The Information Revolution and Ireland: prospects and challenges

Lee Komito

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PREFACE

There has been an Information Revolution and we are either living in an Information Society or are about to enter an Information Society. At least, so proclaim newspaper and magazine articles, as well as television and radio programmes. Popular books describe the 'death of distance'(Cairncross 1997) as well as the 'third wave' which is coming after the agricultural and industrial 'waves' (Toffler 1980), and newspapers and magazines are zealous in their discussion of new gadgets and the transformation (sometimes good and sometimes bad) that these technological marvels herald. Academic writers are less certain, with some arguing that current technologies are leading to economic and social transformation (Castells 1996; Poster 1990) while others (Schiller 1985; Wood 1997) argue that the Information Revolution is just the Industrial Revolution with a few new frills.[i] Some have argued that new technologies will lead to freedom and empowerment (Bell 1973), while others have drawn attention to these technologies increasing the power of states or multinational corporations, at the expense of individuals (Lyon 2002; 1994; Lyon and Zureik 1996). This book is not intended to be an exhaustive or definitive discussion of the digital revolution or the Information Society,[ii] nor is it intended to proclaim or denounce the new Information Society. However, whether there is a new economic, political, and social order emerging, or not; whether the new order is beneficial or detrimental to citizens; all agree that significant changes are taking place. Often, however, it is as though we are all bystanders, watching change taking place, with very little public participation in the process. The central issue in this book is that technology, including the new information and communications technology linked with the Information Society, is not a force external to society and beyond the control of society; technology is an integral part of society and is acted upon and altered by social forces (Winner 1977; Williams 1974).

This book is not an attempt to predict the future; the future will result from interactions between technologies, individuals, social forces and political policies, and will differ from society to society. There has never been a single or inevitable result of technological change, and, in the context of recent technological changes, there is no 'one size fits all' outcome in which societies throughout the world will either become carbon copies of each other or mini-versions of the United States. The societies that will emerge in the twenty-first century depend on policy choices that individuals and governments make, whether by acts of commission or omission. The future is not inevitable; it is flexible and can be altered. The aim of this book is to encourage individuals to contribute to such policy choices, so that the society that emerges is one that citizens desire rather than one neither of their making or choosing. Its aim is to encourage discussion and thought rather than proclaim conclusions.

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Social changes over the past fifty years have seemed to encourage people to live increasingly isolated lives. Since World War II, people have left their urban neighbourhoods to live in anonymous suburbs. They have moved locations as their employers expect them to work anywhere in the world. With new technologies, people can work from home, shop from home, bank from home, and even socialize from home. The common experiences that created bonds amongst people in the same place seems to be diminishing. Yet, human beings are social creatures; we want to live in webs of social interaction, even if we have to create them ourselves.

10.1. Imagined Community and Global Culture

As social beings, we live in groups. Until recently, these groups were geographically delimited: physical proximity determined our primary social relations, and economic, political, and social activities were constrained by spatial limitations. With the digital revolution, location is no longer a constraint, and distance no longer an obstacle. Phrases such as 'networked society' and 'global village', often used when discussing the Information Society, imply linkages that make distant places local. Other images such as cyberspace, electronic town hall, virtual community seek to apply the terms of localism to an dispersed networks of electronic relationships. All of these emphasize that physical distance, previously a defining feature of social relations, is now less significant. A common visions of the Information Society is the 'death of distance' (e.g., Cairncross 1997). What impact will this have on the communities that have been the focus of social life?

Children grow up in a locality, and learn the same history and literature, regardless of which school they are in. They meet each other in when playing sports, when 'hanging out', they watch similar television programmes and read similar magazines, they gossip about the same popular figures (whether music, movie, or soap opera). Once adult, they are concerned about the state of the local road, or the opening hours of the shop. Interaction creates and maintains a common sense of experience and common identification that we call community.[80] The creation of the a common national identity is more complex. People who believe themselves to be Irish, British, or any other nationality share common identification with others, even though they will never have face-to-face contact with most of those who they see as fellow Irish, British, or French. They are part of an 'imagined community' (Anderson 1991) - sharing common values with other people like themselves as though they were part of the same community. Creating and maintaining such an identity is a complex process, but an integral part of the process is the shared experience of similar education, similar mass media content, similar language, public holidays, and so on (Hobsbawm and Ranger 1983; Fox 1990; Gellner 1983). Weber (1977) recounts the French experience in the late 19th Century and notes the impact of the educational system:

> "The symbolism of images learned at school created a whole new language and provided common points of reference that straddled regional boundaries.... [A]ll children became familiar with references or identities that could thereafter be used by the authorities, the press, and the politicians to appeal to them as a single body. Lessons emphasizing certain associations bound generations together" (p. 337).[81]

Effective as this was for metropolitan France, it is a bit incongruous when Moroccan children would recite, as part of their history lesson, "Our ancestors the Gauls...". Irish people learn a similar history and language, they celebrate similar holidays and they have similar experiences of politics and government. Furthermore, these are experiences not shared by people who are exposed to different influences by living in other countries. Mass media, with access to the same newspapers, magazines, radio and television, as well as similar experiences of language and literature, schooling and government structures, all foster the sense of common identity and experience that is 'national identity'. The creation and recreation of national identity has been aided by technologies such as mass newspapers, television, radio, and magazines.[82]

If the geographical limitations of mass media technologies have fostered a geographically delimited collective experience and thus identity, then what impact will new technologies have on this process? If new technologies enable information to circulate without geographical limitations, does that mean a common global experience, and thus a global culture? After all, information has become available more widely than ever before in recent decades; increasingly, everyone in the world has access to the same information and same commodities: similar movies, television programmes, world-wide news programmes, fashions, children's toys, fast food outlets, and so on. If culture is the result of common experience and shared information, then is global culture the inevitable consequence of people participating in the same common experiences? This global culture is a distinctly different proposition than a global information economy, which is the participation of people in a unified economic system, with international structures for the production, distribution, and consumption of goods and service. Global culture is the sharing of beliefs and ideas, as well as commodities or artefacts.

There has been a long debate about globalisation (for a flavour of the discussion, see Harvey 1989; Featherstone 1990; Robertson 1992; Featherstone 1995; Featherstone, Lash et al. 1995; Friedman 1994; Appadurai 1996). With the development of global communications and domination by multinational companies, there has been a concern about a monolithic imposition of uniformity. Films produced in the United States are shown everywhere, to the detriment of locally produced films. The US media products are not necessarily better, but simply cheaper to buy. This is partly due to the economies of scale that arise from producing commodities that can be sold in markets throughout the world. In addition, these products were sometimes 'dumped' on foreign markets. Films have not been the only commodities that circulate in the global economy. There has been internationalisation of many commodities, especially relevant to 'fads' and 'styles'. Whether it is fast food, jeans, skateboarding, Power Rangers, or Teletubbies, people increasingly have the same buying preferences in clothes, food, music, and so on, leading to uniformity in the films and news viewed, the clothes worm, the food eaten, and the music listened to. The concern is that there is an emergent global culture with a monolithic set of meanings, and that since these are products of the United States, the United States cultural values implicit in all these goods and products will become global cultural values. That is, all cultures will be subsumed within single set of meanings (US meanings) at the expense of local, indigenous cultures (Tomlinson 1991).

