular industries in more detail in the following sections of this paper. But here we can briefly note that the ISSC report concurs with the popular perception of particular Irish "advantages" in relation to this cluster of information content industries. This author's analysis suggests that this perception addresses only part of the story. It may be valid in relation to the

performance of Irish authors and artists (i.e., in the initial/creative moments of the value-chain in these content industries). But it is equally important to recognise that historically, the national performance has been markedly weak in relation to the economically more important “downstream” stages of the value chain (i.e., the publishing, packaging, marketing and distribution of content products). This poses important policy challenges — which have not been addressed in the ISSC report — in relation to the development of key “downstream” stages in both “mature” and emerging multimedia content industries.

1(d) *“Hybrid” Financial, Professional, Etc. Information Services*

These are the focus of many claims about “new ICT-based growth service industries”. Some of these hybrids are said to be increasing their “tradability” via the impact of new ICTs. For example, some offer significant ICT “applications innovation” opportunities, (e.g., via new electronic networks, including Internet-based technologies). Many of these types of services have been highlighted in the ISSC report and they have also been targeted in recent IDA initiatives focused on internationally traded services (including the International Financial Services Centre). For example, recent data from Forfás suggests that there has been a fairly rapid growth in international and financial services in more recent years (Table 2). The ISSC and other recent reports suggest that there may be some scope for indigenous innovation, especially in relation to ICT-based application innovations within services with existing indigenous industrial competencies and strength (e.g., in banking; medical; etc., fields).

Table 2: *Internationally Traded and International Financial Services*
(Permanent full-time employment, 1986 and 1995)

<i>Permanent full-time employment</i>	<i>1986</i>	<i>1995</i>
Irish-owned	2,555	7,112
Foreign-owned	2,945	11,713
International financial services component	29	2,554
Total International and financial services	5,500	18,825

Source: Forfás, 1996, p. 9.

It appears that some of the growth of “telemarketing” activities may also be included under this heading. But it should be noted that many of the jobs in telemarketing fall far below the image and status of high-tech or high-skill or high-pay jobs usually associated with this sector.

(2) *The Secondary Information Sector (SIS)*

Although it is beyond our scope to discuss the matter here in any depth, the SIS serves to underline the fact that the real economic world is still made up of atoms as much as bits. It underlines both continuing importance of primary, manufacturing and other material handling sectors in the approaching 21st century and the changing role of specialised information resources and communication functions in shaping commercial success across all sectors of the economy (whether agriculture, manufacturing or “services”).

A Radical Re-orientation of Policy Towards the Primary Information Sector (PIS)

On the face of it, this cursory and still rather tentative review suggests that the primary information economy in Ireland has expanded significantly over the past decade, and especially the ICT supply industries sector. And, in keeping with the increasingly popular self-image of Ireland as the “Celtic Tiger”, there have been many promises that this will continue to expand rapidly in the future. This is also the broad thrust of the analysis advanced by the ISSC (1997) report which stresses that there are indeed many “ICT-based growth sector opportunities” for further job creation in the short and medium term future (e.g., ISSC, 1997: Table 5.2).

But, of course, the continued global growth and development of new ICTs (or other technologies) does not necessarily guarantee that new opportunities for product and process innovation will automatically flow to the Irish economy. Here it is necessary to stress that, despite the undoubted successes measured in terms of job creation and output growth in more recent years, Ireland’s ICT supply sector is particularly weak in terms of indigenous innovation and industrial performance. By this measure, the Irish high-tech economy is still a rather timid cat or kitten compared to some of the other industrial “tigers” which have roared or “leapfrogged” onto the world’s ICT stage in recent times. Thus it is important to stress and note here that there are a number of important technology and industrial policy challenges which have to be addressed more fully (e.g., compared to the analysis in the ISSC report) if these potential opportunities are to be realised. Thus a sober analysis of the future development and expansion prospects of the ICT supply sector and related hybrid or producer services suggests that national policy makers should be guided more by the image of a “celtic kitten” rather than that of the “celtic tiger”!

Overall, the sustained rapid growth of the primary information sector in Ireland will require a radical re-orientation of state industrial policy towards the components of the sector with most growth potential. A coherent information sector strategy must be closely linked to recent national policy

initiatives to promote innovation and the performance of the indigenous industries. Besides, such shifts in strategy are necessary to seriously diminish the still unacceptably high levels of employment prevailing in the Irish economy and to provide the labour force with the kinds of jobs which best match its skills, competencies and expectations.

Here in particular, I wish to stress two things. First of all, there is the need to link a national information sector strategy towards a radical review and re-orientation of overall national industrial policy goals centred on the promotion and development of indigenous innovation potential. I do not claim any novelty in this proposal. The relatively weak industrial and innovation performance of local firms has been frequently identified as the Achilles' heel of the Irish industrial development story over the course of the past three decades. Despite the recent and impressive successes of the inward investment policies, this concern continues to be very relevant and pertinent as we approach the new millennium. As noted below, there are several pressing reasons to re-assert the importance of indigenous innovation, especially if the goal is to promote the continued expansion of the primary information sector industries in future years. Second, the new policy structures and initiatives must be attuned to the specific economic characteristics and socio-cultural roles of the various sub-components of the primary information sector, and particularly those of the media and cultural "content" industries.

