Shaping the space of flows: Local economies and information and communication technologies

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for those who cry for Justice ...
the 96, their families and survivors of the Hillsborough Disaster

Abstract

Technological and economic development have long since been associated. From the archaeological discoveries of urban living to the cities of the future; from Babylon to places such as Singapore, technology and life are entwined. Much pre-occupation today is with information and communications technologies (ICTs) and misguided notions of 'cyberspace' and 'information superhighways' and of course, life in the informational age. The hype that goes with this often conjures up images of endless potential for marginalised groups, or in turn, reinforces the powers of dominant groups during a most challenging period for capitalism. Yet there is a need for research into the way technology, and in particular ICTs, interacts with the social, political, cultural and economic complexity that forms the basis of place. This thesis attempts to address that need by focusing on the role of ICTs in local economies.

Based on an extensive overview of the North East, and followed by an intensive approach of investigation into a small number of case studies, this work looks at the political processes that go hand-in-hand with technology and place. Specifically, the thesis pays attention to locally based partnerships that have taken form to build up the ICTs potential of local economies, and it seeks to understand the reasons why these have occurred at this particular moment in time. The research has identified a number of points in the local economy that appear to be emerging as areas for ICTs application. In effect, these are the key points from which the local economy is connected to the global economy. It is argued that local economies are falling in line behind a more global shift towards what Manuel Castells refers to as the informational mode of development. The role of local ICTs partnerships is crucial in enabling such development and the mechanics behind this are investigated. Again, by drawing on the work of Castells, it is contended that these groups are trying to condition the dynamics of the informational age and the logics of that age. That is, local ICTs partnerships, at the level of place, are attempting to shape the space of flows.

Four cases are considered in detail. There is the work of the Sunderland Telematics Working Group who have developed a strategic path for the application of ICTs in the city. There is the work of the Wansbeck Initiative, focused on an emerging set of methods to deal with local economic decline and peripheralisation. There is the work of the County Durham Informatics Partnership, led by the county-wide Training and Enterprise Council and supported by the local University, the County Council and a number of local district authorities. And then there is Teesside, a place that has had a number of false starts in commencing on the road to informationalism, due in part to a lack of cohesion in the partnership building process. There is also the work of Northern Informatics who act as part of the bigger regional picture, perhaps suggesting that as these groups take form there may be an ICTs 'turf-war' to consider.

This work shows that there is indeed some level of contestation as local ICTs partnerships are formed. Fundamentally, we are at the beginning of something new here, and there can be no predetermined outcome of how local groups attempt to shape the space of flows.

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Copyright declaration

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CDIP	County Durham Informatics Partnership
CDOL	County Durham On-Line
CIRA	Community Informatics Research and Applications Unit
DoE	Department on the Environment
DoETR	Department of the Environment, Transport and the Regions
FICT	Framework for Innovation, Technology and Communications
ICTs	Information and communication technologies
ISDN	Integrated Services Digital Network
NDC	Northern Development Company
Ni	Northern Informatics
ONE	One North East
RDA	Regional Development Agency
SCFS Ltd.	Sunderland Community Furniture Services Ltd.
SRB	Single Regeneration Budget
SME	Small and medium size enterprise
SOCITM	Society of Information Technology Managers
STWG	Sunderland Telematics Working Group
TEC	Training and Enterprise Council
TI	Teesside Informatics
TVJSU	Tees Valley Joint Strategy Unit
WI	Wansbeck Initiative

Acknowledgements

I began this work in 1993. In truth, it was probably before this formal registration date that I first thought about the effects of technology on place as my previous studies had focused on urban policy and computer science. Even before this I had done some academic study on the formation of Skelmersdale New Town and was intrigued by the effects of technology on things such as system built housing, the architecture of where I lived and the political processes that surrounded this. Ideas about post-Fordism, post-modernity and informationalism were far removed from the day to day experiences of many people including myself. So what? well, this thesis has been a long time coming.

It was when I arrived in Durham that I was forced to think in a focused manner about what it was I wished to do as a PhD subject. This is when the influence of Joe Painter first started to shape the way I was thinking. I owe a debt to Joe because it was he who invited me to Durham to work on a project on local governance and the transition from Fordism. While I worked at the Geography Department with Joe, then with David Sadler and Ray Hudson on the Cleveland steel industry, I saw at first hand the standards which are required for sound and rigorous academic research. I have used those standards in all the research work I have done since then and I hope I will continue to do so.

Joe has been very patient with me during the six years I have worked on this thesis. He has made some telling contributions to the ideas I have put forward. So too has Alan Townsend, who has carefully noted the errors in my work and made me aware of different perspectives from which this research might be reviewed. Both Joe and Alan have read each chapter on more than one occasion, and as I navigated my course through the research process, I continually relied on their faith in what I was doing, as well as their advice.

Of course there is also my family. This is where the biggest debt lies. My Mum and Dad have always helped me, but for Barbara, Rebecca, Sam and Billy they have all paid, in some way, for the time, money and effort I have put into this piece and it was extremely selfish of me to think that they should. Perhaps Sam more than anyone has paid the price of disruption and few words can make amends.

Finally, thanks to those in DUBS who have helped and to the ESRC who have funded part of this work. I acknowledge their support.

Anyway, there you go. If I have forgotten anyone, apologies. Any errors in this work are the responsibility of myself (and to a lesser extent Leonard Cohen) and I am happy to talk to anyone about it whenever.

Alan Southern.

Chapter 1

Local economies and information and communication technologies

1.1 Introduction

Over the past two decades there have been many profound statements on the current change experienced in the 'advanced' capitalist countries. Often associated with these has been a series of explicit references to new technologies, and in particular, to information and communication technologies (ICTs).[1] This debate has raised specific concern for many geographers who have looked at technology, the dynamics of change and the way these are wound up in the conceptualisation of place (Castells, 1996; 1998a; Harvey, 1989a). Nevertheless, by the end of this thesis the reader should be in no doubt about how 'impacts' of technology on place should not be considered without due respect to the social, cultural, economic and political processes that make up the world we live in (see MacKenzie and Wajcman, 1999). The thrust of this work does not separate investigations of technology from such processes and principally here, the term 'shaping the space of flows' is about the political processes that act as a conduit for ICTs to be applied in local economies.

In recent years, the work of Manuel Castells has provided the most challenging theoretical framework from which to understand local economies and ICTs. Castells (1989; 1996) sets out two important theoretical concepts that act as a starting point for this, which he refers to as the informational mode of development and the space of flows. His work provides a complementary annex to recent ideas on globalisation and how macro-structures relate to the meaning of place. Castells' combines ideas on informationalism with the dialectic of local places becoming ever integrated into a global economy, and how local economies becoming increasingly vulnerable to decisions taken from afar by powerful global capital (Giddens, 1990). This dialectic is one reason why ICTs are appearing in many local based initiatives, yet much of the focus by academics to date has been quite specific, and has concentrated on places of some repute.

In her analysis of the 'global city' Saskia Sassen provides one example of this, showing the way academics have begun to draw together ICTs and place. She argues how the more globalised the economy is, the more global capital relies on the

command cities of the world. She continues this line of reasoning by suggesting how, as the 21st Century approaches, the capitalist economy is increasingly dependent on the financial systems enabled in places like London, New York and Tokyo and the electronic connections that link them. Sassen elaborates this point by proposing that

> "[t]he widely accepted notion that density and agglomeration will become obsolete because global telecommunications advances allow for maximum population and resource dispersal is poorly conceived. It is, I argue, precisely because of the territorial dispersal facilitated by telecommunication that agglomeration of certain centralizing activities has sharply increased. This is not a mere continuation of old patterns of agglomeration; there is a new logic for concentration."
> (Sassen, 1991 in Fainstein and Campbell, 1996, p 63).

Yet this does little to explain the roles of those places who cannot call on the resources, or the centralised activities, of the global command centres. Sassen's work shows the changing role for the world's major cities in a dynamic morphology of global capitalism. But what of the old industrial centre's of yesterday, and particularly in the UK, those northern cities including the likes of Sheffield, Liverpool, and Newcastle? Moreover, while Graham and Marvin (1996) place this debate within the context of an urban phenomenon, what of the vast areas with a semi-urban or rural identity. How are ICTs affecting their role in the global capitalist economy?

These questions are more than a rhetorical starting point for this thesis. While the focus of the work here is confined to the North East of England, the study is about the role of ICTs in local economies, and the examination has drawn on a current set of events involving groups whose day to day activities are central to this debate. They include those such as Northern Informatics (Ni) who operate across the region, and those who have a more local focus like the Sunderland Telematics Working Group (STWG), the County Durham Informatics Partnership (CDIP), the Wansbeck Initiative (WI) and in Teesside, the work of the Tees Valley Joint Strategy Unit (TVJSU) and Teesside Informatics (TI). These groups provide the foundation for local ICTs partnerships. They prepare the strategies, plans and visions of the future for a new age, and they work to show how their locality is equipped not only with the

right physical infrastructure, but with the spirit of informationalism (Castells, 1996) required in the global economy that Sassen (1991) refers to.

Castells' work gives an indication why, and in what areas, local ICTs partnerships will seek to connect to a global informational mode of development. Perhaps of more relevance though, is how he provides a conceptual framework to consider exactly what such partnerships are attempting to do in terms of the way they resist, or at least seek to shape, the space of flows. This chapter maps out the most significant features of the thesis and carefully explains the relevance, to local economies, of shaping the space of flows. In so doing, attention is rightly paid to some practical issues involved in the research process. Finally, in this chapter, there is a brief outline of the work that follows, particularly those sections of the thesis that capture much of the empirical evidence on local economies and ICTs.

1.2 Shaping the space of flows: the relevance of this work

When Castells (1996) refers to the informational mode of development he is talking about a new set of methods to create capitalist wealth. His argument is that the informational mode of development is displacing the industrial mode of development. Castells (1989; 1996) provides evidence of how this is taking place at a macro-level, or at least in the context of globalisation, and argues this process is converging with the restructuring of capitalism. When he talks of the space of flows, Castells (1996) is introducing an intriguing perspective on contemporary change. This, he suggests, is about the logic of the space of places – a logic that accompanied the industrial mode of development – being superseded by a new logic, that of the space of flows. The space of flows is not only throwing up many of the present day contradictions that threaten the physical well-being and purpose of many places, but is challenging the way we conceptualise the relationship between society and place. Local economies and ICTs are, one would assume, an integral component of this process and as we examine Castells' ideas it is clear that the combination of the two require a more thorough analysis in the context of the new dominant logic.

There are two particular aspects to this that have set the scope of investigation in this work. The first is to consider what evidence there is that ICTs are an important part

of local economic development, and by default, part of the process of capitalist restructuring. The question then arises that if ICTs are increasingly important at the level of place, how and why are they relevant? This, at least initially, is a mapping out exercise. We should expect to see clear points at which places try to connect to the informational mode of development that, in essence, reflect the way in which local economies seek to connect with the global economy. If evidence of such 'connection' is to be found, it raises other issues concerning the restructuring of capitalism at the level of place and how 'points of connection' are actually being prepared for by local actors and local agents of the state, if at all they are.

The second consideration is how poignant the logic of the space of flows is at the level of place. An examination of the space of flows at the level of place should get right to the very heart of the restructuring processes taking place at the locale. More importantly, such as investigation will open up a whole new sphere of research concerning those processes of local governance that seek to shape outcomes of the space of flows as restructuring takes place. This form of local politics will be evidence of the fact that there is something relevant about the space of flows, and that local actors have a certain anxiety about what will happen to their locality if the pervasive influence of informationalism sweeps the planet without some form of regulatory control. Not only is such an issue a vital part of this thesis, but it is the domain of local ICTs partnerships as they seek to govern the connection process, and in so doing, attempt to shape the space of flows.

As the following chapters show, there are specialist actors in many localities who have skills in the political process and who are able to negotiate finance for particular ICTs projects. These people often work closely with local players who have key technological expertise to associate ICTs with economic development, be it in small firms, in community projects or in education. Such individuals play a meaningful role in the make-up of local ICTs partnerships and they are important to the way the space of flows might be shaped at a local level. Yet this is a complex and dynamic phenomenon. We should not expect any predetermined way in which places will respond to the drive of the informational age, despite the urge of local planners to believe new technological initiatives will provide answers to well established problems.

However, before we get to the case studies that examine such issues, in chapter 2 a number of perspectives on technology, political process and place are introduced. The aim here is not so much to confuse the reader by suggesting that each of these is relevant – as indeed they are to some extent – but to show how as theoretical concepts they set a challenge for the social researcher. Quite simply, ICTs and local economies cannot be reduced to some conceptual metanarrative or mono-causal explanation, and we need to recognise how places require networks of face-to-face interaction. This is not likely to be displaced by technology because simultaneous presence is a vital social requirement of business activity, not only in a local economy, but as that locale becomes increasingly connected into a much more volatile global economy (Graham, 1998). The message from chapter 2 is that there needs to be much more theoretical development, grounded in empirical evidence, if a holistic concept of ICTs in local economies is to be achieved.