This is a real concern for many individuals and countries, and many countries have instituted regimes to restrict foreign media, and encourage indigenous media (c.f., Collins 1996; Preston 2001; and the discussion of the 1995 Green Paper on Broadcasting in Ireland, Kiberd 1997). Especially in countries where broadcasting is

controlled or supported by governments, there is a often a restriction on the amount of foreign programmes that can be broadcast, as well as financial support for the production of local programmes. This is partly to protect or encourage local employment, but also reflects a desire to protect local culture from foreign, usually US, media. In Ireland, for instance, local media production is explicitly linked with protecting and fostering 'Irish' culture, which is seen as being under threat. This attempt at control can sometimes also extend to other elements of global exchange. For instance, foreign music or clothes or food can be highly taxed or otherwise restricted, in order to favour consumption of local items.[83]

This conflict between foreign and indigenous elements is now seen as overstated, and dependent on a somewhat simplistic view of the impact of mass media on local societies (Boyd-Barrett, Braham et al. 1987). The interaction relation between local and global creates a melange or mix of different elements, some internal but some external. Economic issues alter the relative prevalence of different media products. For instance, United States viewers are exposed to few non-US media products,[84] while European viewers are more likely to be surrounded by US media products than by the products of their European neighbours. Small wonder that in Ireland, there is uncertainty whether the images used to conceptualize Irish society should be drawn from Boston or Berlin. The impact of this disparity is even greater outside of Europe. However, regardless of the disproportionate influence of external elements in some societies, these external elements are changed as they are incorporated into a local framework. The local meanings associated with these elements may have very little in common with any global meanings, as Wilk (2002) demonstrates in a discussion of the impact of United States generated sports programs, delivered via satellite, on a Latin American society. Television viewers are not passive recipients of global meanings; the meanings of global cultural products are altered by local circumstances, even within the same society (Morley 1980; 1992; Ang 1996; Silverstone 1994). The television show 'Dallas' is not interpreted in Delhi, Dublin, and Dallas in the same way; there is an interaction of the cultural product with local values and beliefs (Ang 1985; Liebes and Katz 1990). This is not to say that external products have no impact, but the elements combine to create a unique mix.

Instead of a uniform global information system, there are varying local versions or interpretations of global material. There have been similar trends in global news organisations, both print and satellite, which provide a 'localized' version of news for Europe, Asia, South American and so on. Satellite broadcasts introduce local advertisements for different national markets, even within the same broadcasting 'footprint'. This has also extended to global Internet sites; yahoo.com has been replaced by yahoo.ie, yahoo.fr, and other national sites, each with its own local identity. These are responses to the preferences of users, and the result has been to create local diversity rather than global uniformity.

Although this book is focusing on information, the interaction between local and global is not restricted to mass media content or information services, but applies to the range of global commodities. One example would be food. On one level, there are national cuisines, such as Chinese food, that are distributed throughout the world. However, 'Chinese food' manifests itself differently in each location. First, the ingredients and seasonings vary, depending on local tastes. More importantly, the food in eaten by different types of people, at different times, on different occasions, and so therefore has a quite different social significance in different societies. In some cases, it is associated with twenty-something's, emerging from pubs late at night; in other cases,

it is associated with forty-something's concerned with organic food. Chinese food can become identified with specific activity or specific social or ethnic group. It may be the kind of thing you might do when a group are going out for a cheap night of socialising in the UK, while being a quite different event in India! Similar observations could be made about that archetypical symbol of US cultural domination: McDonalds. The social context of French people going to a McDonalds in Paris is different than McDonalds in Dublin or Manchester, the food is slightly different, and even the architectural design is different.

The outcome of local and global interactions in Ireland is complex. Ireland is a producer, as well as a consumer, of global commodities. Ireland has exported the commodity of Irish culture via music (Chieftains, Clancy Brothers, and so on), dance (the Riverdance ensemble), clothes (Aran jumpers), pottery and glassware (Waterford Crystal) and obviously literature.[85] Ireland also incorporates products and ideas that emerge from elsewhere. Country and western music has transplanted itself[86], as has the celebration of Halloween. From France and Italy have come cappuccinos and café society. Dress styles from diverse locations such as the United States and the Middle East are combined together. Ireland becomes a unique local articulation of multiple global flows (Hannerz 1996; 1992). In the circulation of commodities, societies are clearly developing their own cultural specialties, branded in order to maximize market share.

Local cultures are under threat from external media alone; there is also the issue of internal diversity. Members of a nation have never shared the same experiences and views perfectly; regardless of the rhetoric of national identity and imagined community, as there have always been class, regional and ethnic divisions and conflicts. Common national forms and values accentuate the shared elements and minimize this diversity, but the diversity is never be eradicated. The domination of national media and national commodities simply restricted the amount of choice that individuals can exercise, which restricted the manifestation of diversity. New technologies have increased the amount of choice and the ease with which action can follow from choice, which has made it easier for existing differences to be expressed. Diversity seems to be increasing, but, in fact, it is only a diversity that was previously latent and is now overt. Each person chooses difference bits to incorporate into their own unique melange, which distinguishes him or her from others in the locality.

10.2. National Identity and Place

If new technologies are undermining a uniform national identity, the outcome of increased cultural flows and increased individual choice is not necessarily one of societies composed of isolated and differentiated individuals. An alternative is one of individuals participating in multiple collective groups, with no single group having a primary claim on individual identity and loyalty. The fragmentation of mass media (narrowcasting with satellite and cable), combined with increased access to a variety of information sources (WWW, email, video, etc) leads to a diminished sense of collective national identity and an easier assertion of alternative collective identities. For instance, in 1977, more than one half the population of the United Kingdom (twenty-eight million people) all did the same thing on Christmas Day: they watched *The Morecambe and Wise Show* (Clarke 2002). This was a collective national experience that is unlikely to be matched in the contemporary world of multiple television households, with satellite and cable choice of programmes. In 2000, the BBC, having purchased the rights to broadcast a major film on Christmas Day, secured only one-third as many

viewers as in 1977. The alternative choices provided by new technologies mean the end of such common experiences, which were important for their own sake, but also as the basis for subsequent conversations and discussions. In Ireland in the 1980s, the Late Late Show was not only a shared national experience of everyone watching the same television show on a Saturday night, it was often also the basis for radio and newspaper coverage the next day and personal conversations amongst friends and neighbours for the following week.

What happens when people grow up in a country, acquire that sense of national identity, and then leave? Irish people, for instance, migrating to Britain, Canada, or the United States for work, Jamaicans coming to London, or Turkish people coming to Germany? In the past, people had little scope for maintaining any contact with their home due to high communication and transportation costs. The high cost of telephone calls, as well as the high cost of physical travel back to the home culture meant that the amount of contact, through newspapers or letters, would be minimal. It was difficult to keep in contact with events ‘at home’, regardless of the strength of the emotional attachments to people or place. There was an inevitable assimilation process, during which the home identity remained more important than the host environment, but everyday contact was either with people in the host culture, or with others who shared a similar expatriate status. The home culture became more remote and the experiences of the host culture led to some degree of acculturation. Thus, we are used to the emergence of ‘hybrid’ identities, such as Irish-Americans, Pakistani-British, Turkish-German, Algerian-French, and so on. Eventually, there would either be assimilation into the host culture, or a sub-culture, such as ‘Italian-Americans’, would be emerge as a stable group that recreated itself generation after generation. These would be people who would maintain many elements of their home culture, but, without dynamic contact with people or events of their home culture, these cultural elements would be frozen in time, and there are many ethnographic studies of the enclave communities that have developed in such popular host societies such as the United States, Britain, Germany, and so on.

With new communications technology, it is possible to maintain contact with both people and events of one's home culture, even after leaving home. This was possible to some extent even prior to the digital revolution (as noted in the earlier discussion of illegal Irish-Americans in Corcoran 1993), but is much easier since the mid 1990s. Communications costs are reduced, so that one can maintain contact with friends and family via reduced telephone charges or electronic mail. The cost of high speed internet access and the capital costs of computer ownership have both lessened. Reduced transport costs also means access to ‘home’ cultural products such as clothes, food, books, movies, and so on. There has been a substantial increase in the amount and range of digital media available for worldwide consumption. With electronic newspapers, cable and satellite television, radio and television stations broadcasting on the web, it is easy to keep in touch with cultural and political events at home. With reduced transport costs, one even can afford to travel back to one's home culture relatively easily. It is now possible to participate in the public life of one’s home culture, as well as maintain social contacts with friends and relations, despite increased labour mobility (Gillespie 1989 provides an example from London). It is even possible to create cultural products that unify dispersed members of ethnic groups who no longer have a home providing cultural ‘source material’ (such as displaced tribal peoples exiled from Laos, Schein 2002).