In brief, an emphasis on the promotion of indigenous innovation is still required despite the deepening globalisation of economic relations frequently associated with new ICTs. It is also necessary despite (and perhaps because of) the past — and indeed continuing — successes of the inward investment policies. The reliance on inward investment has to be reviewed in the light of the rapidly changing European and global environment for investment and trade, especially with respect to the ICT-supply sector as well as changing national conditions. For example:

- (a) In the context of the new globalism and short product life cycles (especially in the increasingly important software segments), the new ICT supply sector is becoming increasingly locationally mobile and diversified; besides Ireland's traditional locational advantages for the ICT sector are being increasingly replicated in other European and global locations;
- (b) Despite continuing and expensive state incentives, the Irish economy no longer provides the relatively low-cost conditions which prevailed in the 1970s or 1980s (Preston, 1997a);
- (c) The Irish labour force is becoming increasingly highly educated and skilled and changing consumption norms are leading to increasing expectations of high pay in high-value added jobs.

These and other developments all point to the need for a greater policy emphasis on indigenous innovation for the PIS and other industrial sectors in the Irish economy of the late 1990s. This is not a call for some sort of narrow industrial nationalism. Rather it involves the need for new, sophisticated and pro-active forms of indigenous firm-based innovation, including appropriate forms of collaboration, networking and other inter-firm relations between local firms and MNCs. It involves the development of new national innovation institutions and brokerage systems in line with changing configurations of local capabilities and competencies, including the elusive matter of entrepreneurship. At the same time, it requires a more pro-active approach to the shaping of the spectrum of policies fields within the EU (and more global policy making arenas) which directly impinge upon the opportunity structures for indigenous firm innovation and industrial performance, especially those based in the primary information sector.

I will now move on to explore some of the implications of this approach with respect to one particular component of the primary information economy: the media and communications "content" services.

V "CONTENT MATTERS": THE IRISH MEDIA AND CULTURAL "CONTENT" INDUSTRIES

The perception that the various information "content" services, including the media and cultural "content" industries, are marked by a relatively high potential for growth and "tradability", (or marketability or commodification) as a result of new ICTs dates back to the early 1980s (e.g., Toffler, 1980; ITAP, 1983, 1986; GLC, 1983; CICI/RIIA, 1986). Thus, the idea that information "content" represents an expanding "new frontier" for economic growth long pre-dates the surge of information infrastructure/society policy initiatives and debates which have emerged since the early 1990s. But what is very striking is the degree to which the growth potential of the media and cultural industries, and especially new multimedia services, has been re-emphasised in many national, EU and global strategy documents in more recent years (CEC, 1994a, 1994b, 1994c, 1996a, 1996b; Australia, 1994a, 1994b, 1995; Canada, 1994, 1995, 1996, 1997). In part, this is a response to the fact that the media and other content services directed at households and final consumers appear to have had relatively rapid market growth rates compared to ICT hardware and software devices and systems in the mid-1990s (Gates, 1995; Negroponte, 1995; Preston, 1996b).

The recent ISSC report also places a major emphasis on these industries in the Irish context. It states that "one growth sector deserving particular

attention is that of the content industry" (ISSC, 1997, p. 42).³ It focuses on the content sub-sectors of film; music; radio; publishing; and advertising (and in this respect at least, the ISSC report avoids the conflation of different content sub-sectors which occurs in many other parallel reports from the EU). The ISSC report suggests that this is already a significant sector in Ireland in terms of employment; it states that "already over 30,000 are employed" and that output amounts to more than £1 billion annually (*ibid*, p. 42). It further suggests that "this value can be increased several-fold" (*ibid*, p. 42). The report goes on to suggest that the "content industry in the Information Society involves the creation of products and services that aggregate (*sic*) music, audio-visual and information/data services, drawing on Ireland's culture and heritage, using digital delivery technology and skills" (*ibid*, p. 42). The ISSC claims that "significant opportunities will arise for adding value in such areas as localisation and adaptation of such new digital products and services as, in general, content is most attractive when it is local" and it adds that "(r)ecent examples of this are the success of Riverdance and the film Michael Collins" (ISSC, 1997, p. 42). It declares that Ireland's youthful, educated, English-speaking population is a crucial advantage in this global industry. Furthermore it argues that "Ireland has internationally recognised abilities in the conception, creation and generation stages of content production", especially in literature and music and increasingly in film/video (ISSC, 1997, p. 42). It proposes that Irish enterprises "must develop a leadership position in key growth areas such as the content industry" (ISSC, 1997, p. 58).