The adequacy of much of the present theorising about technology, political process and place is questioned by suggesting that technology is too often associated with an idealist type of economic development. The origins of this can be traced back to the way science, reason and progress were enshrined in a set of principles established by the Enlightenment thinkers. It is argued at this point that throughout the period of time referred to as 'modernity' technology became correlated with many different forms of progress. Plans for social engineering have continually sought to associate technology with social and economic progress, whether this be the utilitarian type of Jeremy Bentham, the idealism of Ebenezer Howard, or the revolutionary zest of the Bolshevik leadership. This is still evident today and can be seen in a recent wave of electronic utopianism. Of more relevance, however, is the way this form of idealism remains and is visible in the way local planners seek to shape the 'effects' of ICTs in the interests of their own locality. As we see later in this work, ICTs are regarded as the latest way of opening up new potential for addressing existing local difficulties, particularly those of economic restructuring.

Chapter 2 then shifts focus slightly, but maintains this notion of technology and progress by considering the value to this study of long wave and regional innovation theory. Kondratiev and Schumpeterian theory had something of a renaissance during

the 1980s, with the concept of economic change being linked to waves of technological innovation and the adoption and imitation of new technologies across firms. One of the key issues to emerge from this is how we explain the political adjustment which appear to correspond with new waves of innovation and technological change (Freeman, 1990). Those concerned with regional innovation, for example, often assume that the political processes are in place to allow this, and that the very presence of political structures in a given locality enables innovation to be dispersed within some predetermined geographic scope.

This is indeed a weakness in regional innovation theory. However, their main focus is the firm rather than the political processes that surround economic activity and at least they recognise the complexity involved in the transfer of technology and knowledge between firms within a region (Simmie, 1997). In addition, the work of Castells and Hall (1994) has shown how, very recently, planners have tried to engineer technologically innovative industrial related production in key locations designed as science, technology and business parks. The aim in this is to combine technological and economic development under the banner of a 'technopole'. The debate from long wave theorists, and from those concerned with regional innovation, has come full circle and now appears to return to an idealist stance that continually associates technologically and progress.

Having indicated how there is a weakness with much of the current literature on technology and place, chapter 2 then takes account of the local governance processes that surround ICTs in local economies. There has been little research into the political processes that go with developing ICTs as a strategic method for local economic development, although both Castells (1989) and Graham (1996; 1997) have noted that organisations such as local government have a key role to play here. In fact, the North East has witnessed a sudden appearance of policy and strategy to shape the application of ICTs in local economic development and an important part of this has been the formation of ICTs based partnerships or loosely based coalitions. This is, therefore, an under researched domain, either from the perspective of the local governance literature, or from the ICTs literature. The unique challenge for the researcher is how to bring together previous and current work on local partnerships

with that of ICTs. Or more pertinent, that of local governance with informationalism.

The evidence presented in this thesis would suggest ICTs partnerships have emerged in recent years to connect the local to the global economy, and to shape the space of flows. These partnerships set out clear points in the locale from which connection can take place, while at the same time they seek to restrict the dominant logic of the space of flows by creating new conditions to enable the technology to be utilised for the benefit of their own location. This sets up an enormous contradiction as the leading actors who determine the logics of the space of flows do not necessarily share the same allegiances as those from the local state, nor do they inevitably act in the interests of a singular place. Instead, they represent the global companies who are able to set the agenda for informationalism and who develop a technological and managerial elite to maintain such an agenda (Castells, 1996). In some respects this is not a new situation to face local governance agencies. As Harvey (1982, 1989b) indicated some years ago, the shift from urban managerialism to entrepreneurialism can be seen as a local response to the vagaries of a capitalist system that has dislocated many places from processes of wealth generation and removed support for social cohesion.

The research questions which are set out in chapter 2 draw on the literature of local governance and informationalism. It is the contention in this thesis that these local ICTs partnerships are part of a process of local governance aimed at creating new economic space, and by resisting the forces of the space of flows, they attempt to ensure places do not become redundant in the period of informationalism. They are the site of choice and selection currently being made by local actors who initiate new projects for economic development. ICTs projects, it is argued, that are bound up in an orthodox rationale associated with ideas of progress through technology. This work demonstrates how the political processes involved in local economies and ICTs not only govern the connection process, but try to shape the space of flows as an essential aspect of ensuring the social control of places over the functional logic of the space of flows. It reaffirms the view of Castells (1996) that the relationship between the space of places and space of flows is a dialectic, and is never a predetermined outcome.

1.3 A note on method: the validity of this work

At this point, it is also worth making a number of points explicit concerning the method in this work. This is aimed at addressing those important concerns of validity, reliability and, as will become clear later, representativeness, as the empirical evidence has been gathered. In chapter 3 some time is spent relating the method in this work to the way we understand the knowledge it has produced and this draws on Sayer's accessible ideas about critical realism (Sayer, 1992). Yet it is also essential that the actual techniques used to obtain and analyse the data were not only scientifically credible, but that they are explicit and that the research processes involved can stand up as politically and ethically sound. As the text is set out in the chapters that follow, it makes certain claims to authenticity and the reader should feel confident that these claims are justifiable.

The thesis rests mainly on a qualitative based approach to data collection and analysis. It therefore inevitably raises questions about how generalisable the results can be (Denscombe, 1998; Hammersley, 1993; Seale, 1998). However, the aim has been to ensure the evidence that has been gathered and presented is plausible, authentic and stands up to scrutiny. This has been tackled by careful consideration of three questions.

1. How can the research be designed to provide credible conclusions?
2. How does the data measure or characterise the claims which are made?
3. Can the evidence presented bear the interpretation which is put on it?

The reasons for setting out the questions in this manner is to make explicit the significance of the research design in this work, to show the importance attached to the way information has been gathered and to how interpretation is drawn from the evidence presented. Closely related to this has been a careful process of selection of actors to be interviewed and cases to be studied. In addition, negative and often sterile debates about this or that method being better than others have been carefully avoided and both qualitative and quantitative methods of research can be found in this work.

An extensive and intensive research design has been used in this work (see chapter 3, section 3.2.3). This design takes into account a number of important circumstances, not least of which has been the resources available to support the research process and the skills of the researcher involved. Mainly, the design is drawn from the work of Sayer (1992) and particularly his explicit argument that "the two types of design ask different sorts of question, use different techniques and methods and *define their objects and boundaries differently*" (ibid. p 242, emphasis added). The reason for this dual design has been to satisfy requirements that the data is characteristic of the claims made on it, and that the interpretation which is put on the evidence is authentic, and has a certain logic to it. Table 1.1 gives an indication of the difference between the extensive and intensive type of research process.

Table 1.1 Extensive and intensive research design

	Extensive	**Intensive**
Focus	Regularities, common patterns and attributes	Processes, change and behaviour
Type	Taxonomic	Causal
Account	Descriptive, representative and generalisation	Causal explanation
Technique	Standardised interviews and large scale surveys	Semi-structured interviews, ethnographic and qualitative analysis
Limits	Unlikely to be generalisable and subject to ecological fallacy	Unlikely to be representative but causal powers are likely to be generalisable
Verification	Replication	Corroboration

(adapted from Sayer, 1992, p 243).

1.3.1 The extensive research design

For the extensive work (seen in chapter 3) a number of face-to-face interviews were held with key informants from local government and from private businesses in the North East of England.[2] A standardised question format was used during the interview process, although it remained essentially semi-structured to allow the

interviewee to follow particular lines of reasoning (May, 1997). While a postal questionnaire was an option at this stage, it was felt essential that the respondent, or the interviewee, be allowed scope to deviate from the questionnaire because the subject under study – ICTs in local economies – was (and still is) an emergent phenomenon. This is in contrast to work taking place at the same time that adopted such a structured and more rigid approach (Tanner and Gibbs, 1997).

There was also work that indicated previous studies in the region had taken place (Goddard, 1992). However, it was notable that even to get to the stage of interview some form of negotiation was required between researcher and interviewee, something that is rarely acknowledged in the social research literature (Bowler, 1997). At this stage of the work this negotiated space involved a filtering process, whereby each organisation contacted directed me towards the most appropriate person to talk to, often in ambiguous terms with respect to ICTs and economic development. This reinforced a belief that face-to-face contact was essential at this stage, and that had a postal survey been used, the chances of the questionnaire finding its way to the right respondent could not be guaranteed. It also ensured that even at this early stage a full explanation of the area of investigation could be outlined, while at the same time a loose indication of the type of information that was required could be provided by the researcher. In turn, the organisation was able to determine who was the most suitable person to speak with. In addition, any issues of a sensitive nature could be catered for by providing a pledge of confidentiality.

For the extensive work, over a fifteen month period during 1994 and 1995, some 31 people were spoken to. When semi-structured interviews were not appropriate (in two cases) an unstructured dialogue took place in a meeting which elicited data consistent with the interview process. In some instances, more than one person was involved from the organisation. This did not necessarily provide a more thorough overview of ICTs development but certainly provided more than one perspective. These interviews usually lasted between 45 minutes and an hour, but if more than one person was involved they would last longer. On reflection, it was a weakness in the research process that these interviews were not consistently audio recorded, yet the aim at this stage was to provide an extensive description of patterns and attributes. Interview notes were written up within 24 hours and analysed through a

loose process of content analysis, categorising key aspects and relating these to the themes shown in chapter 2 (May, 1997).

It is naïve to presume a clear demarcation exists between the extensive and intensive periods. They clearly overlap, but roughly, by the end of the extensive work a descriptive mapping of ICTs in local economies was pieced together (see chapter 3). This provided a set of common patterns and characteristics which can, if need be, lend itself for replication in future studies. In some instances, processes of triangulation were taking shape as a picture of local responses to the informational age was building up. This helped to verify or dispute the broader regional view of what was happening. Yet in principle, the characteristics identified by this stage provide an ideal typology and in chapter 3 four types of locally based ICTs development are presented, consisting of computopian, multiplexing, narrowcast and off-line local economies. Each of these captures a different type of approach to the informational age. This extensive work has proved to be an essential part of the research process and has provided a solid foundation from which to investigate four cases in much more depth (Sayer, 1992).

1.3.2 The intensive research design

Similar qualitative techniques were used to investigate the four case studies as part of the intensive work. However, the subtle difference between the two rests with the way the intensive stage of the research was designed to identify key local actions, such as those political processes involved in ICTs partnerships, important changes to the local economy as economic restructuring takes place and the behaviour of key actors, such as the political and technological entrepreneurs to be found in the likes of Durham and Sunderland. What the intensive research design aimed to do at this point, was to unravel the complexity involved in the causal relations between ICTs, political process and place. It relied on loosely structured interviewing, document analysis and also some limited form of participant observation. Names of interviewees came from two directions. First, by obtaining a copy of the participant names involved in the respective ICTs partnership (if it existed). Secondly, by a process of co-nomination as the interviewing schedule unfolded.

In Sunderland (chapter 4) the work involved mainly semi-structured face-to-face interviews with 11 people from a wide variety of organisations.[3] In Wansbeck (chapter 5) 24 semi-structured interviews were held with people from 15 organisations. In Durham (chapter 6), 15 semi-structured interviews were held but in addition, during 1995 and 1996 access to the CDIP Communities and People Sub-Group was obtained, as they set out their strategy to inform the larger CDIP partnership. This role, of participant-observer, allows the researcher to play a part in the research activity itself (May, 1997; Walsh, 1998) and explicitly weaves together the research subject and object, with the researcher acting as an agent in the process of change (Sayer, 1992, p 22). At the very least in this instance, it meant that the decision-making process of a group involved in an ICTs partnership was clearly transparent to the researcher. Access to a small number of workshops and groups concerned with the development of small firms through the PAGE project was also negotiated.[4] In Teesside, 15 semi-structured interviews were carried out with representatives from 10 organisations. Access to another sub-group, the Framework for Innovation, Technology and Communications sub-group that acted under the auspices of the Middlesbrough Borough Council, was also provided, again as participant-observer.

The interviews in this part of the work were recorded on audio cassette and written out in long hand at a later date. In retrospect this was not as thorough as it might have been, but really, it was determined by inadequate access to sufficient resources, namely time. In some cases, the interviewee explicitly requested that the interview was not recorded and when this situation arose hand written notes were used and, whenever the opportunity afforded itself, verbatim expressions were captured. Participant-observation relied on hand written notes. Examination of this information was through a manual process of text analysis which in each case built up a picture of the mechanics taking shape in the research domain (Slater, 1998). An essential part of this analysis was to recognise the relationship between what Sayer (1992) refers to as contingent and necessary conditions of the research object, and the complexity between the discursive and non-discursive aspects of the social setting (Miller, 1997). This means that the research process has aimed to show the significance of context but to prevent a situation occurring that suggests structure determines the behaviour of local actors.

In both the extensive and intensive research face-to-face interviews helped to authenticate the relevance of particular information, particularly when actors were able to corroborate the evidence through a processes of triangulation. In instances were this was not possible the reader has been alerted to this in the text. The picture of ICTs development at a regional and local level that took shape was supplemented by a variety of documentation, some of which were internal to the partnership and actors involved, and which have been cited in the bibliography. Where appropriate, minutes of meetings have been reviewed, such as from CDIP and the TVJSU, and from local authorities in Sunderland and Wansbeck. Added to this is the use of some limited statistical evidence from the National On-Line Manpower Information System (Nomis) at the University of Durham, and from the Department of the Environment, Transport and the Regions (formerly DoE, now DoETR), which together supports the picture of how a local economy tries to restructure.