Ireland provides the obvious example of this transformation. In earlier times, people may have wanted to maintain contact and return eventually, but it rarely happened. Air travel was expensive, as were telephone calls, so people drifted away. This inevitable outcome was realized in advance, though rarely admitted, and it lead to the ‘American wake': a leave-taking ceremony that signified the permanent loss to the Irish community of that person. While such emigrants may not have assimilated completely into American culture, they and their descendants felt out of step if they ever did return. The height of their contact was money sent back to Ireland, either to relations or for ‘good causes’ (such as the Irish independence movement). This contrasts vividly with the current experiences of an Irish person in the United States. There are electronic Irish newspapers and many Irish radio stations broadcast on the Web. It is increasingly common for radio programmes to report email comments from people all over the world who are listening to the programme live via an Internet broadcast. This is ‘real time’ national participation and interaction on a global scale. An increasing amount of video output is also available on the Web. Nor is this is simply a national phenomenon; local communities in Ireland increasingly publicize local events on their web sites and, amongst the numerous discussion lists and bulletin boards devoted to Irish topics, there are specialized sites for local events. Air travel has become significantly cheaper, and frequent return visits are possible, not only for special events such as weddings, but for the important cultural events such as Christmas, as well sporting events. The population of Ireland swells on such occasions and these events become important occasions for maintaining social cohesion (as well as personal contacts); since so many other Irish emigrants are home at the same time, these events provide opportunities to maintain contact with other emigrants.

What is the impact of this increased and richer communication? Does more contact with one’s home culture and the friends and relations one grew up with, just make the separation more difficult to tolerate and the homesickness worse? Does it permit individuals to maintain their participation and identification with their home culture and ignore their immediate surroundings, thus either delaying or reducing any integration with their host culture? Or is it only a minor theme in the overall process of integration, perhaps slowing but not really altering the process of either assimilating into sub-cultures (such as Irish-American) or forging new sub-cultures? Will people juggle multiple national ‘identities’ of home and host society? Perhaps the realities of everyday life will take precedence over a ‘long-distance nationalism’ supported by technologically mediated communication. After all, however effective ICT can be to maintain to maintain contact with events, friends, and relations, it is still impossible to replicate the many facets of being at home. One can't replicate chance contacts with acquaintances and friends of friends. Happenstance and serendipitous events cannot be re-created via intentional, narrowly defined, confines of computer-mediated communication. In addition, many face to face physical events are multi-modal -- it is one thing to read a newspaper report, but equally important are the subsequent discussions with friends or co-workers, followed up by a television report, and so on. Since technological access to one's home culture (including friends and relations) is a series of isolated, rather multiply reinforcing, experiences, there may be significant restrictions on the long-term impact of such access. The short answer to this question is that no one knows; the data is, as of yet, insufficient to be certain, especially in the face of rapid technological change. With every year, electronic communication mimics face-to-face communication more effectively, thus continually changing the constraints on culture and community.

Emigrants may also create an identity that is based on the home culture, yet distinct from it. Expatriates can maintain contact with each other, and fashion an identity that is no longer fixed or constrained by geographical factors. The members of these groups are dispersed but have a defined national identity, and, as a group, they can engage in collective economic and political activity. It is well accepted that emigrant populations often act, politically, on issues relevant to their home culture, and they use email, electronic discussion lists, and web pages to coordinate those actions. The most active electronic discussion lists in the world are lists whose members are expatriates of China, India, and Pakistan, and expatriates from many other countries organise, electronically, to effect changes in their home countries (Anderson 1998). There is now scope for a national identity that is not limited by geographic boundaries. What will be the criteria for 'authentic' claims for citizenship rights? Is one a citizen of Ireland by being the offspring of an Irish citizen, even if born in a different culture? Is citizenship an entitlement only of those who participate in the Irish state (e.g., pay taxes), and is it a permanent entitlement or dependent on continued participation? The days of simple criteria for state membership or national identity are over, especially as different states use different criteria.

Of course, in addition to national, ethnic, and religious identities, occupational identities often constitute a strong claim on loyalty. Not only do policemen or fire fighters feel strong loyalties to other policeman and fire fighters in their county, but this loyalty can span countries and override national differences. This has often been illustrated in reactions to disasters. The reaction of fire fighters throughout the world, to the enormous loss of lives of New York City fire fighters after the September 11th tragedy is an example of such cross-national identity. Most individuals participate in a number of distinctly differing cultural or social groups or locations: the experiences of one's physical location, experiences of one's home culture, experiences of work-based groups, and so on. Individuals now choose which groups to participate in, do not have to make exclusive commitments to one group over another, and, inevitably, have less commitment to any single collectivity. Modern identity is multiple non-exclusive affiliations, rather than single exclusive affiliations, and affiliations determined by choice rather than birth. People often juggle multiple affiliations, many of which have little to do with nationalism or ethnicity.

10.3. Virtual Communities?

New communications technologies enable individuals to work, shop, bank, and even socialize 'on-line', potentially resulting in less interaction with people and organisations in the locality (Nie 2001).[87] Does this undermine the fabric of local communities, as neighbourhoods become populated by strangers who no longer know one another and help each other? The perceived demise of community has been a concern for decades, long before the advent of the Internet and home banking (Wellman 1988), and the threatened demise of local communities may reflect industrial and post-industrial economic change, rather than the digital revolution (Putnam 2000).

A community is usually understood to be a group of people who share a common sense of 'belonging' (although belonging to what, and in what sense, is the complex issue). Individuals have multi-faceted interactions with others (Barnes 1969; Frankenberg 1969; Gluckman 1971), and their lives are embedded in a web of relations and commitments. Community is somehow an amalgam of the interactions, common experience, and collective commitment among individuals who have long-term relations. Often, these relations are involuntary, as much as voluntary, forcing people to

interact with people they do not necessarily like. Living in a community involves public interactions, and often leading to unintentional and unexpected interactions with strangers and acquaintances.

These days, however, many proximate neighbours are no longer embedded in crosscutting networks of obligation and mutual assistance. For such people, there is no extended family in close proximity, and interactions with neighbours are fewer in number and more superficial in nature. This means fewer people who provide reciprocity, assistance, or reaffirmation. If you are a woman with a first time pregnancy, from whom do you get advice, if there is a problem? There may be no neighbours whom one feels able to consult, and relations, from whom one would feel the right to claim assistance, may be geographically distant. In addition, people work in locations from removed from where they live, and shopping, socializing, and recreation may also place in different areas yet again. The advent of on-line access to services has accelerated this isolation from the locality, as people shop, bank, work, and even view movies without leaving their home or having to interact with anyone else in their locality.

For some, the demise of local communities, and the personal isolation and alienation linked with that demise, has been solved by creating virtual communities. People use new technologies to find others with whom to share common experiences and concerns and, in so doing, create a complex web of interactions and experiences amongst themselves. These groups are composed of people who know each other, and help each other out, with reciprocal exchange. There is give and take or a barter system, there are rules about how one behaves, what one should do for friends and neighbours. The overriding notion is solidarity and that people put the interests of others and the interests of the group above self-interest, to create ‘community’, in this case, a ‘virtual community’.

There are arguments challenging the validity of the term ‘virtual community’. Traditionally, communities implied geographical contiguity, and face-to-face interactions, leading to overlapping, multiplex relations. People knew lots of different things about other people, rather than simply one facet of them. Participation in such communities was often involuntary: one lived in a locality and had little choice about who to interact with when out in public, nor could one be anonymously observing others without being seen. There were serendipitous meetings and unexpected events, there were public forums and private meetings. These characteristics contrast dramatically with electronic communities, where people only known one facet of others, participation is by choice, and people can sometimes ‘lurk’ without being observed. There is often no mechanism to verify that the person is actually who they claim to be and fake identities are easier to maintain in an electronic environment than a face-to-face environment. Critics argue that electronic communities lack the crucial elements of ‘community’ and are only ‘ersatz’ communities.