VI COMPONENTS OF A MORE ADEQUATE STRATEGY FOR THE MEDIA AND CULTURAL INDUSTRIES

In general the ISSC report provides a very optimistic and upbeat account of the past and potential future growth and performance of the media and cultural industries sub-sector in Ireland. Such optimism, based on a rather abstract and idealised reading of the opportunities afforded by new technologies is not confined to the Irish report. Indeed it is generally the norm and convention in national reports of this kind (CEC, 1994a, 1994b, 1994c, 1996a, 1996b; Australia, 1994a, 1995; Canada, 1994). But a more focused and grounded analysis, which addresses the strengths and weaknesses of the sector is required (Melody, 1996). This is especially the case if appropriate policies and support systems are to be developed and implemented in the future in order to realise the goal of rapid job growth promised in the report.

3. The ISSC report does not distinguish between the different types of "content" sub-sectors as set out in Table 1 of this paper.

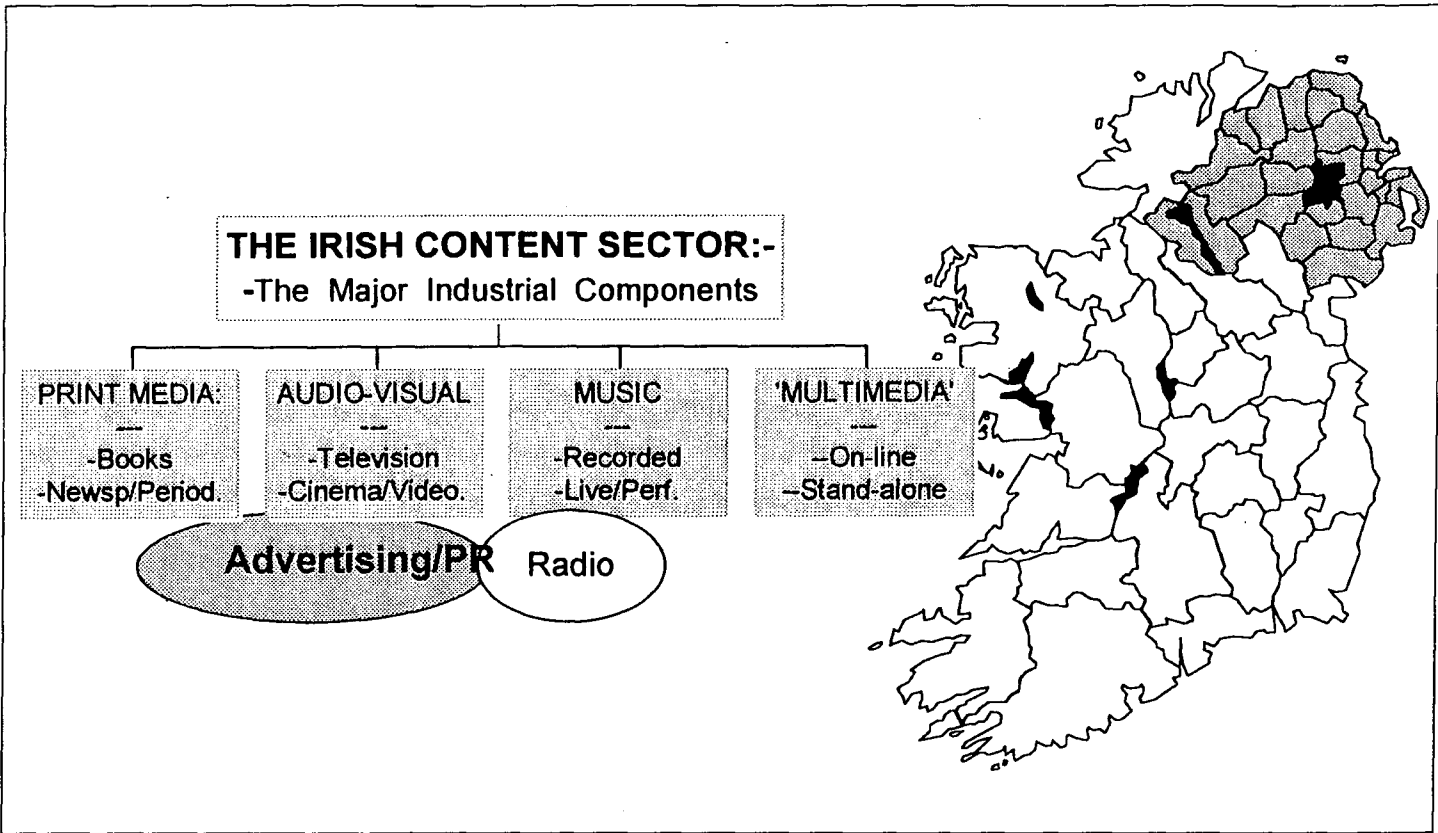


Figure 1: Key 'Content' Industries

As we have seen, the ISSC report presents a very optimistic view of the strengths and growth potential of the media and cultural industries, but the report does register one apparent sectoral weakness however. It notes that the “Irish content providers and creators have only limited experience in exploiting new channels such as the Internet and multimedia” (ISSC, 1997, p. 42). But the identified weakness is a technology-centred one — which again is typical of the analysis underpinning this and many similar information strategy policy reports. Besides, this lack of experience of new/emergent media is hardly unique to the Irish industry, especially since very few of the CD-ROM based multimedia content products produced (including those produced with major subsidies within the EU) have yet proved to be commercially successful. Indeed, apart from pornographic services, very few of the Internet/WWW-based new “content” service offerings produced in the EU or USA have achieved the stage of commercial success either.

By many of the available measures, the ISSC report is essentially accurate in its stress on the performance of Irish authors, musicians and artists in the initial creative (origination) stages of the value-added chain in the media and cultural industries. But the report is marked by a significant silence concerning a very important and long-established weakness in national performance in relation to other moments of the overall value-added chain in the cultural and media content industries.

Here I am referring to the general failure to follow-through and harness the potential of these undoubted achievements in the creative moments in relation to the all-important “downstream” high-value added functions and labour-intensive occupations in most if not all the established Irish media and cultural industries. For well over a century, the celebrated performance of Irish writers, for example, has not been “exploited” for job and wealth creation in the downstream fields of publishing, printing, marketing and distribution. Turning the focus away from a predominantly technology-centred approach, it is first of all, both possible and important to recognise that Irish content industries have very “limited experience in exploiting” the creative performance of Irish content originators [writers, musicians] within the *old channels* of print-based publishing and distribution, as well as in the fields of film, television and recorded music. This fact, and its underlying reasons, must be more fully addressed and analysed. This is an essential step before cultural entrepreneurs or policy-makers can move on to successfully embark on the road to “exploiting the new channels such as the Internet and multimedia” as suggested in the ISSC report (1997, p. 42).

The underlying causes of this weak performance in the past cannot be primarily defined as technical in nature. Nor, even in the case of new multimedia content products and services (especially if defined in terms of *process*