Overall, the research techniques are never far from the story about ICTs and economic development in the North East that unfolds in this thesis. The rigour associated with the application of the research process has been indicated here, and in addition, is referred to in chapter 3 and again in the appendices. The extensive programme of interviewing laid the basis for the picture of the region's ICTs initiatives that are outlined in chapter 3, especially the work of Ni and the ideal typology presented in section 3.4 and in Table 3.2. In a complementary manner, the intensive programme of interviewing provides a consistent and comparative examination of the local ICTs partnerships in Sunderland, Wansbeck, Durham and Teesside.

1.4 North East ICTs: the contest between the region and the locale

Also in chapter 3, it is suggested that a contest between different ICTs partnerships in the region has emerged, and particularly between the regional group Ni and some of the locally based partnerships. This might well be expected given the funding mechanisms and political processes involved in restructuring, and that have led to those such as Harvey (1989b) to suggest a competition between places. However, while the matter of resources is important for driving forward the local and regional

connection process, the issue of contest is most severely felt in the efforts partnerships make to be recognised as the main group who are responsible for governing the space of flows. This is about having the right to lobby on behalf of particular places and to be recognised by those outside the region as the legitimate ICTs partnership body.

As a consequence, Ni have had great difficulty in establishing their legitimacy across the region. Despite being in existence for nearly five years they have clearly struggled to act as representatives for all the region. Only two years ago Ni were forced to re-launch themselves, refining not only their brand (from the Northern Informatics Applications Agency to simply Northern Informatics) but also their aims and objectives. Out went grand schemes to build hard physical infrastructure and in came more specific objectives concerning awareness raising and lobbying of government. Yet to reinforce the point that this is far from a defined picture, chapter 3 shows there are still many possibilities for Ni, particularly as other regional initiatives, such as the Northern Colleges Network and the European Regional Information Society Initiative, carry a regional weight. In addition, the recent formation of the Regional Development Agency, known as One North East (ONE), could well provide the political backing and legitimacy that Ni need (see Department of Environment, Transport and the Regions, 1998).

Ni's attempts contrast sharply with those of Sunderland. The work of the Sunderland Telematics Working Group (STWG) provides a classic example of how local ICTs partnerships pull together existing activities under a strategic plan. They have then combined this with new efforts to raise funding for ICTs, and new marketing initiatives based on ICTs. This is because Sunderland has been forced to think in new entrepreneurial ways to support their efforts to restructure and the STWG has provided a new mechanism in which they can pursue computopian dreams. The local authority and the local University have been important players in the STWG and it has, until very recently, had the weight of the City Council Leader, Bryn Siddaway, behind it.[5]

There are two disparate examples illustrated in Sunderland of the legitimacy and selection processes that go hand in hand with ICTs. On the one hand there is an

attempt to resist the dynamics of the space of flows from community groups. On the other hand there is a clear attempt to establish a presence, in the Sunderland economy, of an information processing capacity situated on an Enterprise Zone at the Doxford International Business Park. Both of these have been brought under the banner of Sunderland Telematics but it is evident from the story told in chapter 4 that Doxford offers local economic planners with an important way forward for Sunderland. Recent entrants onto Doxford include Barclaycall, the telephone banking centre, and London Electric, both of whom operate call centre facilities from the site. Notably, those such as Siddaway have been keen to emphasise the quality of the jobs on offer at this site. In contrast, Sunderland Community Furniture Services Ltd. (SCFS Ltd.) offer a low cost computer recycling facility, one constantly in need of financial backing from a variety of charitable sources.

In chapter 5 the focus shifts away from an urban centre such as Sunderland to a semi-urban locality in South East Northumberland, that of Wansbeck. This location has suffered in recent years from the decline in deep coal mining and many local actors have become increasingly concerned with an image of Wansbeck that suggests the area is peripheral to major economic activity. Here the partnership in question is the Wansbeck Initiative, a body led by the local authority but supported by local businesses, large and small. Significantly, we see here a coalescence around ICTs from representatives of capital, labour and the state in a form of neo-corporatism rooted in the post-war period.

In Wansbeck key points of connection can be found in the newly built Wansbeck Business Park. That the Business Park was built on a former coal field site is symbolic, but the arrival of the first major inward investment into the locality for some 20 years was an important boost for the Partnership, who cited the presence of advanced telecommunications as an important reason why Simula, the company involved, decided to locate in Wansbeck. Thus, one of the key points to draw from this case is how the local political and business leaders see the development of a state of the art ICTs business site as providing the means to address previously cast images of decline and peripherality, that fell upon the locality in the fall out from the end of a state sponsored industrial era.

In suggesting that the space of flows is more than an urban phenomenon, chapter 6 looks at the work of County Durham Informatics Partnership (CDIP). Another key player in Durham is County Durham On-Line (CDOL), an executive group drawn from the bigger partnership who have premises located on the University of Durham Science Site. It is argued here that as the space of flows is increasingly interwoven with many features of economic development, then the convergence of technology and the rural is as likely a scenario as that of 'telecommunications and the city'. CDIP and CDOL are bodies that have been led by the local Training and Enterprise Council (TEC), and involve local authorities, the University, local further education institutions, and to a lesser extent representatives from local business.

Some of the key features of connection in County Durham include the efforts of one local district council who have managed to raise finance to install hard ICTs infrastructure. The Derwentside District Council have, through funding programmes such as the Single Regeneration Budget (SRB) and Rural Challenge, managed to initiate projects to install a local area network within the boundaries of a small community, the Stanley Infonet, and to run a physical cable infrastructure by involving a local cable company and the local authority, the Durham RuralNet. Another example of the connection process in Durham is the emphasis that CDOL have placed on initiating ICTs projects for small and medium enterprises (SMEs). One particular project involves a number of small firms, the University, and CDOL. The project, named the Programme for Accelerated Growth in Enterprises (PAGE), was an early forerunner of the work of CDIP and CDOL, drawing on European funding and providing the partners involved with a method to learn about the political and technological aspects involved in ICTs.

Chapter 7 provides a fourth case study focused on Teesside, a case that contrasts with the previous three. If there are claims of success (and such claims are value-laden and too simplistic) in each of Sunderland, Wansbeck and Durham, the confused make-up of the political processes in Teesside has acted to restrict the formation of a single partnership who can lead on ICTs for this sub-region. Key organisations involved in a number of Teesside initiatives include the Teesside TEC, the University of Teesside, the Tees Valley Joint Strategy Unit and Middlesbrough Borough Council. What we find in Teesside is a number of ICTs based initiatives

that support local points of connection, such as through the work of the Community Informatics Research and Applications unit (CIRA) who have initiated a number of local community projects. Yet overall, there has been dysfunctional set of political processes to correspond with ICTs initiatives and this has resulted in duplication of effort, despite work in this area since 1995.

To categorise any of these cases as a 'success' or 'failure' would be a highly simplistic analysis of what are extremely complicated processes. The dynamics of ICTs and local economies suggest much change, chaos and complexity. For this reason, in chapter 8, a critical comparison and evaluation of the four cases rejects such simplistic notions of good or bad ICTs projects. ICTs in local economies are a constantly evolving phenomenon that cannot be reduced to elementary technological notions, metanarratives and dreams of a new tomorrow. In the final chapter this is shown by arguing that what we are witnessing in the North East are efforts from locally based ICTs partnerships to shape the space of flows at the level of place. Neither can it be simply suggested that this is a counter-balance to the dominant logic of the space of flows, as there is complicity by ICTs partnerships to be found. Yet within each of the partnerships examined, there is at least some grounds for community based resistance, or what Castells (1998b) would refer to as a 'grassrooting' of the space of flows. In chapter 8 there are clear indications presented of common points of connection, as well as resistance within local ICTs partnerships and consent by ICTs partnerships to the space of flows.

The course of analysis in this thesis is thus set out. Chapter 2 introduces a number of theoretical inadequacies and indicates the value to this work of that previously outlined by Castells. Here the key research questions are set out in detail. Chapter 3 provides a first indication of ICTs in local economies from the research process, introducing a novel analysis of types of local economy grounded in empiricism but illustrated as technological metaphors. The idea of ICTs being a contested space fought over by different ICTs partnerships is also introduced at this point. Chapter 4, focused on Sunderland, chapter 5 on Wansbeck, chapter 6 on Durham and chapter 7 on Teesside, show the local responses to the shape of flows in more depth. Above all, this domain of ICTs and place is complex and does not lend itself to simple

analyses of cause and effect. Yet at the same time it provides for the social researcher a challenging and intriguing domain for study.

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[1] ICTs refers to the convergence of computers, computer networks, and electronic communications such as ISDN land lines and satellite communications. There is a whole language that has emerged over the past few years to deal with this subject, providing a complex web of terminology, such as telecommunications, 'informatics', 'telematics', the information superhighway, IT&C (information, technology and communications) and so on. The term ICTs is used here not for any conceptual preference but for simplicity.

[2] A full listing of the organisations visited for the extensive work is provided in the appendices.

[3] A full listing of the organisations visited for the intensive work is provided in the appendices.

[4] Slightly tangential but still relevant to this, in 1997 I was able to take a place on the County Durham Economic Development Strategy Business Working Group which, as explained later in chapter 6, now acts as part of the CDIP structure.

[5] Siddaway lost his seat in the 1999 Sunderland local council elections. It remains to be seen how this affects the Sunderland ICTs trajectory. Siddaway also played a key role in representing councillor interests with Ni.

Chapter 2

Technology, place and political process: the logics of connection and the space of flows

2.1 Introduction

In this chapter a number of concepts often used to study technology and place are introduced. This is indeed fraught with difficulty. Attempts to define 'technology' or to set boundaries around what constitutes a technological system has galvanised much debate.[1] In turn, defining what constitutes any particular place, or more specifically, a local economy, is equally frustrating. In some form or other local economies have existed since the beginning of trade. A number of authors have put forward a series of generic 'push' factors to explain the relationship between technology and place. For instance, there is an emerging debate on the move towards an informational society (Castells, 1996; Webster, 1995), there is the work on modernity, technology and progress (Harvey, 1989a), and then there is the idea of 'waves' of technological development relating time, space and technology (Hall and Preston, 1988). Others, such as Aglietta (1979), associate technology and place through an analysis of capitalist regulation and provide a more neo-Marxist view of production and consumption. Even this limited number of perspectives can lead to a confused starting point from which to investigate local economies and ICTs.

It is also essential to recognise the limitations some of these theories have as we begin this study. For instance, the political processes that accompany technology and place are often set to one side in studies of their development. This chapter seeks to guide the reader through a number of concepts, some of which are relevant but, it is argued, inadequate to think about the contemporary processes which bring together ICTs and local economies. One example of this is how the association of technology, progress and innovation has been a major driving force in the 20th Century. This, as will be shown later, is still an ideal which can be found in the beliefs of local planners as they implement ICTs strategies. At the same time, academics have sought to explain periods of innovation and technological implementation suggesting a logic that underpins economic development.[2] Often, this focus has set up a reductionist view, with outcomes determined by class or

technology, and in very few cases has there been any attempt to combine these studies with work on the political processes which shape the local economy.

From a different perspective, others have sought to investigate the institutional framework which supports local economic development through regulation theory (cf. Lauria, 1997; Peck and Tickell, 1994). This has been part of a broader consideration of the entrepreneurial shift in the nature of local governance (Harvey, 1989b) and ideas on innovation for economic purposes, which in some cases, might displace the locally-based focus on social objectives (Jessop, 1993; 1997). There is also the added element of business elites (Peck and Tickell, 1995; Logan and Molotch, 1987) and urban regimes (Stone, 1989). Very rarely, with the exception of Graham (1991; 1996), have these ideas been used to consider ICTs in local economies. What follows is a path through various concepts to help investigate the shifts taking place in the North East of England concerning ICTs and local economic development.

This involves an overview of progress and technology, of regional innovation and long wave theory. It also includes ideas on local governance entrepreneurialism. Ultimately, however, this study has been guided by the thinking of Manuel Castells and his views on the network society (Castells, 1989, 1996), particularly his argument that we are currently witnessing a major qualitative shift away from industrialism and towards informationalism.[3] The reason for this is to bring together ideas on local political process and informationalism, ideas that culminate in an explanation of how local economies are being connected to the global informational economy and how local ICTs partnerships are making attempts to shape the consequences of such connection. Respectively, these two are referred to as the logics of connection and the shaping the space of flows.

2.2 Technology and progress: idealist development

In this section it is argued that many of the current perspectives of ICTs are idealist and are wrapped up in notions of progress. For many of the people interviewed in this work, the idea that technology could be beneficial for themselves, for their organisation and for their locality was strong. Undoubtedly, this is rooted firmly in

the thinking of the post-war era, but even more strikingly, it is an ideal which has arisen from the rational thinking of the Enlightenment period and in the mechanisms of modernity which show 'progress' from science, technology and reason. Progress, it would seem from the views of the actors involved with ICTs in local economies, is still an important motivator and objective to reach out for.