While virtual communities and proximate communities are different in many ways, this does not necessarily invalidate the existence of such communities. As with ‘virtual reality’, the descriptor ‘virtual’ in front of community does not mean that a virtual community must be a replica of a traditional community, but only that a virtual community encompasses the crucial elements of a traditional community. What are these elements? For some, face-to-face interactions over a long period of time are crucial, and these are, almost by definition, impossible in a virtual community. Despite improvements in technology, electronic communication does not mimic the rich, multi-modal communication of face-to-face communication. But is face-to-face

communication a necessary or sufficient criterion of community? Everyday, face-to-face interactions are often superficial and narrow, and most people spend an increasing amount of time interacting with virtual strangers. Thirty second interactions with the bus driver or the newspaper seller do not constitute interactions of social significance or meaning that create community, after all. Some of the other characteristics of traditional communities are long-term membership, multi-faceted interaction, mutual assistance, involuntary and unpredictable interactions, and a common set of practices or procedures that helps distinguish between members and non-members. Can any of these attributes be replicated in the electronic world, and, if so, would that replication constitute a community?

In times past, the proximate community was a source of information and assistance. Such information and assistance can now be obtained via computer-mediated communication, and these interchanges can create a sense of common identity. If a child suffers from leukaemia and the parents do not know anyone in the area who is knowledgeable, or if they do not want to keep asking their local doctor (whose knowledge of the specialized subject may be superficial, in any event), they can search for information using the internet. Often, the information may be available but difficult to evaluate or interpret. The most effective solution is to join a discussion list of other parents in a similar situation: they will have learned the specialised knowledge and will 'repackage' it in a way that the novice parent can understand. Out of this will often develop a community of people, who share knowledge and advice about this special topic. There is an support that comes from sharing experiences with others in the same situation, as well as the pragmatic benefit, of sharing solutions to common problems with others in the same situation.

Discussion lists develop to share information on a variety of topics. These discussions groups are communities of interest. Members share a common interest, either in terms of leisure activities (such as football), work activities (such as a particular computer programming language), or personal circumstances (pregnancy, illness, handicap), and they use new technologies to share information and even organise collective activities. Are such groups communities? They may have long term memberships, an internal social structure, and rules about how people communicate with each other. Most importantly, there is often a sense of common membership and identity that develops over time. People, through the course of interaction and communication, develop shared understandings that constitute a 'community of practice' (Wenger 1998): "an aggregate of people who come together around mutual engagement in an endeavor .[and].. practices emerge in the course of this mutual endeavor" (Eckert and McConnell-Ginet 1992:89-99). Out of these practices comes a subjective experience of the boundaries between members' community and other communities, and a sense of common identity. Some diagnostic characteristics of such 'communities' are:

- rapid flow of information and propagation of innovation
- absence of introductory preambles and very quick setup of a problem to be discussed
- substantial overlap in participants' descriptions of who belong and mutually defined identities
- specific tools, representations and other artefacts, shared stories, and inside jokes
- jargon and shortcuts to communication

- a shared discourse that reflects a certain perspective on the world. (Wenger 1998:125-6)

Such communities of interest may have fluctuating memberships, and fluid boundaries, but members share a sense of common membership and share a cognitive system focused on practices and rules. The members create the shared social system that is one possible criterion of 'community'.

It is sometimes argued that, since electronic communication isn't 'real' communication, 'real' communities can not develop out of electronic communication. After all, electronic communication is a limited mode of communication, which excludes the communication channels (e.g., non-verbal) that are necessary for 'real' communication. Studies of computer-mediated communication from as early as 1984 (Kiesler, Siegel et al. 1984), and continuing since, often focus on the lack of cues and social context, and the diminished 'social presence' afforded by technologically mediated communication (for recent research, see Watt, Lea et al. 2002). The limits of computer-mediated communication are presumed to constrain electronic social relationships, and, since it is impossible for 'real' bonds of friendship and sharing to develop, it is also impossible for communities to develop. Ethnographic evidence shows this is not correct. Members of electronic groups can develop strong emotional links with one another, and this commitment can include emotional support and mutual assistance, or may be defined in terms of common commitment to a collective ideal. Indeed, the bonds amongst members can become strong enough to mimic the moral obligations associated with family and kinship. Case study evidence, based on numerous ethnographic and biographical accounts, provides clear evidence of such collective commitment in a virtual environment (e.g., Rheingold 1994; Baym 1995), even amongst individuals who have no prior, or parallel, face-to-face communication. In the early days of many electronic networks (such as Usenet, Bitnet, World Wide Web), individuals co-operated voluntarily for the achievement of common goals. Individuals expended long hours for very little personal return, sharing a commitment to common goals and ideology (Hafner and Lyon 1996). The same can also be said of many community electronic networks and bulletin boards. Such groups are similar to voluntary groups that exist within industrial societies: sports clubs, religious associations, and neighbourhood assistance schemes (see Kollock 1999 for an example involving large-scale co-operation). There are also support groups for a variety of illnesses and disabilities, and individuals frequently report their experiences of solidarity and mutual support with electronic groups (see Rheingold 1994; Rheingold 1993 for such accounts; as well as Nettleton, Pleace et al. 2002). There are also public interest groups whose members communicate electronically (such as environmental groups), and may share a strong collective loyalty to each other. All of these demonstrate a strong emotional commitment amongst people whose sole, or primary, mode of interaction is electronic.

Large-scale surveys of Internet use in the United States suggest that virtual communities are becoming an integral part of social life. A recent survey (PEW Internet and American Life Project 2001b) reported that 84 percent of all Internet users had contacted an online group at one time or another, and 79 percent of those identify a particular group with which they remain in contact. About one-quarter of this group exchanged email with other members of the same 'community' several times a week, and half of them reported the main reason for contact was to "create or maintain personal relationships with members". Many of the reasons offered for participation in these communities are similar to the reasons that might be offered for participation in

face-to-face groups: discussing issues with others and creating and maintaining personal relationships with other group members, to discuss issues affecting the group, build relationships with others in the group. Some of these findings are open to question. For instance, it is not clear how strongly committed such people actually are to these virtual groups. One year earlier, the same research group reported that only 5 percent of those with online access participated in a chat room or in an online discussion on a average day, although 28 percent reported occasionally participating in a chat room or in an online discussion (PEW Internet and American Life Project 2000). Nonetheless, the trend, at least in the United States, is towards the emergence of collective, community-like, relations amongst people who communicate electronically.

This is not to say that people who communicate electronically always develop such strong loyalties, nor that communities of interest develop into groups dominated by reciprocity and collective commitment, but it is clear that such loyalties are a possible outcome of such electronic communications. After all, groups whose members communicate via face to face communication do not necessarily develop a strong sense of mutual loyalty; traditional face to face communities are often dominated by division and conflict, held together only by the necessity of co-residence. Whether one looks at groups whose members communicate face to face, electronically, or both, one must not confuse content of communication with mode of communication. It is clear that a wide spectrum of social relations can develop amongst members of a group, regardless of the mode of communication. Individuals who reside on the same locality and communicate face-to-face may have little in common with other (other than common residence), or they may share ties of reciprocity, mutual assistance, and loyalty. Equally, the same variation can exist amongst groups whose members communicate electronically. Virtual communities may consist of people who interact to share information, or people who are devoted to some collective purpose, or people who provide mutual support and assistance. Such varieties of virtual community are becoming increasingly important as another means by which individuals create bonds with others.