as well as *product* innovations), can the key challenges be addressed and remedied by a purely technology-centred analyses and policy responses.⁴ The policy and industrial challenges I am pointing to here are very important, if little understood in the Irish context as yet. They are central to any viable and sustainable strategy for the Irish content sector, whether this is focused on emergent new multimedia content industries or the more established media content sectors, or — which seems indisputably preferable to this author — both. They involve much more than mere questions about awareness of, training in, or exploitation of new technologies, important though these may be.

First of all, they pose important research and strategic policy questions concerning the matter of entrepreneurship, managerial, marketing and other (non-technical) competencies and skills related to the development of media and cultural content industries in the Irish context. They also concern the matter of how these may play an important role in the fuller exploitation of the potential of indigenous creative/origination efforts for wealth and job creation within both home and overseas markets and in the case of both mature and new/emergent media markets.

Second, they require a comprehensive approach to addressing the peculiar economic (political-economic) characteristics and policy structures which have marked the media and cultural content industries in the past as well as in the 1990s (Grisold and Preston, 1995). Important concerns here include the role of cultural “proximities” and affinities as opposed to purely economic factors in shaping the scale and form of market boundaries, the key role of distribution bottlenecks, and the strong tendencies towards monopoly/oligopoly structures at global, regional and national levels. Third, they also involve a serious consideration of the very specific social and cultural characteristics and roles of media/cultural products and services; this includes the potential role of new ICTs in enhancing and sustaining the continuing value of cultural pluralism and diversity in the content spheres (Corcoran and Preston, 1995).

These kinds of considerations point to important gaps in the analysis advanced by the ISSC report concerning the content industries. This is in keeping with the drift of the most influential EU policy documents — and indeed other national “info society” strategy documents — at least as far as they conceptualise the role or potential growth of the mature and new/emergent media/cultural information “content” industries. This conceptual and analytical weakness is equally striking in EU and many other policy approaches to the media and cultural industries produced within the “info

4. The ISSC report mentions *Riverdance* and some similarly successful recent projects, but fails to identify their success as precisely exceptional in this regard.

society” framework. The media and cultural content sectors are generally treated within a singular and undifferentiated “information market” and industrial logic — alongside microchips, computers, telephone systems and other ICT hardware and software tools and systems (Preston, 1995a, 1995b, 1996a, 1996b, 1996c).

Here again, the IS conceptual approach (especially as it underpins the analysis within the most influential EU policy documents) puts the technological cart before the social or cultural horse — despite the token and superficial rhetorical stress on “society” and “People First” in many of the key documents and surrounding discourses. For example, a similar neglect of the specificities of the cultural and media sphere can be found in the EC’s 1996 Green Paper on social dimensions of the “info society”. This occurs despite some tentative recognition of the specificity of content matters and the possibilities of utilising new ICTs to enhance local content and cultural diversity within the interim report of the High Level Group of Experts (CEC, 1996a) which preceded the Green Paper.