Ideas of progress based on 'true' knowledge, objective science and technological development have recently been open to criticism. Post-modernists, such as Lyotard (1984), argue these principles are no more than a series of language games based on a set of rules which mistakenly set them up as superior in some way. At the same time, defenders of modernity, such as Habermas (1985), point to the deficiencies of universal truths and argue how there is a long tradition of these failings being exposed. There is no intention to raise this argument in great detail here, although there will indeed be some reference to this debate because of the way ICTs are often portrayed as important to contemporary change.[4] Mostly in this section attention is paid to different perspectives relevant to ICTs and local economies. The first part does indeed begin with the idea of progress, science and modernity, even to the extent of bringing in some of the idealism associated with technology that, it is argued, can currently be identified with ICTs. For some reason, technological development is associated with universal progress and this relation is explored here. However, it is also worth noting that there is a flip side to this, one that argues how a series of dystopian nightmares are to be experienced as technological development unfolds. This part of the chapter relates technology to modernity, and then tentatively suggests that some of the utopian principles espoused today concerning ICTs and progress have their roots in this period.

The chapter then takes another view of development and progress through ICTs. It looks at some of the perspectives provided by long wave theorists and those who have observed a rise in regional innovation systems. This is useful as it relates the idea of progress and technological development over time, and then introduces an area of some contemporary interest for geographers, economists and sociologists who are investigating technological development today within particular geographies. Long wave theorists take quite a technologically deterministic approach to economic development and it is questioned whether or not such a theory

is appropriate to this study. On the other hand, the literature on regional innovation systems, too often, implicitly assumes an institutional framework is in place to support technologically led economic development (Simmie, 1997). It is important to outline perspectives such as these in this section. This is not so much to over fill the area with complex theoretical discussion, but to help the reader realise how some of the ideas on technology and economic development provide only a limited understanding of local economies and ICTs.

2.2.1 Technology, science and progress

The association of science and technology with reason and progress was one of the fundamentals of the Enlightenment project. Many 19th and 20th Century social engineers and planners had strong ideals which tied the physical development of places to prevailing social conditions. The utilitarian ideas of those such as Bentham and Chadwick (as espoused in the *Report on the Sanitary Condition of the Labouring Population of Great Britain* in 1842), the cryptic darkside of 'progress' outlined by Engels in, among others, *The Condition of the Working Class in England in 1844* and more pertinently, the dreams of planners such as Ebenezer Howard, Georges Haussmann, Otto Wagner and Le Corbusier, were all in their own way attempts to manipulate space with respect to technical development (see Donald, 1992; Goodman and Chant, 1999 for an introduction to this). While these are initially western ways of viewing the world, the main theme is the notion of universal progress.

Furthermore, the Soviet Bolsheviks were also wedded to similar ideas. The Marxist principles of dialectical materialism has a cognate stance on the issues of man [sic] mastering matter together with space and time (Lenin, 1972). It meant that they too courted ideas of conquering technology in the name of the Revolution. Take the following text selected from a speech made by Trotsky in his inaugural address to the First All-Union Conference of the Society of Friends of Radio in 1926. Trotsky argued

> "I think in the centuries immediately ahead of us, scientific and technical thought, in the hands of socialistically-organized society, will advance without zig-zags, breaks or failures. It has matured to such an extent, it has become sufficiently independent and stands so firmly on

> its feet, that it will go forward in a planned and steady way, along with the growth of the productive forces with which it is linked in the closest degree ... This alone gives us the right to declare that scientific and technical thought is approaching a great turning-point, that the revolutionary epoch in the development of human society will be accompanied by a revolutionary epoch in the sphere of the cognition of matter and the mastering of it ... Unbounded technical possibilities will open out before liberated mankind ... [later adding] we are approaching the beginning of a still more frightful and bloody chapter. Technique and science have their own logic – the logic of the cognition of nature and the mastering of it in the interests of man. But technique and science develop not in a vacuum but in human society, which consists of classes. The ruling class, the possessing class, controls technique and through it controls nature. Technique in itself cannot be called either militaristic or pacifistic."
> (Trotsky, 1974, pp 6-12).

This position sees technological development as a class issue. Its trajectory will depend on the nature of the controlling system and the ruling class in that system; a view derived from Marx who pointed out how, as machinery takes an ever increasing role in the production process, labour would be transformed so that the "most developed machinery thus forces the worker to work longer than the savage does, or than he himself did with the simplest, crudest tools" (Marx, 1973, pp 708-709). In recent years, the idea of class determining technological development has been taken up by many, notably Braverman (1974), who related the development of technology in production to the adoption of Taylorist scientific management and the breakdown of work tasks. Braverman saw this area as a key site of contest between capital and labour (see also Castells, 1996, pp 240-251).

This idea, that society is an empty decanter to be filled with either positive or negative technological effects depending on its master, is at least different from technology associated only with progress. Both views see technology as an accompaniment to modern ways of living and thinking, and to modernity itself. In this way, reason, progress and visions of an ideal future have rested somewhat on the universal application of technology. Neither is it too difficult to find such an association enshrined in many ICTs initiatives of the present day. Toffler's (1981) image of the 'electronic cottage' associates the political and economic dynamics of the late 1970s with changes in the mode of production. This image was something of a parody with the ideas of Bell (1973) who suggested a move towards an impending

post-industrial shaping of the economy (see also Lyon, 1988). For Toffler (1981) this shift involves the home acting as the focus for increased levels of electronic consumption and production (ibid. p 204 – 217). Needless to say, during the same period the dystopian nightmares vividly displayed by Ridley Scott in the film *Blade Runner*, and by Gibson (1984) in his work *Neuromancer* (see Graham and Marvin, 1996) are derived from the ideas of Marx, Nitchze, Simmel and Freud each of whom, in some form or other, associated technological development with exploitation, nihilism, anonymity, and behavioural disorder: technological development as a dark side of modernity.

The rationale behind many of the ICTs projects to be described and examined in later chapters can be seen in the actions of political agents who pursue progress through the application of science and technology, just as envisioned by Enlightenment thinkers many centuries ago. It is important to consider the association between the principles of technology, science and progress, but the point the reader should note is that it is the relationships of a particular type of technological 'progress' which is being investigated here. With this in mind, it is worth echoing the words of Webster and Robins (1998) who suggest that the informational age needs to be analysed

> "not in terms of what the new info-culture is telling us about their future potential and possibilities, but, rather, in terms of what it represses and disavows about their historical reality. *We must take account of the blindness that seems to be constitutive of the progressivist vision.*"
> (Webster and Robins, 1998, p 26 emphasis added).

Whether in the name of ecological protection, in the domain of competitive advantage, or in the interests of democracy, there is often a justification provided for ICTs that implies from the code of the Enlightenment benefits for contemporary society. This is the 'blindness' referred to above.

ICTs have a tendency to draw out idealism of this kind in policy makers and planners who search for, and ultimately see, solutions to their problems. Academics too, are subject to this form of idealism; witness Mitchell (1995) who considers society to be increasingly disconnected from physical space and reconnected in cyberspace. This has led Robins to note how there is nothing new in such a line of reasoning, that it is

obsessive about technology and that it "merely continues and perpetuates, by other means, the project of urban modernism, which has involved the progressive rationalisation and ordering of city cultures" (Robins, 1997, p 41). If ICTs are seen only as the evolution of progress, then it is likely that the technology will be regarded as politically neutral, providing a new way of opening up fresh potential to address existing problems, such as those of social exclusion and economic restructuring. While Castells (1996) does see good in the informational age, he also recognises the irrelevance to some communities of technological advances, as ICTs simply pass them by. And while he was not specifically referring to idealism or utopianism, the point is that the day-to-day social and economic problems of many cannot wait in an idle state for some perfect technological response.

In the next part of this section technological and economic development is considered in more detail through the ideas provided by theorists of the long wave and of regional innovation. These two areas are not necessarily associated, particularly as one focuses on a more abstract explanation of technology, whereas the latter is concerned more with empirical evidence to suggest regional development of innovation and technological application. They are important to this work as again, they show there the limits to the way we understand 'efforts to harness technology' for economic development.

2.2.2 Long wave theory and regional innovation

Long wave theorists have as their main concern the relationship between technological and economic development. Long wave theory has a strong Marxist tradition and was initially developed through the work of Kondratiev, Trotsky, Schumpeter and Kuznets and later Mandel, van Duijn and Mensch. Recent attempts to draw on Kondratiev and Schumpeterian concepts has meant, for some, a revised focus on entrepreneurial, innovative and imitative behaviour. While for others, the increased role of the state in the running, or facilitating, of private industry in the post-war period, and in the role of military technological development under capitalism, has provided a core area of study (cf. Mandel, 1995; Marshall, 1987; Freeman, 1990). More recently, some geographers have attempted to provide a spatial framework for conceptualising the long wave (cf. Hall and Preston, 1988; Massey, 1988).

Among others, Mandel (1995), Marshall (1987) and Hall and Preston (1988) have shown the wide ranging debate that exists among long-wave theorists on the relations between economic boom, bust and technological innovation. Kondratiev's original analysis relied on the variation in the renewal of capital goods (such as automated machinery) related to private investment, from which he identified cycles of economic growth. This analysis is an attractive idea because it can suggest how types of endogenous activity, such as the replacement of certain basic capital goods and outlays of investment in infrastructure, might well sustain the evolution of capitalism (Marshall, 1987) – although this is not without dispute.[5] In contrast, Schumpeter focused on the bunching or swarming of innovations in a process of 'creative destruction' that resulted in fundamental change to the technological base of the economy (Elam, 1994). Roughly occurring every fifty years, the cycles of technologically led economic development have involved leading types of innovation and imitative behaviour. To an extent, this was an inversion of Kondratiev in that it suggested how, at certain periods during the economic cycle, innovation could be transformed into commercially marketable production which triggered off new cycles of investment. Finally, this would lead to a qualitative shift occurring in the nature of the mode of production (Hall and Preston, 1988).

Freeman (1990) has argued that Schumpeter failed to produce a robust theory of innovation and provided an inadequate explanation of the reasons why innovations occur. Rather, Freeman noted how Schumpeter believed innovation was at the root of all cyclical fluctuation, occurring after a long period of preparation or "gestation" as originally called (Schumpeter, 1939, p166). Innovation thus primes the appearance of clusters of firms, who adopt particular types of production methods, as a precursor to shifts in the business cycle. As Schumpeter himself explained

> "innovations do not remain isolated events, and are not evenly distributed in time, but that on the contrary they tend to cluster, to come about in bunches, simply because first some, and then most, firms follow in the wake of successful innovation; second, that innovations are not at any time distributed over the whole economic system at random, but tend to concentrate in certain sectors and their surroundings."
> (Schumpeter, 1939, p 100).

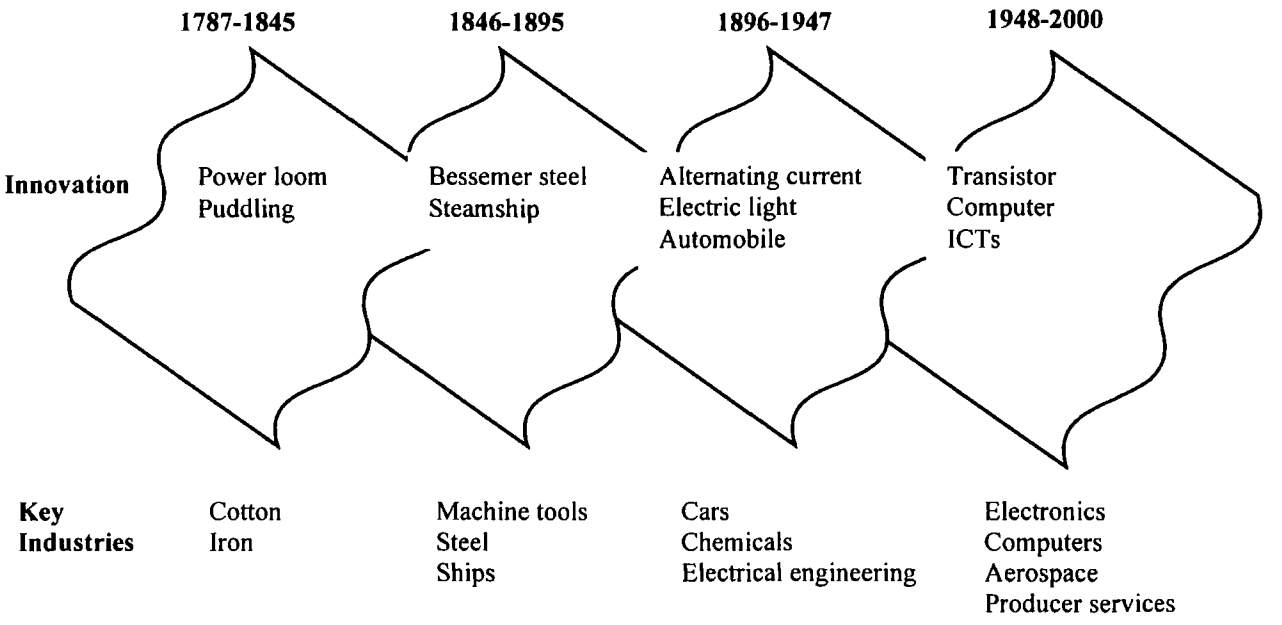
Schumpeter's view has not passed by without some recent criticism. Freeman (1990) for instance, has argued that there is a lack of reasoning in Schumpeterian theory as to why innovations are significant enough to induce qualitative changes to the economy. He also questions why innovation is often regarded to be incremental – something disputed by archaeologists (Chant and Goodman, 1999).