10.4. Community Networks

If industrial development over the past century has undermined the viability of local communities, the Information Revolution seems to have hastened the demise of such communities. Much of the social life of local communities depended on individuals leaving their home to carry out such economic activities as shopping, going to post office, The consequences of such activities were unintentional (sometimes) and often unavoidable interactions with friends and strangers. Going to the shop, one saw a neighbour and exchanged news. After going to the shop, one might have arranged to meet a friend for tea. Such activities helped create the sense of common knowledge, experience, and commitment that sustained a sense of community. If economic, and even social, activities can be carried out from the home, then where does the basis for collective experience and identification come from? Will the interactions and shared experiences that we think of as ‘community’ shrink to the point where local communities cease to be anything more than physical aggregations of isolated individuals? While new technologies seem to undermine local communities at the expense of virtual communities, can these technologies also enhance local communities? Does community life necessarily atrophy when people use new communication technologies and, if this is an undesirable thing, can the process be either arrested or altered?

It is certainly possible to use new technologies to supplement, complement, and, if necessary, replace traditional relationships and communications patterns in localities. If the information functions previously carried out via town meetings, bulletin boards in shops, church attendance, or other traditional patterns of information dissemination are no longer effective, new technologies can provide the same benefits in the local community. New technologies can provide a infrastructural resource for the provision of information that individuals need, encouraging the circulation of information and enhancing communication. Thus, if the disappearance of the local shop also meant the disappearance of the local notice board, which had helped to organise baby-sitting, the selling of second hand furniture, and so on, then an electronic notice board can act as a replacement. If the local shop has not closed, but people do not have time to visit it, then an electronic notice board can supplement the physical notice board. If discussion of local issues has decreased because people do not have time to meet together, then an electronic discussion list, which people can access and contribute to when it suits them, can complement any face-to-face discussions.

There are some intriguing examples of networks of neighbourly trust, and evidence of residents' desire to recreate such networks. For instance, a woman named Angie Hicks set up Angie's list in 1995 in Columbus Ohio. She got together a group of friends and family and started a list of good and bad service companies. It has now spread to thirteen different markets, including areas in Ohio, Minnesota, Florida, Wisconsin, North Carolina, Massachusetts, and Illinois. It attracts homeowners who can rate companies in 250 categories. For a 35 US dollars annual subscription fee, they can sign up to the list, and either provide ratings for services or check ratings that others have provided. The list has ratings on more than 10,000 service companies, and has 50,000 members. Members can view companies online or they can call 'neighbourhood specialists' who work in call centres (Power 2001). A similar, but perhaps less 'trustworthy', service is offered by epinions.com, which allows consumers to recommend products, and also offers them the chance to shop online. It has about one million reviews and comments. These are both examples of new technologies solving a problem that has always existed in communities (e.g., where can you find a good plumber or electrician), which can not now be solved by people who are isolated from their neighbours.

The effectiveness of new technologies in sustaining local communities is difficult to evaluate because relatively few localities have sufficient density of computer users and information providers for the development of community networks. In so far as such community networks have developed, they have often been introduced to increase political participation and activism (see Chapter 7), with a presumption that strong civic participation will also strengthen internal community structures. The Freenet movement in the 1980s was the highest profile of these experiments, first starting in Cleveland, Ohio in the United States and spreading throughout the United States and Canada, with some similar projects in Europe (Graham and Marvin 1996). Other experiments have had a commercial focus, as organisations tried to see if the public would be willing to use, and perhaps even pay for, various information or entertainment services (Dutton, Blumler et al. 1987). In the last ten years, there has been a substantial growth in the number of towns and cities providing information about services and local activities, often linked with government support for such programs. Governments often support community networks in order to encourage community development, sometimes as part of a wider program for rural development or social inclusion (Haase and Pratschke 2003; McCaffrey, C. 2003; O'Donnell,

McQuillan et al. 2003; Loader 1998). While the FreeNet project has been central to community networking the United States, in other countries, governments have provided more direct support. In Canada, there has been a "Connecting Communities" to provide community access (http://www.connect.gc.ca/ Birdsall 2000) , while New Zealand announced a similarly named program in 2002 (http://www.dol.govt.nz/cegccstrategy.asp, but see also Crump and McIlroy 2003). Similar projects have been undertaken in the United Kingdom as well (see, for example, Communities Online, http://www.communities.org.uk/). Some examples include Grimethorpe Electronic Village Hall (www.barnsley.org.uk) to help unemployed miners after the closure of the local colliery in 1995 as well as the Warwickshire Rural Enterprise Network (www.nrec.org.uk/wren) to help deal with rural isolation. Similar projects have taken place in urban areas as well, such as the Asian Community Centre, Chorlton Workshop and Woman's Electronic Village Hall, all in Manchester (Agar, Green et al. 2002; Carter 1997).

Even though governments often support community networks in order to encourage community development, there is not yet clear proof that electronic networks improve local community life. The evidence regarding the impact of technology on local community life is ambiguous, with some evidence suggesting that new technology supplements local communities and face-to-face social life while other evidence suggests that it undermines both (see Kavanaugh and Patterson 2002 for a review of issues; as well as Haythornthwaite and Wellman 2001; PEW Internet and American Life Project 2001b). Not only do different studies show different results, but the same data has been open to conflicting interpretations (Nie 2001). The Pew Internet and American Life Project (2002), while positive about the use of the internet for 'virtual communities', is less positive about its benefit for local communities. The greatest use of the internet, in terms of local communities, is local information: four out of ten Internet users report that they "often" or "sometimes" go online to look for information about local stores or merchants and about one out of three Internet users look for news about their local community or information about community events. These are community 'replacement' benefits from internet use, but the report finds little evidence for greater participation in local policy issues.

Local community networks require local information providers as well as consumers. This requires significant motivation from a large number of participants to provide relevant information, as well as a strong local interest in accessing such information. For the moment, most community networks are single sites, on which various local services are flagged and local events announced; these sites depend on specialist workers or volunteers. In some cases, service providers (plumbers, sports clubs) may also have their own sites, linked to the main site, but the majority of residents are not involved. This differs from the communication pattern of face-to-face local communities, and so the development of such local community networks has been slow. It remains unclear whether, if barriers were absent and density of usage was sufficient, the social, economic and political transformations discussed would actually take place. That is, if people were able to choose an electronic, wired life, would they? If they did chose such a life, how would that alter their everyday face-to-face life? Would one develop, to the cost of the other, would the two worlds exist side by side, or would the two world intermingle?

One detailed study of the impact of technology on community social life has been carried out in a Toronto suburb where, from 1997 to 1999, a newly built estate of about 120 homes was provided with high speed internet access, and the relevant

computer technology with which to access information and entertainment, and to communicate with others. This was done by a consortium of companies who wished to examine commercial potentials of such 'wired communities' (Hampton and Wellman 2000). About one-third of the residents either did not, or could not, participate in these high-speed trials, so it was possible to compare 'wired' residents with unwired residents. Based on surveys and examinations of data traffic, wired residents "recognize almost three times as many neighbors, talk with nearly twice as many, and have been invited, and have invited, one and half times as many neighbors into their homes in comparison with their non-wired counterparts" (p. 205). Similar results were also found in a study of the Blacksburg Electronic Village in Blacksburg, Virginia in the United States (Kavanaugh and Patterson 2002). The study found evidence of community involvement linked with new technology, but was unable to determine whether it was people already involved in the community who were now were using the new technology or whether the new technology fostered more community involvement. The Blacksburg project heavily supported by a local university, and the impact of that university may have distorted the relationship between technology and community development. However, evidence suggests that if community involvement is already strong, new technologies can maintain that involvement.