Despite these criticisms, I should stress that I do not wish to dispute the ISSC report’s identification of these particular content industries as major sites for potential industrial growth in Ireland. My own belief is that these content fields do represent one of the most promising sites for indigenous and application innovations within the national information economy. But on close reading, it appears that the ISSC report’s analysis is based on a rather abstract and idealised reading of both the past economic performance of the Irish media and cultural services (in industrial and employment terms) and the future opportunities afforded by new technologies. What is required is a more focused and grounded analysis, which addresses the strengths and weaknesses of the sector and the concrete challenges that must be addressed by both public and private sector actors. This is especially the case if appropriate policies and support systems are to be developed and implemented in the future in order to realise the goal of rapid job growth promised in the report.

Some Specific Policy Recommendations

Given the pressures of space, I must now move from this all too brief consideration of the conceptual and policy challenges posed by the ISSC report’s analysis in order to indicate some of their implications for a more coherent policy debate related to the new and mature media content industries in Ireland. Here, I wish to propose a number of related but quite specific recommendations for the kinds of policy debate and actions which are expected to follow from the publication of the ISSC report.

- (1) The creation of more coherent and comprehensive policy structures and fora is proposed in order to address both (a) the convergence tendencies across traditional media and policy boundaries, and (b) the specificity of the media and cultural content services. For too long considerations of media policies have not been sufficiently related to broader developments within the communication and information services sectors related to the diffusion of new ICTs (Preston, 1993, 1996b). The recent legislative proposals for broadcasting contained in the *Clear Focus* document go some way in this direction. However, a more radical reorientation and broadening of the institutional support and policy matrix shaping both the mature and new/multimedia content services may be usefully explored in this context. The recommendations outlined here are intended to serve as initial contributions to the further debate and discussions required to arrive at the most appropriate national policy structures and options in this regard.
- (2) The currently disparate activities and goals of government departments and agencies concerned with both (a) industrial and innovation policy on the one hand and (b) cultural and media policy on the other must be brought into greater dialogue and cross-engagement. This is necessary for more appropriate policy support to enable these content services to realise their potential as major sites for indigenous innovation and industrial growth. New institutional arrangements are required in order to provide:
 - (i) an increased share of industrial development supports and investment resources corresponding to the sector's growth potential;
 - (ii) the very specific forms of institutional and policy structures appropriate to the special industrial culture and managerial styles of these industries, including its relatively small scale and fragmented "cottage industry" organisational structures (with RTE and the Independent Group as the two notable exceptions in terms of scale and scope of resources and operations);
 - (iii) promotion and protection of the goals of diversity and pluralism of content, including an increasing share of local (national and regional etc.) content within the various domestic media markets.
- (3) New forms of innovation networks, embracing diverse industrial, professional and technical competencies are required, especially (but not exclusively) to promote/realise the potential development of new/emergent multimedia products and services. This suggests that a new set of national policy institutions are needed to support the particular mixes or configurations of skills and competencies for the development

of multidisciplinary “content” product and services productions. These should aim to: (a) promote and broker links between the disparate disciplines, professions and other components of the media cultural industries sector, (b) provide a management style and operations mode which is attuned to the very specific culture and style of these content industries.

This will probably require the development of novel brokering and support institutions in order to stimulate the diverse forms of innovation networking across different professional disciplines and specialist industrial competencies. Some of these may be “virtual” and ICT-based. But some could be based around the notion of “industrial districts” as in the original conception and plan for the cultural industries quarter in the Temple Bar area in Dublin. These kinds of networking supports are very important given the generally small scale and fragmented structure of the indigenous content industries. Besides, some new forms of industrial support and brokerage institutions, specifically attuned to the culture and style of these industries may be required. Indeed, the “digital park” idea proposed in the ISSC report might be best approached in these terms (rather than in terms of a single island site centred around the assumed benefits of a separate and expensive high-tech infrastructure).

- (4) The very particular skills shortages and competencies deficits identified earlier need to be addressed also. Education and training policies must address not only the purely ICT-based technical skill requirements related to the application of new multimedia technologies. An equal, if not more important, requirement is to address the shortage of managerial, entrepreneurial, marketing, and policy-related skills/competencies which led to relative underperformance in the important “downstream” segments of the value-added chain in these industries in the past (i.e., compared to the high national performance in the initial authoring and creative stages).
- (5) There is a pressing requirement to develop more pro-active and comprehensive national approaches to shaping the disparate range of EU policies which impinge upon the media and cultural industries (especially those based in a relatively small economy/society). This must be linked to a more positive role in shaping all areas of EU policy which impinge upon the development and application of new information technologies and infrastructures and services compared to the past (Preston, 1994, 1995b, 1996a). This involves a shift towards more active engagement in the whole spectrum of relevant policy fora, not only those which explicitly or solely address media and cultural

policy issues (e.g., it includes those dealing with competition and trade policy, technology and standards matters, regulatory policies related to the new distribution systems such as the Internet/WWW, intellectual property rights, digital broadcasting etc.).