Both Schumpeterian and Kondratiev theory has had something of a renaissance recently. This may be due to the fierceness of recession which hit the advanced capitalist nations in the early 1980s, the emergence of new economic players (the 'tigers' of the Asian economy) and the idea of how structural change is wound up in a process of capitalism evolving through continuous innovation and, for Schumpeter, 'creative destruction' (Schumpeter, 1939). These theories have been linked to explanations of why firms apply technologies such as ICTs (Freeman, 1990; Freeman, Clark and Soete, 1982; see also Castells, 1996, pp 35-37). Long wave theory is also useful because it suggests a chronology of technological innovation associated with particular types of techno-economic paradigm. It means that a pattern can be traced over time, whereby technology and innovation is copied, and the transfer of knowledge about how and why to use specific technologies induces widespread acceptance and use in private industry. This is why, with the benefit of hindsight, academics have pointed out how, at any point in time, there is a prevailing techno-economic paradigm which is indeed hegemonic.

Such an argument is very persuasive. For example, technological development which enabled mass production has subsequently been related to patterns of mass consumption and notions of Fordism (Allen, 1992). Figure 2.1 illustrates four long waves each of which provides a particular dominant techno-economic paradigm (Hall and Preston, 1988). The first technological innovations were based on the power loom and puddling techniques. The commanding industries at this time being cotton and iron during the 1787 to 1845 period, drawing on laissez-faire entrepreneurialism and small scale production. The second wave of technological innovation rested with steel production and steamship transportation. This acted as a stimulus to the then dominant industries of iron and steel, the mechanical engineering industries, and to global trade during the years between 1846 to 1895. At this time,

main production sites included larger factories as capital became ever more concentrated in feeding the technological and economic relation. The third wave was based on technological innovation using alternating current, providing electricity that literally illuminated the world. Alongside these there was the birth of the automobile, which collectively stimulated the chemical, electrical and engineering industries. Large factories, built on the increased availability of finance capital, drew on the production principles of Taylor and Ford and were key to this period, between 1896 to 1947.

Figure 2.1 Four Kondratiev long waves



(Based on Hall and Preston, 1988, p 21).

According to this scheme, we are currently at the very end of the fourth long wave. At the hub of technological innovation now is micro-electronics; the transistor and the computer. This lies behind an increased dominance of industries such as the communications and aerospace sectors, but also a general growth in high knowledge intensive services (Castells and Aoyama, 1994). For Hall and Preston (1988), this is leading into the fifth wave, as innovations lasting from the preceding long wave converge with new digital communications, most recently seen through optical fibre and satellite transmission. The relevance of waves of technological innovation for

economic development is demonstrated by Castells and Hall (1994) who recently wrote

> "[s]ome in Japan, for instance in the National Land Agency, do believe that the next long wave will come around 2000 and will be based on electronics, biotechnology, new materials, and new energy. Naturally, their plan is to ensure that the start of this next cascading process will be in Japan."
> (Castells and Hall, 1994, p 236).

By over emphasising technology and innovation one of the underlying principles of long wave theory can often be lost. Technological innovation, argue some long wave proponents, is associated with a crisis of political and economic structural adjustment and ultimately involves deep social and institutional change (Freeman, 1990).

If we relate this principle to the processes of modernity, we can see how in each wave there are concurrent political, social and cultural shifts taking shape, such as the formation of the nation state, the changing nature of the family and the increasing trend towards globalisation (Hall, Held and McGrew, 1992). One of the important things to emerge from this line of reasoning is how political and economic restructuring converge with the emergence of a set of new technological and economic relations, yet as we have already observed, there is a danger here of seeing periods of hegemony, such as the political and economic stability of the post-war years, as technologically determined. The difficulty then, as Schumpeter and Kondratiev have been revised, is in placing technology at the centre of our understanding of social change almost to the exclusion of other processes. For this reason other concepts have to be considered when investigating technologically led economic development.

Closely related to long wave theory are some of the concepts which inform ideas on regional innovation. Clusters, firm inter-relations, entrepreneurial networks and technopole projects are all part of the emerging literature on regional innovation. This has some relevance here because of the institutional frameworks that are being established to build up a technological and innovative capability within regions. Regions are being encouraged to establish key parts of the technological infrastructure for private industry, with the intention of diffusing technological

know-how between firms. For instance, the support for regions to develop regional innovation strategies (RIS), and regional innovation, technology transfer strategies and infrastructures (RITTS) has been a feature of economic restructuring in EU member states.

Summarising on the work of various authors, Simmie (1997) has suggested that technological innovation and its diffusion in regions is a chaotic activity. Innovation is often inconsistent between places and there is a lack of evidence to indicate that systematic networking between firms, or high level linkages between key personnel, contribute to successful technologically innovative regions. He also notes that

> "building a network, a science park, or a better mousetrap, may be a necessary condition for local economic regeneration but it is not sufficient unless others can be convinced of its value and enrolled into its promotion and use."
> (Simmie, 1997, p 236)

As this quote indicates, the utility of regional innovation is open to question and one cannot assume that it will lead to economic growth (ibid. p 237). However, it is certainly the case that technology does have something of a discursive potential to be problematised by many disparate groups (Graham, 1996). In fact, the process of problematisation has become an important foundation for those local partnerships that have emerged in the North East who take a particular ICTs and economic development focus. This process involves, as Peck and Tickell (1995) indicate, the expression of entrepreneurialism to be found in the language of the partnership approach. When combined with the discourse of technology, this process enables key economic development initiatives to be accepted by different actors "by making it appear to address the problems they face ... [as the work becomes] taken for granted, accepted and no longer open to discussion or deconstruction" (Graham, 1996, p 64-65). The case studies in chapters 4, 5, 6 and 7 show how agencies and organisations, that have very different backgrounds, aims and objectives see, in ICTs, an answer to the wide ranging and diverse set of problems they face (see also Castells, 1996, pp 61-65).

The same phenomenon is widely reported by Castells and Hall (1994) who show an extensive range of regional planners attempting to operationalise the concept of a technopole region. Planners see the technopole as a strategic initiative based on a careful combination of technological and economic development. Some of the major characteristics that they seek to engineer include technologically innovative industrial related production, often to be situated on 'state-of-the-art' science, technology and business parks. As Massey, Quintas and Wield (1991) note, the pervasive nature of this idea is, in part, due to image making and technological ideology, but Castells and Hall (1994) contend that the strategic nature of capturing technology to serve localities and regions is also an issue of political and economic control. They have argued that, faced with the need to restructure, regional policy makers resist the belief that they must depend on old logics of the spatial division of labour and the traditional Fordist production methods this has produced. Technological and economic development rests on emerging milieux of innovation that "has now become a critical issue for economic development, and a matter of political and social prestige" (Castells and Hall, 1994, p 9). In other words, planners and policy makers make a conscious effort to shape their regional future, seeing in technology a way to realise their new and emergent visions.

There is a bias in the research which relates technology and progress to long wave theory and regional innovation. Too often it has focused on technologically led economic development which can, in some senses, be regarded as successful, either because of market demand, such as in Cambridge, or due to direct intervention, as in the case of Akademgorodok in Siberia, and in Sophia-Antipolis in France (Castells and Hall, 1994). Many other regions and local economies, where there have been attempts to stimulate economic activity through a technology focus, are marginalised or even missed altogether. As Simmie (1997) has indicated, not all regional and local economies can become technopoles, or can pursue technologically led economic development, even if they so desired. In his view there is simply not enough technological development around to inspire all regions to economic success (ibid.).

If there is any credibility in the association of progress and technology we should expect to see many localities following the principles of regional innovation or

applying ideas of technological imitation. We would expect to see places pursuing those ideas that are believed to lead to successful economic development as they 'learn' from each other (Morgan, 1997). That, in fact, many places are interested in the technopole idea, or in stimulating small firm clusters and industrial districts, does suggest that the combination of technological and economic development can provide something of a continuity for capitalism. At the same time, the pursuance of technologically led development provides little in the way of understanding the current preoccupation concerning informationalism. Of much more relevance is the way places are going through a period of economic restructuring exactly at the same time as the overarching idea of new technology, or more specifically, the 'information age' is reaching regions, their politicians and businesses.

This leads to a whole series of questions concerning the political processes that support such development. Both Graham (1996) in his study on ICTs in Manchester (centred on the Manchester Host) and Roubaix (focused on the Roubaix Teleport in France), and in a more broader context Castells and Hall (1994) in their work on technopoles, have demonstrated how there are important political components to establishing economic development which has a distinctive technological essence. The work by Graham (1996, see also Graham 1992; 1994; and 1995) is much more thorough, as it shows how ICTs are politically enabled through the concept of an urban regime (Stone, 1989). While it is both illuminating and refreshing to see ICTs and local political processes brought together in this way, the concern with regime theory has led Lauria (1997, p 5) to suggest it is a "volunteerist return to urban politics" that is "grounded in the methodology of rational choice theory" (Painter, 1997, p 133).

Indeed, the argument here stresses that it is necessary to take account of the endogenous political mechanisms, such as the current trend in the local partnership approach, as studies into ICTs and place develop. However, it is also a requisite that exogenous political and economic pressures are accounted for, because simultaneously the two shape the way local economies and ICTs interact. This brings together the two essential elements of firstly, the political processes of place – specifically the restructuring of the local economy and the local governance mechanisms involved in this – and secondly, the space of flows, which as we see

below, is more than a sophisticated perspective of ICTs. The remainder of this chapter begins the exercise of pulling these strands together.

2.3 Local governance, entrepreneurialism and ICTs

In his earlier work, Castells (1989, p 351-2) argued that elected local government has an important role to play in enabling ICTs for the benefit of place. More recently, Graham (1997) has noted how it is rare to find local policy aimed at shaping ICTs development, yet where planning does exist, it is equated with "dominant visible presence, a hard and physical infrastructure" (1997, p 118). Over the last few years, it is in the domain of local economic development were a rapid emergence of policy and strategy to shape the application of ICTs can be found. One important aspect of this which, as yet, has not been a focal point for researchers concerned with technology and place, is the growth in local ICTs based partnerships or loosely based coalitions. However, before we consider what exactly such groups face, let us take a step back and discuss just why the partnership approach is relevant to an investigation of informationalism and local governance.

The reason for taking this on board is simple – there is a deficiency in research into local policy issues raised by the diffusion of ICTs (Graham, 1997). In the UK, local partnerships are important because it is they who are charged with developing such policy, and strategy, on ICTs and place. There is, in fact, a substantial literature on local partnerships which includes contributions from regulation and regime theorists (Lauria, 1997), and also from perspectives which have a long pluralist tradition, for instance concerned with local elites (derived from Dahl, 1961). These are important, but so to are Harvey's (1989b) ideas on entrepreneurial governance, Peck and Tickell's (1995) observations on the role of business in local partnerships, and the neo-Gramscian approach to local governance generated by Jessop (1997).

2.3.1 Partnerships, business elites and regulation

Both Shaw (1993) and Boyle (1989) have noted how the partnership approach has a long tradition in economic development, in the North East and in Scotland respectively. Its recent history can be traced to the watershed Inner Urban Areas Act in 1978. This legislation created seven 'partnerships' located in Liverpool,

Birmingham, Lambeth, the London Docklands, Hackney and Islington, Manchester and Salford, and Newcastle and Gateshead (Atkinson and Moon, 1994).[6] This was a hierarchical approach to partnership consisting of three layers. At the top was the Partnership Committee who sought to coordinate actions. Involved at this level was a central government minister and leading representatives from central and local government, the health service and the police. At the second level was the Officer's Steering Group, which was chaired by the regional director of the Department of Environment, and charged with developing a programme of action. While the third tier, the Inner City Team, involved local authority representatives, local representatives from central government and some limited representation from local communities. This group carried out the day to day management of projects (ibid.; Lawless, 1986).

While the Act introduced into legislation a language of partnership, it was how the Conservative government encouraged local economic regeneration policy throughout the 1980s which laid the basis for its present day use. Urban policy initiatives such as Urban Development Corporations (UDCs), City Action Teams (CATs) and Housing Action Trusts (HATs) all had the emphasis on removing initiatives away from the control of the local authority (Stoker, 1989). At the same time there was an alignment of policy machinery with the emergence of an 'enterprise culture' consistently being espoused by government, practitioners and academics alike. The enterprise culture, went the argument, would lubricate the wheels of business and support economic growth in new and existing areas (Barberis and May, 1993; Deakin and Edwards, 1993).