A notable example of community-based Internet and computer use has been in Ireland. However, in 1996, Telecom Eireann (the Irish Telephone company) held a competition for an "Information Age Town". The company would 'wire' a community, providing inexpensive computers and telecommunications access, communications infrastructure, as well as training for both private individuals and commercial organisations. Towns with a population between five thousand and thirty thousand inhabitants were invited to submit development proposals, detailing how they would use the fifteen million pound investment for the benefit of the town. From the company's perspective, the investment was intended to answer a number of questions:

1. What happens when every home has a telephone - not just an ordinary telephone, but one with sophisticated voice-mail, caller-line identification and other advanced services?
2. What happens when every business, large and small, has access to an ISDN connection and high-speed access to the Internet?
3. What happens when every student in the education system, from the age of five, has regular, intensive access to a computer with learning, knowledge-gathering and communications tools?
4. What happens when public services - from libraries to healthcare - are fully equipped to exploit the potential of the Information Age?
5. What happens when the majority of households have a personal computer linked to the Internet? (McQuillan 2000)

The underlying motivation was to use develop a test bed for the provision of various electronic commerce services, as well as other telecommunications intensive services, to see what the commercial future of a telecommunications provider might look like.[88] Unlike the Blacksburg project, there was no direct involvement by a university, and technology intervention from external agencies provided only training and support in the initial phase.

The winner of the competition was Ennis, a town in the West of Ireland with a population of about 16,000. The investment involved the provision of subsidized computers for home use for those who qualified. Subsidized PCs were offered to 5,600 residents. Residents were required to contribute about fifteen percent towards the

multimedia computer plus software package, and a free PC familiarization plus one year's free Internet connection was offered. Eighty percent of the residents qualified for the subsidy, and eight-five percent of those who qualified, then took advantage of this offer. As a result, in the first survey (McQuillan 2000), the results showed that Ennis had the highest household rate of computer ownership in Europe:

- 83% of households own Internet enabled, multimedia computers
- 91% of these households activated an Internet account
- 45% of Ennis households have at least one active Internet user

By the second survey, in June 2001, levels of PC and Internet access were more than twice the national Irish average (household penetration of PC's of about 80%, whereas the national average was 32%). Interestingly, of those Ennis residents who had a computer, 76% had an Internet connection; while 63% of those with a computer nationally had an Internet connection. which was about the same as national average. Since the major difference between Ennis and the rest of Ireland was rate of computer ownership, but had a similar proportion of computer owners with Internet access, the first lesson from Ennis would seem to be that if provided with cheap computers and training, a significant number of people will use them to access the Internet.

As with studies from the United States, the largest volume of Internet usage has been to maintain contact with friends and relatives, with seventy-eight percent of Internet users maintaining contacts, on an average of eight times per week. Email did not replace other modes of communication; while email was used to maintain social contacts by most Internet users in Ennis, the Internet accounted for only seventeen percent of actual contacts in this area. The balance of social contacts was by such traditional means as phone, fax or letter. This may suggest the emergence of a wired community, but not everyone uses the wires. Amongst houses with computers, almost all used their PCs, and accessed the Internet, at least occasionally, but only one in four used the PC/Internet on a daily basis. In the first survey in 2000, over fifty-five percent of households had no Internet user in the house, despite inexpensive access to training, technology and telecommunications. A substantial number of people did not find the Internet useful in their daily lives, at least in the initial phase of the project. One year later, while the reported daily usage was about one in four, over one-third of individuals used the Internet once a month or less.[89]

The impact of wiring this community on local organisations seems to have been mixed. There are some examples of community organisations which use new technologies to at least maintain, and perhaps improve, local participation. However, on the Ennis web site, while there are thirty-three organisations, only some organisations host their own web sites with information on current activities. The evidence is still slight, but it appears that, as with the Blacksburg project, new technologies enable existing community activities in Ennis to flourish but it is not clear that new community activities follow from the introduction of new technologies. More evidence from long-term and in-depth community studies throughout the world are essential, but early data suggests that new technologies are a useful resource for communities and they can facilitate those who are committed to maintaining community involvement. However, there seems little evidence that the introduction of such technologies, of themselves, ensure the continuation of community life in rural or urban areas. It appears that a revival of community life and increased 'social capital', depends on more than an injection of information and communications technologies (Putnam 2000; see also Wellman, Quan-Haase et al. 2003; Prell 2003; Gurstein 2003).

One of the themes that often underpins discussions of community networks is that benefits for communities and individuals of such networks are so great that, if people are not using community networks, it must just be a matter of demonstrating these benefits to people or reducing the barriers and adoption will follow. One findings from the Ennis project was that even when there were no barriers to use (the computers were available cheaply and easily, training was free, and telecommunications charges were subsidized), a sizable percentage of people still have no interest in using the Internet to access local information or to "surf to web". This conclusion is not unique to the Irish experience, as demonstrated by an increasing number of other studies (Wyatt, Thomas et al. 2002; Ward 2000; Lenhart, Horrigan et al. 2003). A significant number of people have no desire to access the Internet or participate in community networking. This is not due to fear, ignorance, high costs, or economic disadvantage, they simply do not see it as relevant. However, 'opting out' in this way may not be viable in the long run. As technology becomes more intrusive and pervasive, people may have no choice but adopt the technology. For instance, when the bank reduces staff costs by closing the local branch office and national governments do the same for the local post office, access to cash may become possible only via a automated teller machine and banking transactions may require Internet access. In which case, people would have little choice but to use banks cards and the Internet. It is an increasingly common complaint that people are being forced to use technology because they can no longer avoid it. This is not inevitable. In the case of the local bank branch and post office, governments could subsidize a service which may be uneconomic but which citizens prefer? Should individuals have to adopt technologies that primarily suit the needs of governments or corporations, or should the technologies be designed to also provide perceived benefits to individuals? There is scope for policy intervention by governments on such issues, and such interventions may be the prime determinant of the future of community networks.

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[i] See Webster (2002) for discussion of these opposing views.

[ii] There are many such texts, some of them comprehensive and articulate (for instance, Castells 1998; 1997; 1996; Robins and Webster 1999; Webster 2002; May 2002; Stehr 1994; Beniger 1986; Dutton 1996; 1999; Roszak 1994 are all interesting and sometimes contradictory expositions). For a collection of central readings, see Webster, Blom et al. (2003).

[3] This view was first popularized by Daniel Bell (1973).

[4] Quoted in Navasky (1996:216).

[5] Debate about VHS vesus BetaMax has been going on for years and it is now one of many 'urban legends' (see http://www.urbanlegends.com/products/beta_vs_vhs.html). Liebowitz (2002) was

the first academic to argue that VHS was not worse technically than BetaMax; the victory of VHS was largely due to marketing and user consumption issues.

[6] See Corcoran (1993) for a study of Irish illegals in the United States.

[7] This is clear from any texts on human evolution, see Young (1971), or any standard texts on physical anthropolgy and human evolution.

[8] Written text is also interpreted by reader, and the last decade has seen broad acceptance that written texts are also social constructions. Despite this, written text is still less subject to alteration than oral speech.

[9] See Bernstein (1964) on restricted versus elaborated codes, as well as Douglas (1973) on cultural aspects of this distinction.

[10] Not all writing suffers from such constraints; for instance, letters between friends are written in an informal style. The reader is already known to the writer and the two share a context by which ambiguous phrases can be deciphered. Equally, it is possible to write texts using a specialised vocabulary such that only other members of the same group could understand the written text. Such exclusionary practices are a way of recreating, in written form, the special relationship between speaker and audience of oral speech. Most written text, however, is intended for a wider, public audience.

[11] The relation between science, analysis, and written text is a complex one. Having stated that science is only possible once facts are extracted from their social context, social studies of science and technology have, over the past few decades, demonstrated that such a detachment is more of an ideal than a reality. The claim that scientific 'facts' exist outside of society is just that -- a claim. 'Facts' exist within a social context and the process of detaching 'fact' from 'person' only disguises this dependence on context.

[12] Oral language can also be used in this way, in which restricted knowledge or vocabulary being used to create secret societies or clubs that exclude others from powerful knowledge. However, with written language and differential levels of literacy, such distinctions become much easier to institutionalize, including a larger social group.