- (6) The EC's singular information society/market approach must be challenged and reversed not only for (very valid) cultural diversity and local content pluralism reasons. A radical re-assertion of these goals is also necessary in employment terms — if the declared goals of significant increases in the numbers of “high-level, grey-matter” jobs within the audio-visual and other media industries are to be realised.

VII IMPLICATIONS: THE ROLE OF SOCIAL AND ECONOMIC RESEARCH

This paper has sought to move beyond some of the technology centred and abstract information centred analyses of the information society discourses in the Irish context. It sought to highlight some of the challenges facing the further development and realisation of the potential growth of key elements of the primary information sector in Ireland, especially the media and cultural industries “content” sub-sector, and the specifics of the national socio-economic and institutional context. For reasons of space and time it has mainly focused on some of the industrial and economic development issues and thus it has not addressed many of the other important social and cultural issues posed by the EU's information society project and the recent ISSC report.

This paper has been critical of certain aspects of the analysis underpinning the ISSC report and similar reports produced elsewhere. It has explored some of the weaker features and implications of the ISSC report and related EU “information society” policy documents, especially in relation to the changing role of the media and cultural “content” services. But on balance, I believe that the appointment of an Information Society Steering Committee in Ireland and the recent publication of its report is to be welcomed by those interested in the social and economic implications of new ICTs. I concur with the report's basic argument that these content industries represent important sites for industrial and employment growth. They represent important centres for indigenous innovation, both product and process innovation, related to the application of new ICTs in an expanding information economy. Thus I believe that the ISSC report provides a useful and valuable starting point for further debate concerning the components of a more strategic and comprehensive approach to the future development of the sector in Ireland, not least in response to the implications of new ICTs. The criticisms and

ideas advanced here represent simply one contribution to the kind of debate that is required if the cultural and industrial goals of a stronger and more vibrant set of national media and cultural industries is to be realised.

This paper is based on the author's view that new ICTs represent a major new technology system with many implications for economic change and industrial development, including that within the media and other content sectors. But the balances between the opportunities and challenges for the future development of the Irish economy and society (even those closely linked with the application and use of new ICTs) are not solely or mainly determined by some technological logic. Nor can they be simply read-off the technical characteristics of the new technologies. Rather they require a specific (and more detailed) investigation centred on the specific national socio-economic and cultural institutions, structures and policies, as well as an assessment of particular competencies and capacities (Melody, 1996; Preston, 1995a, 1995b).

The paper has argued that the past performance of the Irish economy in relation to jobs and wealth creation within the various stages of the media and cultural industries has been rather uneven. It has been comparatively high in the initial creative and authorship stages of the value-added chain but relatively poor in the important "downstream" stages which are the most important sites for job and wealth creation in these industries. Neither the explanation for this uneven performance, nor its resolution, can be found in technology-centred analyses. Rather it requires a research approach which can address the specific economic, socio-cultural and policy factors —as well as the technological factor — which have shaped successful innovation and industrial growth in these industries in the past. A similar approach is required if private and public initiatives are to succeed in maximising the job and wealth creation potential of these industries, including the important technological opportunities now opening up in the emerging new multimedia fields and other components of the information economy.

There is no universal or privileged royal road to the development of an appropriate information strategy for any component of the national information economy. What is required in any national setting is a mix of policy approaches which are attuned to the peculiarities of national industrial structures, competencies and comparative advantages (not to mention disadvantages) and well matched with the characteristics of the local social, political and cultural milieu. However, the development of appropriate national information sector policies depends crucially on an adequate base of research intelligence related to the economic and social conditions prevailing in the particular nation or region (Melody, 1996, 1997).

Compared to other countries, the resources available in Ireland for

research on the specific national economic, socio-cultural and policy dimensions of new ICTs has been almost non-existent. Of course this is part of a wider problem of an minimal resource base for all kinds of social science research compared to most other EU member states.

In recent years, Irish policy makers have placed an increasing focus on the importance of scientific and technical research for the future realisation of national development goals. But the recent enthusiasm for technology matters must not result in a simplistic technological determinist approach to economic and social development. If the policy goals of a developing information economy in Ireland and the creation of "employment, wealth and vibrant, inclusive communities" (ISSC, 1997, p. iii) are to be realised, then the important role of social science research in informing national development debates and strategies must be recognised as well. This means that social and economic research, in this and other fields, must be accorded both (a) a higher status and increased resources compared to the past and (b) an expanded role that is more closely in line with that which prevails in other EU member states.