Bailey (1995), in his review of partnership agencies in the UK suggests six distinct types of partnership. There are development partnerships or joint ventures. These form on the basis of a joint agreement that involves the local authority who can enable infrastructure provision, encouraging private finance and project management. Second, there are development trusts. Very much related to community enterprise, the trusts often involve a cross-subsidy between commercial and not-for-profit activities and are often constituted as companies limited by guarantee. There are locally initiated partnerships involving a range of stakeholders entering into joint agreements, coalitions and companies. Bailey (ibid.) cites City

Challenge agencies and coalitions started by local authorities in this category. Fourthly, are the promotional partnerships that have a strong local business interest and become involved in place marketing activities. Then there are agency partnerships constituted on a patronage basis by a sponsoring government department, such as UDCs and Training and Enterprise Councils (TECs). Finally, there are the strategic partnerships involving the local authority and businesses who look to promote the development of the area, for instance by attracting inward investment. Partnerships, according to Bailey (1995), support the tight control of resources by central government, while allowing the private sector a role in economic development.

More recent reviews of the partnership approach have shown not only its widespread acceptance in many socio-economic initiatives, but the way in which it is a problematic term of reference. A study on area-based responses to social exclusion in France, Denmark, the Netherlands and Ireland commented how "partnership is an explicit goal in all the countries but progress towards it varies" (Anon, 1998, p 2). In the context of the UK, Hall and Mawson (1999) suggest strategic partnerships for regeneration rely on the local authority playing a vital role of leadership, based on sound networking skills, and an analytic and strategic management capability. More critically, Carley (1998) argues

> "[t]op-down funding empowers institutional stakeholders represented in partnerships by paid professionals, skilled at meetings, who can forge ahead with regeneration strategy. More challenging is genuine partnership with the community, which implies enhancing the ability of communities to participate in strategy development and long-term community governance.
> (Carley, 1998, p 2).

Similar points are made by Stewart and Taylor (1995), on how (estate) partnerships are geared more towards the lead agencies than to local communities. In addition, Hastings and McArthur (1995) who, in their review of two Scottish initiatives, note how there are difficulties in researching partnerships, and in determining what the criteria for 'success' should be. Partnerships do not offer a panacea for the ills experienced by places, nor for the many groups who are cynically referred to today as 'socially excluded' (see MacGregor, 1999).

In their assessment of the partnership approach adopted in Manchester, Peck and Tickell (1995) have noted

> "local economic development agendas seem increasingly to be set through inter-organizational negotiations and horse-trading between local agencies, many of them ostensibly 'business-led'. New forms of local (post?) corporatist bargaining and policy formation have emerged between local agencies and business organizations, usually only one among which – the local authority – bears the weight of elected office"
> (Peck and Tickell, 1995, p 55).

The suggestion from Peck and Tickell (1995) is that local elected bodies have had to share out many of their strategic decision making responsibilities with other groups from the local community, principally businesses. This has resulted from a long drawn out process whereby the local well-being of place has increasingly become defined through economic criteria (Cochrane, 1993), and has required the "development of institutions to shape and execute the state's responsibility in this regard" (Jessop, 1995, p 323). The partnership approach, it would seem, offers such an infrastructure. One reason for this, as Bailey (1995) has indicated, is that a partnership brings together a wide range of agents who generally fall outside of the state.

As actors come together around a particular issue, in the name of a partnership, they can combine a strategic long-term focus on local economic performance, while at the same time, appear to be innovative in solving perceived local social and economic problems (Jessop, 1995). This form of governance has led a number of commentators to consider firstly, why it is a recent trend in the shape of the local state – away from local government and towards local governance – and secondly, how regulation theory as an analytical tool can help explain such a trend (Stoker, 1989). Yet this approach seems to have deviated somewhat from the original notion of 'regulation' advocated by the Parisian regulationist school, who suggested an overall regulation of capitalism involving economic and non-economic structures, institutions and actors (Aglietta, 1979). Two crucial components in the regulation process are the regime of accumulation and the mode of regulation (Harvey, 1989a). In the post-war period the Fordist regime of accumulation achieved, over time, a stability between investment, production and consumption. And the Fordist mode of

regulation involved economic, social, political and cultural norms interacting within an accumulation regime to regulate the severity of system contradictions.[7] However, the current attention to the dynamics of local governance are, according to Jessop (1995, p 311) "closely linked to the failure of many taken-for-granted co-ordination mechanisms in the post-war world", that is, the emergence of new forms of local governance is related to the end of Fordism.

Attempts to bring together regulation theory with the political processes of place has led Goodwin and Painter (1997) to suggest there are tendencies toward effective local regulation, which are partly the product of strategic action taken by individual actors and institutions. Further, they argue how the process of regulation is the outcome of material and discursive practices that generate and, in turn, are conditioned by social and political institutions. It has also led to those such as Mayer (1994) to argue that local governance has a post-Fordist character, but of greater relevance here are the attributes of contemporary local governance, particularly those "newly-constituted circuits of business-political power ... fostered through cross-membership of local organizations" (Peck and Tickell, 1995, p 56). The current character of local governance has increasingly brought into play local business representatives and offered a more entrepreneurial outlook, contrasting to the post-war image of town hall bureaucracy that one might suggest were characteristics of Fordist local government (Painter, 1991).

Business elites operating within the sphere of local governance, argue Logan and Molotch (1987), reach a consensus around issues relating to economic development. They achieve group agreement as they pursue economic growth through creating the conditions for wealth generation and accumulation. Yet Caulfied (1995, p 98), in her study of Brisbane in Australia, takes issue with the notion of growth machine advocated by Logan and Molotch. She argues that issues of local economic development are "too complex for a simple voluntarist explanation of this type" adding that while cohesion can be witnessed in collaborative activity, particularly around boosterism, this should not be equated with organised efforts for growth. Nevertheless, whether through a partnership approach, by business elites or by local regulation, the local hegemony to be found in economic development often marginalises alternative methods for development held by other local groups. In one

way or other, the leadership that is hegemonic presents its own interests in local economic development as being coterminous with the interests of many other groups (Peck and Tickell, 1995). This is why Peck and Tickell, (1995) suggest that often local coalitions or partnerships are lopsided and selective, moreover, it should be added that the entrepreneurial character of local governance is about more than incorporating local businessmen.[8]

2.3.2 An entrepreneurial and neo-Gramscian approach to local governance

Harvey (1989b) identified three attributes of entrepreneurial governance, the first of these being the notion of public and private partnership. As the previous section has indicated, their collaboration has pervaded economic development in recent years and when combined, they play an important political entrepreneurial role in efforts to attract external sources of funding or inward investment for economic development. Second, such partnerships are entrepreneurial because their attempts to stimulate economic development are often speculative in design and operation. This means that the local state is prepared to absorb the risks which go with economic development, say for instance through the development of a particular high investment and low capital return infrastructure. Third, the focus on enhancement of a particular place or region is in the interests of both local state officials and local capital as it is directed towards improving the potential for wealth creation. One consequence of the way this takes shape is that place marketing often only provides indirect benefits to the population, and tends to shift the emphasis away from issues concerned with social welfare (Harvey, 1989b).

Trends in the UK which verify Harvey's perspective include the emergence, during the 1980s and early 1990s, of agencies such as Urban Development Corporations, TECs, the Business Link network and through funding mechanisms such as City Challenge and the Single Regeneration Budget (SRB). Jessop (1993) points out how the pursuit of innovation and entrepreneurialism by local governance agencies has come at the expense of more socially oriented programmes, reflected in the demise of the Keynesian Welfare Stare and the emergence of the Schumpeterian Workfare State. New technologies are an important factor in this re-orientation of local governance, or more precisely, in the present day focus of economic development strategies pursued by local governance actors. Jessop (1993) has noted how

entrepreneurial characteristics are part of the local governance approach to determine the dynamics of innovation, and are aimed at building up a capacity for technologically based industries in the name of structural competitiveness. He points to the role new technologies can play in economic expansion and notes how their potential lies in increasing the integration and cross fertilisation of technology into many existing traditional sectors. Jessop also sees an important role for the state in encouraging technology transfer and the diffusion of technology across and between firms. For these components to take shape they require strong support from governance agencies that "promote flexibility, economies of scope, and permanent innovation in open economies" (Jessop, 1997, p 68).

However, recognising the magnitude of this task for local governance, Jessop (1997) has broadened his analysis of the local political process. The necessity of values, norms, codes of conduct, discourse and populist policy, argues Jessop (1997), act as an essential part of legitimising the political processes of economic development. Drawing on Gramsci's notion of hegemony (Gramsci, 1973) Jessop refers to the ethico-political rationalisation which constitute economic development projects, such as ICTs initiatives, and that, very significantly, provide a legitimacy to their operation. This is demonstrated through the choice of spatial scale as plans for local economic development are pursued which are

> "inherently strategic and contingent on various political, economic, and social specificities of a particular urban and regional context at a particular moment ... [adding] the discursive constitution of the boundaries and nature of the (local) economy affects the temporal dimension of strategy making as well as its spatial scale. This is quite explicit in many economic strategy documents – with powerful players seeking to shape both the spatial and temporal horizons to which economic and political decisions are oriented so that the economic and political benefits are optimized."
> (Jessop, 1997, p 65).

Jessop's views on the size of the task involved provide a helpful indication of key aspects for examination, such as the strategy making process, the legitimisation of that process and the discursive formation which builds up around any given project.

Other commentators have taken a slightly different approach to understanding the effects of entrepreneurial governance. Amin and Robins (1990, p 28), for example, recognise a coexistence of "centripetal and centrifugal" forces which provide a variety of development strategies, none of which are exclusive or contradictory, but all of which represent new forms of global mobility and local fixity. Storper (1995) sees the region as a nexus of territorial specialisation in an age of technological developments and again, Amin and Thrift (1995) speak of the institutional and social factors which help make sense of local economies. Amin and Robins (1990) dispel the generalisability of any particular form of technologically led economic development, arguing that flexible specialisation, regulation theory and neo-Schumpeterian theory have been brought together in a "new radical mythology" (ibid. p 9). While this approach is not explicitly about local governance, it is about creating an institutional framework for economic development and Jessop's (1997) work draws on concepts of Schumpeterian theory and applies it to analyses of the local state. In addition, it is greatly enhanced when juxtaposed alongside the ideas on informationalism and the space of flows provided by Castells (1989, 1996).

The new frontier for local governance consists in getting each local economy to face the challenges of global competitiveness. However, some argue the competition between places is a zero-sum game as when one place wins another loses (Peck and Tickell, 1994). This is particularly so if inward investment is attracted into a local economy at any price, and social problems are regarded as secondary to economic objectives. The challenge to local partnerships is to think about how ICTs provides new opportunities for places, but not as part of the downward spiral driven by the competition between places.

> "Competitiveness properly understood in the new informational global economy does not primarily involve cutting costs, but rather increasing productivity. And that productivity depends essentially on three factors: connectivity, innovation and institutional flexibility" (Borja and Castells, 1997, p 14).

For local governance then, the future is all to play for as it lies, simply, waiting to be shaped. However, this is not simple – it is dynamic and complex. Connectivity refers to the way localities link to the emerging global ICTs infrastructure.

Innovation is about the capacity in a local economy to generate new knowledge. And institutional flexibility refers to the capability of local governance agencies to shape their place in light of the global – local nexus (ibid.). Thus, connectivity, innovation and institutional flexibility inevitably associate entrepreneurialism, ICTs and local political process and it is to these ideas, but specifically connection and the space of flows, that we turn to next.

2.4 Castells, informationalism and the network society

Up to this point, the thrust of this chapter has been to take the reader through a path of many competing and complementary perspectives about technology, political process and to a lesser extent, place. The reason for this is because a clear conceptual framework for the study of ICTs and local economies is difficult to determine; the few who have previously investigated this domain have also drawn on different theoretical views.[9] As he explains the characteristics of the network society, Castells indicates a way to take this study forward (see Table 2.1).

For Castells (1989, 1996) the informational mode of development provides the basic economic development techniques for the informational age. Its real time capability is a vital part of the global economy. Large firms, small firms and government institutions have responded by developing new forms of working together in alliances and in networks. Organisational objectives have become much more project and goal oriented, and much less inflexible and resistant to change, reflecting the new networking philosophy. There has been a concomitant development through the processes of downsizing, outsourcing and the individualisation of employment, and with trade union power curtailed, governments have attempted to 'roll back' the functions of the welfare state.

Table 2.1. Castells' nine characteristics of the network society

Key characteristic	Grounded in evidence of:
1. The informational mode of development	The informational economy, particularly productivity and competitiveness which depend more than ever on the processing of knowledge.
2. The informational economy is constituted as a global economy	The core strategic activities which have the potential of working in real time unity. The ability for fruition as a global unit is dependent on IT. The informational economy has not been produced by IT, but it now functions because of IT.
3. The new organisational form – the network enterprise	A set of alliances and arrangements between many elements: between departments in major companies, large companies with networks of small firms, small firms with other small firms and so on.
4. The dramatic transformation in the relations between capital and labour	In the West this has manifest in downsizing, outsourcing, self-employment and the individualisation of contracts; in the Rest it has resulted in the largest wave of industrialisation in history.
5. An undermining of the protective institutions of the industrial age	The demise of trade unions and the welfare state has been accompanied by increased inequality. Social exclusion creates products of devastation with various entry points and very few exit points. These are the 'black holes' of the informational economy.
6. The messages, signs and symbols of real virtuality	The analogous network of differentiated cultures created through various electronic communication processes captured in a setting of virtual images, and used by a variety of groups including new social movements.
7. The fundamental effect of communication on politics	The media has become the essential space of politics with actors reduced to the margins due to subliminal political messages and the emphasis on the image of the political leader.
8. Timeless time	The desequencing and elimination of time provide a blurring of life-cycles, such as the determining moments of birth and death, providing a new capability to reorganise the biological development of the human species.
9. The dominant logic of the space of flows	Through the dominance of the space of flows and the material support of time-sharing social practices, things still exist together, but the material organisation which allow this are now no longer burdened by territory.