[13] It also helped painting by enabling the mass reproduction of original arts works, again see Benjamin (1973).

[14] This applies, of course, only to industrial societies where a telephone infrastructure is in place, as opposed to industrializing societies in which access to a telephone remains a preserve of the elite.

[15] The only partial exception are the pirate or illegal radio stations that can sometimes flourish if there is sufficient demand, but these depend on low power transmission to a restricted audience. It such cases, it was affordable to simply set up more low power broadcast equipment, if equipment was confiscated or, alternatively, set up high power transmitters outside the jurisdiction. In both cases, it was virtually impossible to regulate content.

[16] The only exception to this was the telegraph, which was rapid but also recorded. However, the amount of information was severely restricted, and the storage of information was temporary.

[17] Although it is only a matter of time before the both production and consumption of visual and auditory signals for television and radio is also digital. Digital televisions are already becoming more common.

[18] For further readings on the history of information processing technologies, see Winston (1998), Marvin (1988), Beniger (1986).

[19] This is a transformation from base ten notation, in which each column increases by ten (one, ten, hundred, thousand, and so on), to base two notation, in which each column increases by two (one, two, four, eight, sixteen, and so on). The actual amount or number is the same, although the representation looks different. Thus, twenty one is represented, in base ten notation, by two in the 'ten' column which is added to a one in the 'one' column ("21"). The same amount is presented in base two by one in the 'sixteen' column, added to one in the 'four' column, and one in the 'one' column ("10101"). For more on this encoding issue, see Lynch, (1974).

[20] As late as the early 1980s, some universities in the United States refused to install word processing programs on mainframe computers; word processing was seen as an expensive luxury for an an expensive computer.

[21] This is precisely the solution in some countries, where wireless computing enables countries to avoid the cost of installing telephone lines. This has enabled a mobile phone market to develop in Pakistan (Malik 2003), as well as Internet access in Afghanistan (Hammersley 2003). Users still have to be able to afford mobile phones or computers, as well as the cost of accessing the network, but at least the network costs are minimized by use of the new technology.

[22] It is debatable whether the microcomputer revolution actually achieved this. Individuals now have access to significant computing power, and have access to information via the internet, but organisations can still afford larger and faster computers, better software, and so on. The information that is available to anyone tends to be out of date and unreliable, as compared with the information that organisations can afford to pay for. Further, often, information does not necessarily convey power, sometimes it only reveals how powerless a person might be.

[23] There has been considerable research showing that the economic consequence of new information and communication technologies are far more complex than can be elaborated here (see, for example, Stehr 1994; Dutton 1996; Castells 1996; Preston 2001).

[24] For a discussion of changing wage levels in the United States, especially since the introduction of new technologies, see Moseley (1999).

[25] See chapter seven in Preston (2001) for a discussion of the impact of economic transformation on individual workers.

[26] New technology can also be used to improve amount of profit that such workers make, by enabling them to bypass middlemen and sell directly to consumers in more developed countries (see United Nations Conference on Trade and Development 2002).

[27] In this example, calculating 'similar value' must take into a number of factors. These factors include whether the seller provides continual support, whether it requires new in-house expertise to use, whether it can be easily integrated with previously purchased software products, whether it is compatible with the products that other organisations use, and so on.

[28] http://www.sims.berkeley.edu/research/projects/how-much-info-2003/

[29] This, needless to say, applies only to societies where the content of mass media is not subject to state control. In countries where the state determines information content, consumers learn very quickly to be dubious about the authenticity and accuracy of public information. Even the significance of the information can be in doubt, since there is likely to be a disparity between what the state and the public considers to be significant. There may even develop a 'black market' in alternative information.

[30] There is a long established literature looking at the sociology of mass media and news reporting (e.g., Curran, Gurevitch et al. 1977; Pool 1983; Curran and Seaton 1991).

[31] For further discussion of social studies of science and the sociology of information, see Merton (1973), Latour (1987), Yearley (1988), Webster (1991), and Gibbons, Limoges et al. (1994).

[32] For discussion on the link between technology and the growth of the state, see Ellul (1964), Beniger (1986), Mumford (1934; 1962), Dandeker (1990), and Giddens (1985) to name a few.

[33] With the exception of sacred knowledge which was restricted.

[34] See Pye (1992) regarding the history of technology investment in Irish government departments.

[35] In practice, since deciphering messages using public key encryption is computer-intensive and time-consuming, this system is usually used only to create and share a symmetric key which will be valid only for that session. Since the symmetric key is shared using a secure system and will only be used for a limited period of time, it is effectively private. In the case of World Wide Web browsers, for instance, the software uses public key encryption to create a symmetric key that is valid only for the duration of the secure web connection.

[36] In fact, while there is evidence of the use of public and anonymous email services for coordinating illegal activities, the content of these email communications is not encrypted (Campbell 2001). Instead, the emails depend on messages that would be ambiguous to anyone that did not have a shared knowledge of the backgrounds of the individuals -- a time honoured and effective way of talking in 'public' so that only one's own friends understand the vague references and descriptions. In any event, since the use of encrypted communication is so rare, such use is more likely to reveal identities of such individuals, as such communications are more easily identified through electronic surveillance than unencrypted but unclear communications.

[37]Current laws and proposals in various jurisdictions are tracked by the Electronic Privacy Information Centre (http://www.epic.org).

[38] This issue arose in the earlier discussion of court cases involved Microsoft and other software companies.

[39] This is a constantly changing area, and the best source for current debates is the Electronic Frontier Foundation (http://www.eff.org) and Electronic Privacy Information Center (http://www.epic.org).

[40] There were, of course, exceptions. Many consumers in Ireland could receive BBC and ITV without need for relay stations, if they lived close enough to line of sight broadcasters and had directional aerials.

[41] For a general discussion of these issues, see (European Commission Legal Advisory Board 1996) as well as the EU Green Paper on "The Protection of Minors and Human Dignity in Audiovisual and Information Services" (http://europa.eu.int/ISPO/infosoc/legreg/docs/protect.html).

[42] As reported by BBC, http://news.bbc.co.uk/hi/english/world/europe/newsid_524000/524951.stm

[43] Such countries are less likely to have high speed international connections, which reduces access to the public, and they may also have poor quality software and hardware support services.

[44] For instance, the user can jump to a different site outside France and then access the site from that remote location; the user can phone an ISP outside France; find a mirror of the site outside the United States, or a host of other strategies to short circuit such a ban.

[45] The Republic of China, for instance (as of 2001), controls ISPs and this enables the government to block access to sites if they so desire. Sites blocked often include the BBC site, perhaps because there are links from that site to both text and audio versions of its Chinese-language service (Gittings 2001).

[46] In the wake of September 11th, new laws in the United States require librarians to keep track of which books are borrowed, using the same logic. Civil liberties groups, as well as librarians, are opposed to what is perceived to be an infringement of personal freedom (see http://www.ala.org for the American Library Association's response to the Patriot Act). The same monitoring is proposed for access to electronic information.

[47] Although the Group also warned that "the increase in the flow of information does not necessarily engender an amelioration of the democratic system. It could just as easily lead to a distancing of citizens with regard to real democratic stakes".

[48] Everyone, that is, that had a political voice. In many non-state societies, this excluded women and children and might exclude individuals without kinship links.

[49] This process may also invole consulting ethnic or religious groups as well.

[50] Howard Dean has raised enough money to enable him to withdraw from the public campaign finance system, in which candidates can receive financial assitance from the government but which imposed rigid controls on spending. By opting out, he is able to decide his own spending strategy (Colgan 2003).

[51] This was written in November 2003

[52] This excludes amorphous protests or movements which are not linked to formal, even if dispersed, organisations. These movements are increasingly significant, but will be discussed in a later section.

[53] For a discussion on the use of websites for such social movements, see Tsaliki (2003).