BIBLIOGRAPHY

- AUSTRALIA (Government of), 1994a. *Creative Nation: Commonwealth Cultural Policy*, Canberra: Dept. Of Industry, Science and Technology.
- AUSTRALIA, 1994b. *Commerce in Content: Building Australia's International Future in Interactive Multimedia Markets* (Report by Cutler and Company for Dept. of Industry, Science and Technology, CSIRO and Broadband Services Expert Group).
- AUSTRALIA, 1995. *Excellence in Content*. (Report prepared by Coopers and Lybrand for the Australian government's Dept. Of Industry, Science and Technology and the Dept. of Communications and Arts), Canberra: Dept. Of Industry, Science and Technology.
- BANNON L., U. BARRY, O. HOLST (eds.) 1981. *Information Technology: Impact on the Way of Life*, Dublin: Tycooly International Publishing.
- CANADA, 1994. *The Canadian Information Highway — Building Canada's Information and Communication Infrastructure*, Ottawa: Information Technologies and Telecommunications Sector.
- CANADA, 1995. *Connection, Community, Content: The Challenge of the Information Highway. Final Report of the Information Highway Advisory Council*, Ottawa: Industry Canada.
- CANADA, 1996. *Building the Information Society: Moving Canada into the 21st Century*, Ottawa: Industry Canada.
- CANADA, 1997. *Preparing Canada for a Digital World: Information Highway Advisory Council Phase II Conclusions and Recommendations*, Ottawa: Industry Canada.
- CEC, 1983. *Community Programme for the Development of the Specialised Info Market in Europe*, Brussels: COM, 83. 661 FINAL.
- CEC, 1994a. *Growth, Competitiveness and Employment — The Challenges and Ways Forward into the 21st Century*, Luxembourg: European Commission.

- CEC, 1994b. *Europe and the Global Information Society: Recommendations to the European Council*, ("Bangemann Report"). Brussels: CEC. 26 May 1994.
- CEC, 1994c. *Strategy Options to Strengthen the European Programme Industry in the Context of Audiovisual Policy of the EU*, (Green paper on the Audio-visual sector), Brussels: CEC (COM, 94. 96 Final, 6.4.1994).
- CEC, 1995a. *Europe's Way to the Information Society. An Action Plan*. Communication from the Commission to the Council and the European Parliament and to the Economic and Social Committee and the Committee of Regions. (Document obtained via Internet.)
- CEC, 1996a. *Building the European Information Society for Us All: First Reflections of the High Level Group of Experts*, Brussels: EC, DGV.
- CEC, 1996b. *People First: Living and Working in the European Information Society*, ("Green Paper") Luxembourg: Bulletin of the European Union: Supplement 3/96.
- CEC, 1996c. *People First: Report on the Dublin Colloquium, Dublin Castle, 30 Sept.-1 Oct. 1996*, Brussels: DGV.
- CICI/RIIA, 1986. *Tradable Information: Europe Against the World?* Conference at RIIA, London, 22 October 1996
- CORCORAN F., and P. PRESTON (eds.), 1995. *Democracy and Communication in the New Europe: Change and Continuity in East and West*, Creskill New Jersey: Hampton Press Inc..
- DENMARK, 1994. *Info-Society 2000 — The Committee on the Information Society by the Year 2000*, Copenhagen: Ministry of Research.
- DEPARTMENT OF ARTS, CULTURE AND THE GAELTACHT, 1997. *Clear Focus*, Dublin: The Stationery Office.
- DOUGLAS, S., and T. GUBACK, 1984. "Production and Technology in the Communication/Information Revolution", in *Media Culture and Society*, Vol. 6, No. 3, pp. 233-236.
- FORFÁS, 1996. *1995 Employment Survey*, Dublin: Forfás.
- GARNHAM, N., 1981. "The Information Society is also a Class Society", in L. Bannon *et al.* (eds.), *IT: Impact on the Way of Life*, Dublin: Tycooly International Publishing.
- GARNHAM, N., 1994. "Whatever Happened to the Information Society?", in R. Mansell, (ed.), *Management of Information and Communication Technologies: Emerging Patterns of Control*, London: ASLIB, pp. 42-51.
- GARNHAM, N., 1997. *Discussant's Comments*, presentation to European Communications Policy Research Conference, Venice, Italy, March, 1997.
- GATES, B., [with Nathan Myhrvold and Peter Rinearson], 1995. *The Road Ahead*, London: Viking.
- GLC, 1983. *The Audio Visual Media Industries in London*, London: GLC (Strategy Document No. 7).
- GLC, 1984. *Electronic Publishing*, London: GLC.
- GOODWIN, P., 1995. "British Media Policy Takes to the Superhighway", in *Media Culture and Society*, Vol. 17, No. 4., pp. 677-689.
- GORE, AL, 1994. "The Global Info Infrastructure: Forging a new Athenian Age of Democracy", in *Intermedia*, Vol. 22, No.2, pp. 4-7.
- GRISOLD, A., and P. PRESTON, 1995. "Unpacking the Concept of Competition in Media Policy Making: The Cases of Ireland and Austria", in F. Corcoran and P. Preston (eds.), *Democracy and Communication in the New Europe: Change and*