(adapted from Castells, 1996, 1997a, 1997b)

Castells (1996) believes there is a cultural network taking shape, connecting many different groups and cultures in ways reminiscent of the cross-class alliances he has

previously identified (Castells, 1978, 1983). Exemplified by the support sought by the people of Chiapas in Mexico through ICTs,[10] these networks are providing a counter wave of messages, signs and symbols of real virtuality and resistance. The repercussions of rapid processing and information transfer in the political sphere mean that the media has become the essential space of politics, as 'spin doctors' (arguably) relegate key political figures to the margins. Time, argues Castells (1996) is becoming ever more desequenced, threatening the discipline established in the industrial age (cf. Adam, 1990; Thompson, 1967) and distorting the way that biological development of the human race has previously been considered.[11] Finally, Castells (1996) suggests that place, essential to the construction of many social science concepts about the way society is understood, is being superseded by the dominant logic of a network based on an ahistorical space of flows.

While each of these is relevant to this work, it is the holistic perspective provided by their juxtaposition that has given social scientists a powerful conceptual framework to examine many aspects of contemporary political and economic change. At the apex of this study are the concepts of the informational mode of development and how local economies connect to this, and the dominant logics of the space of flows. The following section examines the first of these.

2.5 Research theme I: connection to the informational mode of development

Castells (1989, 1996) is careful to distinguish between the mode of production and the mode of development. The former is about the societal framework in which economies operate, such as capitalism or former Soviet Union based communism (statism), while the latter is about the techniques of development which enable economies to operate. For instance, during the agrarian mode of development the technical basis for productivity was based around quantitative increases in labour and natural resources. The main organisational principle was focused on land ownership and concentrated wealth. This was superseded by the industrial mode of development whereby new energy sources, such as steam power and electricity, provided an essential source of technical productivity. Ultimately, these connected the constituent parts of the industrial age together, and were disseminated throughout

the production process, reaching a peak when economies of scale were achieved under the post-war Fordist regime (Aglietta, 1979).

The recent shift towards an informational mode of development is predicated on rapid information processing technologies, and has as its technical source for productivity knowledge generation, information processing and symbol communication (i.e. that which can be achieved through globalised computer-mediated communication). Unlike the previous mode of development, all informational societies at present are capitalist – whereas industrial societies could also be statist – and have a diverse institutional form and culture. This is because the informational mode of development is reflecting the way that rapid development of information processing technologies are converging with fundamental changes in the structure of capitalism (Castells, 1989, 1996; Graham, 1997; Graham and Marvin, 1996). As this convergence takes place, Castells (1996) makes a number of points about the constituent parts of the informational mode of development.

First, is how ICTs deepen the continued capitalist processes of profit seeking. In essence, this is based on the way firms use the technology; to paraphrase Castells, businesses will seek to connect to the informational mode of development through their use of information processing technologies, but not for the sake of the technology or for the betterment of society (1996, p 80). They behave in a given historical context, operating within the rules of the economic system, which itself is currently being shaped by the tendency towards informationalism. In addition, political institutions, their behaviour influenced by a broader set of values, will attempt to create the conditions for connection, encouraging many different types of business to use the technology, thereby looking to maximise the competitive base of their economies. This leads Castells to hypothesise that firm profitability and economic competitiveness are "the actual determinants of technological innovation and productivity growth" (ibid. p 81). One can draw from this how it is these two aspects of contemporary economic life that are driving the processes of connection to the informational mode of development. The precise way in which connection is achieved requires further empirical investigation, but this does lead to the second point, that ICTs are being harnessed to enhance the productivity of capital and

labour, way beyond what could be expected from the industrial mode of development.

However, there is still much to do to substantiate Castells' claims. Webster (1995) has observed how informational activity is a highly complex set of processes and relations. He has therefore argued how Castells, in this context, overstates

> "the alleged significance and transformative capabilities of informational labour, a category which is treated in too undifferentiated a manner ... [with recourse] to a dubious division between the 'capitalist mode of production' and an 'informational mode of development' which slips too readily into a familiar technological determinism" (Webster, 1997, p 83).

In earlier work Castells recognised the absolute and relative growth in service based employment, seen most markedly in the advanced capitalist nations (Castells and Aoyama, 1994). This, coupled with the growth in high-profile professional and technical occupations, indicates a greater emphasis is being attached to information processing and knowledge content. Thus for Castells (1996), the informational mode of development is directed towards technological development, and the accumulation of knowledge through higher levels of complexity in information processing. As a consequence, we need to consider many other aspects of economic development and not become over concerned on a concentrated emphasis which uses productivity as the main source of measuring the informational economy. Surely, the point is that connection to the informational mode of development inevitably involves many ways in which the value of capital and labour productivity might be assessed. One would assume that both Castells (1996) and Webster (1995; 1997) would converge on this point.

The third point concerns the way ICTs stimulate new conditions for profit making by globalising production, financial circulation and markets. While there may well be a time lag between technological innovation and economic productivity, as institutions and actors realign with new structures, international competitiveness today rests on nations both competing and collaborating with each other. Early processes of connection to the informational mode of development have already induced a global extension of the reach of capitalism, and after the shocks experienced in the 1970s

and the end of the Fordism, it would appear that capitalist economic activity as a whole has restored its capability for investment and for opening up new markets. This "recapitalization of capitalism" (Castells, 1996, p 85) is evidenced in the dramatic growth in foreign inward investment[12] and the emphasis on competitiveness from governance agencies and businesses. It is a process that reaffirms Castells (1996) belief how, together, it is competitiveness representing the vested interests of local, regional, national and international governance institutions, along with the motivation for profit from the firm, that is shaping connection to the informational mode of development.

Fourth, Castells (ibid.) argues that ICTs are being used to marshall the competitiveness of national economies. While this means that new technologies are regarded as a key tool for global competitiveness, it is often at the expense of social programmes and welfare protection. This is why all advanced nations are searching for the correct policy mechanism (such as 'New' Labour's 'Third Way'), creating a new historic relationship between technology and the economy, and separately, contributing to the future of the informational mode of development. To illustrate this, there is evidence of individual countries initiating specific programmes, such as the early Alvey Programme for Advanced Information Technology in the UK, and also the European wide programmes such as the European Strategic Programme for Research and Development in Information Technology (Espirit), piloted in 1982 and beginning in full in 1984. These were, in fact, a response to the Japanese Fifth Generation project and similar programmes in place in the USA through the Department of Defense (see Feigenbaum & McCorduck, 1983).[13] The state then, has an important role in the shape and rationale of the informational mode of development.

2.5.1 The first key research issue: the logics of connection

The present period of capitalism based on informationalism is qualitatively different from that of the industrial mode of development. Informationalism embodies all the knowledge of industrialism but is distinctive, according to Castells (1996), because the economic potential contained in the latter can now only be realised through the former. In the following quote, Castells captures the essence of informationalism:

> "the generalization of knowledge-based production and management to the whole realm of economic processes on a global scale requires fundamental social, cultural, and institutional transformations that, if the historical record of other technological revolutions is considered, will take some time. *This is why the economy is informational, not just information-based, because the cultural-institutional attributes of the whole social system must be included in the diffusion and implementation of the new technological paradigm*, as the industrial economy was not merely based on the use of new sources of energy for manufacturing but on the emergence of an industrial culture, characterized by a new social and technical division of labor."
> (Castells, 1996, p 91 emphasis added).

The logics of connection thus appear to be irresistible. Local economies, their social, cultural, political and economic characteristics, will, over time, submit to the pervasiveness of informationalism. Yet there is nothing preordained about this and while there is much evidence of change, such as the nine characteristics which Castells (1996) cites (outlined in Table 2.1), they can only represent in general terms the diffusion of informationalism. The processes of connection, as the many constituent parts of the informational age link together, will be found in many complex relationships and chaotic activities and should not be attributed simply to a new period of technological innovation. This is why long wave and regional innovation theory, while useful, is not wholly adequate for this study.

This is certainly the case at the level of place as, for local economies, Castells' ideas have still to be empirically tested. For social scientists in general, this area is still in its infancy and is still in the process of becoming problematised for researchers (Graham, 1997; Graham and Marvin, 1996). Investigating how a local economy connects to the informational mode of development and, therefore, what connection means at the level of a local economy, is a necessary activity to avoid simplistic explanations, claims and conclusions about the informational age in the context of place. This entails understanding the role played by local governance processes, institutions and actors in economic development, and by comprehending the powerful way that ICTs in local economies are rationalised. The first key research issue in this work is thus:

> Can we identify connection to the informational mode of development at the level of the local economy?

This is directly concerned with the logics of local economies as they connect to the informational mode of development, or rather, *the logics of connection.* For operational purposes this notion, of the logics of connection, can be deconstructed further into two parts.

Firstly, the logics of connection raise the following questions: how would a local economy become connected to the informational age, and simultaneously, what would the shape of local connection be? This is about the basic components of the local economy which are most appropriate, and most suitable for connection and subsequently, for the various ways in which ICTs might be developed to support local economic activity. It raises questions about how important ICTs are to the local economy, and how connection can actually become embedded in the trajectory of the local economy. Central to this is the strategic role played by local governance groups who attempt to co-ordinate the aggregate effects of a wide variety of ICTs applications and projects.

Secondly, to understand the logics of connection it is useful to identify the most significant mediating processes in the diffusion of the informational mode of development. That is, even at this early stage can we identify how an informational culture[14] is being shaped with respect to local economic development? This area is concerned with the discursive nature of the way local economies connect. The investigation here is into the signs and symbols about the local economy which are currently being developed through ICTs projects, strategies and local partnerships. Such an examination lends itself to Foucauldian concepts in an attempt to examine the way connection is represented to a variety of local economic stakeholders (Foucault, 1972).

With this in mind, to operationalise an investigation into the logics of connection the following research questions are posed:

1. *What points of connection can be identified between local economies and the informational mode of development?* This is partly based on the belief that the development of ICTs in local economies cannot be reduced to technological idealism or determinism. Rather, the points of connection will take place with

respect to a "different intensity and at a different scale depending upon the relative importance of the activities located in each area *vis a vis* the global network" (Castells, 1996, p 380). However, there may be generic points of connection, albeit unique in their own local context.

2. *How established are points of connection in the local economy – in terms of their embedded nature?* This question is predicated on the assumption that new industrial spaces are being created through the informational mode of development, not only in terms of high technology businesses but through a wider range of informational initiatives (Castells, 1996; Castells and Hall, 1994). This is the first step in investigating what the emergence of information processing centres, business parks, training initiatives and community based projects means for the shape of a local economy.

3. *How do ICTs projects become a legitimate (if not hegemonic) part of economic development?* This begins the examination into how local actors coalesce around ICTs. The places under investigation here are not part of the global city phenomenon (Sassen, 1991) and they may find a greater difficulty in the transition from a traditional industrial base to an informational stage. It raises issues concerning how ICTs become a set of accepted and relevant concepts and projects through an appropriate strategy vision or plan.

4. *How are ICTs strategies demarcated from other economic spaces (i.e. regional and national development), particularly in the sense of their discursive formation and visions of the future?* Moving on from the preceding question, this is based on the idea that ICTs are actually becoming part of a clearly defined local economic form (Jessop, 1997) represented through their discursive nature (Foucault, 1972) showing clear signs and symbols of how economic development can, and will, take place.

2.6 Research theme II: the space of flows

The logics of connection help us to understand how the technical source of productivity in the informational age is being enabled at the level of the local

economy. The second research theme takes this into account by looking in more depth at what this means, particularly by examining Castells' notion of the space of flows and how this operates at the level of place. There are some important considerations here, which concern the relationship between time and space, and how space is affected as the processes of connection become clear.

At the level of place, the management of the time – space relationship is an important contemporary affair as it touches the very heart of the globalisation and localisation debate. It acts as a stimuli for the inquiry (both abstract and concrete) into how local actors can respond to the effects of connection. This is because as local economies connect to the informational mode of development they increase their capacity to be global, to be part of the global economy. Therefore, local actors themselves raise the stakes. They make their place more vulnerable as social relations becoming disembedded and lifted away from their local context, as Giddens (1990) would argue, or in the way time and space becomes compressed when a multitude of places interconnect, as Harvey (1989a) would suggest.

2.6.1 The second key research issue: shaping the space of flows

The abstract nature of Castells' ideas on the space of flows are deeply analytical and intricate. He argues how there can be no predetermined outcome expected from the dialectical relationship that exists between the space of flows and space of places (Castells, 1996). Major global organisations are depending less and less on the characteristics of place to achieve their fundamental objectives, and they are instead, increasingly relying on ICTs. This means contemporary social practice and the social consciousness of society, is being shaped by the sequences and interactions between key actors in these organisations and in state institutions. Their behaviour, strategy and policy is currently being formed under the conduit of informationalism. This is how the space of flows will determine the condition, function and power in society and will essentially alter the meaning and dynamics of place (Castells, 1989, 1996). The relevance of this is detailed by Castells in three ways.