[54] The latter being an even more high profile benefit after the controversies in Florida state regarding the recounts in the Bush-Gore Presidential election of 2000.

[55] The participants may be unrepresentative due to self-selection and are still only be a small percentage of the total population of over three and a half million people, but a sample size of ten thousand is still likely to have predictive value. For instance, in April 2002, 72 per cent of the 8,430 participants were dissatisfied with the bishops' statement on clerical child sex abuse (Iish Times, April 10, 2002). In October 2003, three out of four of 16,000 particpants agreed that residents should pay to have rubbish collected, which was during a high visibility protest over such charges (Sunday Independent, October 19, 2003).

[56] It should be noted that difficult does not mean impossible. The recent conflict in Iraq demonstrated that many repressive regimes are still to both control internal information and prevent the dissemination of external information.

[57] For an example of this, see Komito (1998b).

[58] With new technologies, individuals can respond rapidly and organisation collective action. These are often adhoc groups which disappear as soon as they appear, but such mobilisation in the face of a local issue is effective and their eventual disbandment does not diminish their short term effectiveness.

[59] http://news.bbc.co.uk/1/hi/technology/3222664.stm

[60] As reported by news releases from the Revenue Commissioners (Keena 2003)

[61] Examples would include http://www.oasis.gov.ie/, http://www.gov.uk, http://www.firstgov.gov/, and so on.

[62] As recently as January 2004, Phillips announced the move of its accountacy services from Ireland to Poland, citing reduced labour charges in Poland (Irish Times, 15 January, 2004). This assumes that other factors (such as technology infrastructure and labour expertise) are either equal in Poland or at least close enough to make the reduced labour overheads cost-effective.

[63] Shared information system, electronic documents, electronic mail, video conferencing and other such technologies make decentralised administration and decision making possible, as has been demonstrated in multinational corporations. But evidence from multinational corporations also suggests limits in terms of decision-making and sharing tacit knowledge; sometimes the result of decentralised administration is the centralisation of crucial decision-making to locations where face-to-face communication is still possible.

[64] This definition is taken from Council of Europe Resolution 94/C48/01, but would be a commonly accepted definition.

[65] This is of increasing concern in places like Dublin, where rising housing costs are driving house purchasers further and further outside of Dublin. As two hour commutes each way to work become commonplace, the prospect of avoiding such time consuming journeys by teleworking (even if only one or two days a week) becomes more attractive.

[66] This trend towards linking pay for output is not restricted to telework. Monitoring output is now also possible with new ICTs in the workplace -- that is, how many phone calls are made, how many customers are served, as so on (Smyth 2004 provides a example for Dublin City Council staff). In the workplace, monitoring of output is also cost effective, with new technology, and is being used, in addition to physical presence, as a monitoring mechanism. This makes possible a move from a regime of the same pay scales for all people in the same job description, to determining individual pay by individual output, usually in the name of productivity.

[67] In a study by TUC in the United Kingdom, forty-four percent were part-time and female (http://www.tuc.org.uk/work_life/tuc-35040f0.cfm).

[68] Evidence suggests that recent knowledge is not enough - software engineers fresh out of University are not actually of much benefit, until they acquire about two years of experience. But, after that two to five years, they are highly employable. (see also Wickham 1998a)

[69] In addition, as jobs are automated or altered through technology, there is need for training conversion from old skills to new skills.

[70] In some cases, the motivation for such a change can come from the purchasing company. In a recent example, an Indian soybean company has sponsored the introduction of internet access to villages so that they can obtain the product directly. This reduces the cost and improves the efficiency of their operation. It also benefits the villages, which not only get a better price for their soybeans, but can also access information (such as proper fertilizers and future weather conditions) that improves their own productivity (Waldman 2004).

[71] This issue will be explored in greater detail in Chapter Ten.

[72] Of course the inconveniently long queue may result from job reductions imposed by the bank, and the switch to automatic teller machines and home banking may be precisely the result which banks hoped would result from longer queues.

[73] In some parts of London, it was so difficult to find a parking place near home that it was easier to get shopping delivered than to try to find parking after shopping, which meant ordering the shopping online.

[74] or shopping centre, or café, depending on the cultural mileau.

[75] It also means that when an individual is composing an email or text message or placing a phone call, they can no longer know where the recipient actually is. The person answering the phone call or email message can be in Dublin or Dubai. By the same token, when reading an email or answering a phone call, the recipient can not know whether the sender is in Delhi or Dallas. Some people find it disconcerting to talk to someone without knowing where the person actually is but this is becoming the common experience of communication.

[76] For instance, there has been a move from rigid contact lenses to soft lenses that can be worn longer and now a move to laser surgery that alters eyesight permanently.

[77] Statistics from Commission for Communications Regulation: Irish Communications Market, Quarterly Market Updates, (http://www.comreg.ie).

[78] Evidence already shows that the gender imbalance previously associated with computers and the Internet has disappeared. Class barriers remain significant but are slowly shrinking (National Telecommunications and Information Administration 2002; Central Statistics Office 2003a; Haase and Pratschke 2003).

[79] Much has been written on the decreasing public trust of science and the increasing public perception that they are surrounded by risk and danger (often caused by science). The central works on 'risk' have been Beck (1992) and Giddens (1991) but see also Loon, Joost and Beck (2000), Tourmey (1996), Downey (1986), Winner (1977), and Hess (1995).

[80] There are many possible definitions of community, and this topic will be further discussed later in the chapter. For the moment, it is useful to focus on community as people sharing a similar set of beliefs and understandings. Needless to say, the same logic can apply to culture as well, the crucial issue is the common understandings the develop out of interaction and there tends to be greater overlap of individual understandings at local rather than national level (Mead 1934; Archer 1988).

[81] See also Colley (1992) for additional descriptions of French history.

[82] The issues of national identity, nationalism, and culture are far too complex and highly debated to be discussed here other than in a very superficial manner. It is enough to suggest that mass media is commonly accepted as being an important element in national identity (see Anderson 1991 for a historical perspective).

[83] For a West African example of controlling mass media as well as controlling the circulation of other commodities, see Ugboajah (1985).

[84] However, as the next section will explore, access to foreign media products in the United States is increasing, as ethnic groups in the United States and elsewhere use new technologies to access foreign media products that are relevant to their cultural heritage.

[85] Part of the industrial development strategy of the Irish government has been to develop multimedia products that enable Irish content to be marketed abroad.

[86] Although some would say it has Irish derivations originally, as Irish music traditions were exported to the United States during the waves of emigration.

[87] There is ongoing debate whether electronic communication is replacing face-to-face communication, or whether both are increasing, at the expense of other activities. See Wellman and Haythornthwaite (2002)for the most recent debates on this issue.

[88] Most of the statistical information about the Ennis Information Age Town comes from reports commissioned by the project group and are available at http://www.ennis.ie (e.g., McQuillan 2000).

[89] The drop in Internet usage has also been documented by UK studies (Wyatt, Thomas et al. 2002).

[90] According to a spokesperson for Irish Internet shopping company Buy4Now, in the run up to Christmas online shopping in 2003, 52 percent of Irish registered Buy4Now users weree women (interview on Morning Ireland, Radio Telefis Eireann, 22 December 2003).

[91] As already noted, there has been a long discussion within the context of 'social studies of science and technology' about causal relations between technology, society, and individuals. In the context of the Information Society debate, it is worth focusing particularly on Castells (2000; 1996), Kling (1994; 1980), and Webster (2002; 1999; 1994), as well as Duff (2000).

[92] This "international breakfast" is usually a buffet, from which guests can choose fruit, orange juice, yogurts, boiled eggs, cold meat and cheese, pickled fish, croissant, bread or dry cereal. There is something for virtually every culinary tradition, but little sense of an integrated aesthetic experience!

[93] For instance, the lights on houses that were previously associated with Christmas in the United States are becoming a more common feature of Christmas in Ireland.