- Continuity in East and West*, Creskill, New Jersey: Hampton Press, pp. 67-96.
- HALL, P., and P. PRESTON, 1988. *The Carrier Wave: New Information Technology and the Geography of Innovation*, London: Unwin Hyman.
- HLEG (High Level Group of Experts), 1996. *Building the European Info Society for Us All: Interim Report*, Brussels: CEC.
- IRELAND (Government of), 1996. *White Paper on Science and Technology*, Dublin: Stationery Office.
- ISSC, Information Society Steering Committee, 1997. *Information Society Ireland: Strategy for Action*, Dublin: Forfás.
- ITAP, Information Technology Advisory Panel, Cabinet Office, 1983. *Making a Business of Information*, London: HMSO.
- MANDELA, NELSON, 1995. "Towards a world-wide information society", *Intermedia* Vol. 23, No. 6, pp. 46-47.
- McBRIDE COMMISSION, 1980. *Many Voices, One World* (Report for UNESCO), London: Kogan Page.
- MELODY, W.H, 1985. "The Information Society: unveiling some contradictions", Special issue of *Media Culture and Society*, Vol. 7, No. 3.
- MELODY, W.H., 1987. "Information: An Emerging Dimension of Institutional Analysis", in *Journal of Economic Issues*, May.
- MELODY, W.H., 1996. "Towards a Framework for Designing Information Society Policies", in *Telecommunications Policy*, Vol. 20, No. 4. pp. 243-259.
- MELODY, W.H (ed.), 1997. *Telecom Reform: Principles, Policies and Regulatory Practices*, Lyngby, Denmark: Technical University of Denmark.
- MORRIS, M., and C. OGAN, 1996. "The Internet as Mass Medium", in *Journal of Communication*, Vol. 46, No. 1, pp. 39-50
- NEGROPONTE, N., 1995. *Being Digital: The Road Map for Survival on the Information Superhighway*, London: Hodder and Stoughton.
- PRESTON, P., 1984. *Innovation in Information Technology: Defining IT and Related Job and Wealth Creation Potential*, Reading: Reading University, Innovation in IT Project Working Paper 2.1.
- PRESTON, P., 1985. *The Changing Role of the Information Sector/Economy: A Proposal for a New Research Framework and Initiative*, Reading University: Dept. of Geography/JCLDS.
- PRESTON, P., et al., 1989. *Measuring the Information Economy: Proposals for Updating the ISIC*, London: Economic and Social Research Council/PICT.
- PRESTON, P., 1993. "Going Comprehensive: Irish Cultural Industries Policy", in *TEAGLAIM: DCU Communication and Cultural Review*, No.1, pp. 71-76.
- PRESTON, P., 1994. "Neo-liberal Regulation and the Smaller and Peripheral Economies: an Institutional Perspective", Ch. 9 in H. Williams, et al. (eds.), *Telecommunication: Exploring Competition*, Amsterdam: IOS Press, pp. 123-144.
- PRESTON, P. 1995a. "Ireland and the Information Age: A Scoping Study", Dublin (mimeo: commissioned report).
- PRESTON, P., 1995b. Guest Editor, *Telecommunications Policy*, Vol. 19, No. 4, May/June 1995. (Special theme issue on telecoms infrastructure in the peripheral regions/smaller economies.)
- PRESTON, P., 1996a. "Technology, Space and Cohesion: An Irish Perspective on "Europe's Way to the Information Society", in *Telematics and Informatics*, Vol. 13, No. 2/3, pp. 123-240.

- PRESTON, P., 1996b. *Content Matters: Proposals for a "Content" Industries Strategy in the Irish Information Economy*, Dublin: commissioned report (mimeo).
- PRESTON, P., 1996c. *Multimedia Convergences or Divergences?: The Uneasy Encounter Between Industrial Innovation Logics and the Cultural /Media Spheres*. Paper presented to panel on "Regional Innovation Networks — the Case of Multimedia", 4S/EASST Conference, Bielefeld, Germany, 10-13 October 1996.
- PRESTON, P., 1997a. *Mapping Ireland's Position in the Global Information Economy: Supply and Consumption Measures*, Dublin (mimeo).
- PRESTON, P., 1997b. "Information for Citizenship in Ireland", in Jane Steele (ed.), 1997. *Information for Citizenship in Europe*, London: Policy Studies Institute. (pp.108-146).
- SWEDEN (Prime Minister's Office), 1994. *Information Technology: Wings to Human Ability*, Stockholm, Sweden: Prime Minister's Office.
- TOFFLER, A., 1980. *The Third Wave*, London: Pan Books.
- WILLIAMS, R., 1983. *Towards 2000*, London: Chatto and Windus.