First, there is the actual manifestation of a spatial configuration of ICTs. The hard infrastructure of microelectronics, telecommunications, computer processing and broadcasting systems is a material expression of the space of flows. This

infrastructure is strategically crucial to everything informational. Its spatial form does not make place redundant, rather it is the infrastructure of a contemporary global network which is currently characterising space, with Castells provocatively suggesting how the cables and wires of ICTs "defines the new space, very much like railways defined 'economic regions' and 'national markets' in the industrial economy" (1996, p 412).

Castells (1996) then points to the second aspect of the space of flows when he suggests this infrastructure has a placeless logic. This is about the nodes and hubs of the ICTs infrastructure, and how it does not matter to the movement of information over an electronic architecture where it is going to or where it has come from. Even so, a node cannot come into being without an adequate set of connection points. Thus, the logics of connection enable the space of flows to connect specific places, each with its own unique form of social, cultural, political and economic processes, and physical and functional characteristics. The global ICTs architecture is made of many nodes and hubs which are being determined according to a set of hierarchical rules, as Sassen (1991) would suggest, with each place holding its own role and respective weight in the information processing and wealth generating activities of the informational age.

A third point is how the space of flows concentrates on the spatial organisation of the dominant informational elites. According to Castells (1996) the spatial logic of the dominant groups are the requirements set out by the technocratic-financial-managerial groups who occupy the leading positions in society. The power held by these people is different from the control of local and national forms of governance, and is distinct from other spatial logics precisely because it is "the spatial logic of the dominant interests/functions in our society" (Castells, 1996, p 415). As a consequence, the informational elite are able to project their own personal micro-networks, and image their own preferred lifestyle, onto highly functional macro-networks because of the global ICTs architecture. It would seem that the informational elite hold a significant role in society, able to influence many places through their actions regardless of their location. Here Castells (1996) has a consistent line of reasoning with that of Giddens (1990), Harvey (1989a) and latterly, Graham (1997).

Castells (1996) sets out these three points to explain why the space of flows is on the ascendant in shaping the form and meaning of place. For Graham (1997) the issue is about how ICTs has shattered the notion of traditional geographic concepts because of its potential to effect time-space relations. As with Harvey (1989a) and Giddens (1990), there is contained in this debate a fundamental research issue concerned with the dynamics of time and space relations at the level of the local economy. This is the essence of *shaping the space of flows* raising issues concerning the local governance of ICTs initiatives for the benefit of place. The political processes involved in this leads to the second over-riding research question which is as follows:

Is the local governance of ICTs capable of shaping the space of flows?

This is about the partnerships which have formed to develop and implement ICTs strategies in local economies. In such partnerships local actors may seek to shape the space of flows by attempting to exert control over exogenous and endogenous features of connection. The complex nature of this means that many parts of the connection process will fall partly outside of the control of local actors (establishing a fibre optic infrastructure for instance) but there will be attempts to enforce, in some way, territorial control over the connection process – hence the formation of *Northern* Informatics, and the *County Durham* On-Line partnership. These are political processes involving local actors who make conscious efforts to shape local connection to the informational mode of development, and to determine the outcome from the processes of connection.

There are three features of shaping the space of flows which relate to a number of the points made in section 2.3. First, technology provides the basis for the sort of initiative which can be packaged by local partnerships to attract external sources of funding. This can be achieved, for instance, as part of a broader attempt at image building and local boosterism, and undoubtedly, some local partnerships will be better at marketing themselves as ICTs leaders in local economic development than others. One aspect to consider is how, within the domain of ICTs, one type of development is pursued at the expense of other forms of local development – a case of strategic selectivity. The question is why should this be the case.

Second, there is the speculative nature that is exhibited in ICTs projects (Graham, 1996) and evokes a question concerning how is such speculative activity embedded. Is it a case of ICTs being economically determined (to paraphrase Jessop, 1997, are ICTs projects grounded in *mercato determinato*) or do the values, signs and symbols of ICTs contribute to the domain becoming a legitimate activity? This is about the credibility of partnerships as they deliver their ICTs plans, and the trust within partnerships as they seek to bring together different actors and agents around the technology. It leads to the third property of ICTs partnerships, namely, the key local actors who mediate the change in the structure of the local economy away from industrialism and towards informationalism. We should expect to find such people at the very heart of local ICTs partnerships.

To operationalise this investigation into how local governance partnerships try to shape the space of flows the following research questions are put forward:

1. *How is the space of flows mediated (controlled and shaped) at the level of place?* We must surely expect this to be essentially unique as places enter the informational society "along different lines of spatial restructuring linked to their historical heritage" (Castells, 1996, p 400). This is one reason why the roles of ICTs partnerships are crucial.

2. *How do ICTs partnerships achieve credibility?* This is founded on the ideas outlined above, that governance and business are pushing forward with the restructuring of places to compete in the global informational economy but recognising, as Jessop (1997) points out, that not all local economies can derive the same benefits from specific types of growth or local governance.

3. *What role is played by the political and technological entrepreneurs in shaping the space of flows?* Key actors with political and technological expertise and experience will be at the cornerstone of shaping the space of flows (Graham, 1996). This question then, looks not only at the way these actors take the roles they do, but how they set the agenda for other groups in their locale.

Flows, as Castells (1996, p 412) explains are about capital, information, technology, organisational interaction, images, sounds, symbols and so on. Investigating how the space of flows is shaped should provide some indication of the sequences and processes of interaction, between the structures of the informational economy and the behaviour of local actors involved in the local governance process.

2.7 Summary

The aim of this chapter has been to work through a number of theoretical concepts that have different degrees of relevance to ICTs and local economies. There is no mono-causal explanation or clear conceptual framework on technology and place, and specifically, on the political processes involved in supporting the logics of connection and shaping the space of flows. Issues pertaining to the principles of modernity and technology, such as progress and reason, do help us to consider the rationale of local actors as they become involved in locally based ICTs projects. The idealist character of this is also to be found as ICTs strategies work their way into processes of regional innovation, but so too are the entrepreneurial characteristics of local governance and the business ethos found in some local partnerships concerned with economic development.

The emergence of a number of local groups in the North East, be they referred to as partnerships or coalitions, who govern the way ICTs are seen as a tool for local economic development is a very recent phenomenon. As part of this investigation an extensive overview of the North East ICTs initiatives has been undertaken, which is explained in chapter 3. As the case studies are outlined in the chapters that follow, we can begin to see how the 'success' of ICTs partnerships cannot be judged on a traditional form of standards and measurement, but instead they symbolise the points made by Castells (1996) concerning the qualitative shift we are facing in society, away from industrialism and towards informationalism. While a partnership ecology

has sprung up around public funding mechanisms in the UK, local ICTs partnerships appear to be an important part of the network society but their survival or capability to shape the space of flows is far from resolute.

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[1] There are many authors to cite at this point. From the perspective of technology being socially constructed see Bijker, Hughes, and Pinch (1987), MacKenzie and Wajcman (1999), and Graham and Marvin (1996) in particular for an analysis of ICTs. Checkland and Scholes (1990) consider a socio-technological approach to systems but see also Eason (1968). To consider the relationship between technology and economic productivity see Childe (1954) on the causes of the urban revolution, Chant and Goodman (1999) who consider the pre-industrial city, Kennedy (1989) who considers the development of modernity, Piore and Sabel (1984) on the 'new industrial divide' and Bell, Chesnais and Wienart (1991) who summarise many contemporary views on the productivity question and the use of technology in contemporary capitalism. With these in mind, this chapter seeks to identify an appropriate conceptual framework for considering ICTs and local economies.

[2] See the articles outlined in *Regional Studies*, Volume 33, Number 4, June 1999. Here there are clear examples of academics suggesting an association between technology, place and 'learning' best practice for economic development.

[3] It is an observable feature of the work of Castells that his position has shifted from a neo-Marxist viewpoint, with something of an Althusserian flavour, through a Euro-Marxist perspective, to one whereby he is comfortable using a neo-Weberian framework in his ideas on the 'spirit of informationalism' (cf. Castells, 1977, 1978, 1983, 1996, 1997a).

[4] McLennan (1992) provides an excellent introduction to this debate but see also the globalisation and localisation thesis (cf. Harvey, 1989a; Giddens, 1990, Robins, 1991) and Lyotard (1984) on ICTs and knowledge construction. Quite recently, part of this discussion has been concerned with culture, either specifically related to ICTs (Gibson, 1984; Chambers, 1993, p 192) or to the way that studies in the social sciences have taken a particular turn (cf. Bird et al, 1993; Smith, 1998).

[5] To develop too much depth on long wave theory at this point would take this work away from its main focus. However, on the debate about exogenous versus endogenous factors as key influences on long waves Mandel (1995, p 121) argues "technological revolutions, as well as heightened class struggle and the relative strength of the working class and the labor movement, are obviously endogenous in long waves. But the actual outcome of class conflicts is not preordained. It is a partially independent variable, and in that precise sense is not endogenous. It is not predictable for the capitalist class. It weighs on its investment decisions and therefore on capital's capacity to launch a new expansionary long wave, regardless of whether discoveries, inventions, and new products are or are not available to unleash a wave of massive technological innovations."

[6] The Inner Urban Areas Act created seven Partnerships, fifteen Programme Authorities and nineteen Designated Areas. Apart from the Newcastle and Gateshead Partnership in the North East, North Tyneside, South Tyneside and Sunderland were designated as Programme Authorities, and Hartlepool was given Designated Area status. The Act is often referred to as a 'watershed' because of its attempt to shift the emphasis of urban regeneration away from the social pathology and area-based programmes of earlier years and set out a diagnostic response to urban policy based on the 1977 White Paper *Policy for the Inner Cities*, increasing financial support from £30 million to £125 million in 1979/80 (see Atkinson and Moon, 1994; and Bailey, 1995 for an introduction to this).

[7] Under Fordism the *regime of accumulation* involved a virtuous circle of growth based on mass production and mass consumption which required two particular conditions be met. First, increased productivity in the capital goods sector to offset the rising costs of the relationship between materials, work in progress and labour power. If this is not achieved it is deleterious to the capital/output ratio. Second, a consistency is required between growth rates in wage-earner consumption, and in

productivity in the consumer goods sector, to counter tendencies of insufficient demand and a wage led profits squeeze. If this is not achieved it would lead to a crisis of underconsumption (see Jessop, 1993).

Whereas the Fordist *mode of regulation* operated through a dynamic and heterogeneous network of social relations which have been consistently prone to crisis. Apart from class these would include 'race' and gender relations (see Bakshi, Goodwin, Painter and Southern, 1995). The correlation and coherence of interaction between social relations ensured a consistency with what Harvey (1989a) called the schema of reproduction which, argued Jessop (1993), corresponded to a 'guided' accumulation regime – that we now recognise as Fordism.

[8] There is a gendered element to this (see Tickell and Peck, 1996).

[9] Graham's (1996) unpublished thesis is the most thorough investigation of a similar nature to this study. In his work he carefully develops a sophisticated analysis on the political processes which ran in parallel to the development of the Manchester Host and Roubaix Teleport, investigating the value of actor-network theory and the social construction of technology.

[10] I refer here to the flurry of emails which 'bounced around' the Internet concerning the massacre in Chiapas, Mexico in December 1997 by paramilitary groups, and the resistance and use of electronic media by the Zapatista Rebel Army (EZLN) and their supporters.

[11] Castells (1996, p 465) explains: "[t]imeless time belongs to the space of flows, while time discipline, biological time, and socially determined sequencing characterize places around the world, materially structuring and destructuring our segmented societies."

[12] Such as the 24% per year increase in global foreign direct investment between 1986 and 1990 (Castells, 1996, p 84), and closer to home, the 153 cases of successful direct inward investment in the North East between 1994 and 1997, representing over 10% of the UK total (Office for National Statistics, 1996, 1998).

[13] Refer also to the statistical appendices, S.A Table 3.14a and 3.14b.

[14] The term 'culture' is highly problematic and is used here entirely in the economic context specified by Castells when he refers to the transition from industrial culture to informational culture (1996, p 91). For a more thorough debate about the cultural turn in economic geography see Lee and Wills (1997) and Bird et al (1993).

Chapter 3

Local economies and ICTs: types and patterns of development in the North East

3.1 Introduction

Although the previous chapter argued how no mono-causal or linear approach exists to the form and fabric of ICTs in local economies, there should still be evidence to suggest the extent of activity in a given locality. In this chapter, a major aim is to demonstrate the range of types of ICTs initiatives in economic development, and their patterns of use in the North East of England. This is an important part of the empirical investigation involved in this work and it begins to test the ideas of logics of connection and the shaping the space of flows. The chapter also shows how the space of flows can be regarded as a contested terrain, at least in terms of its governance, and it lays out an important part of the methodological approach which has been adopted in this work. The classification of ICTs initiatives in economic development presented here is based somewhat on a Weberian concept of identifying ideal types (see Smith, 1998). While the use of an extensive approach to build up evidence for such a typology is based on Sayer's (1992) framework of method in the social sciences and importantly, the relationship between abstract and concrete research. An extensive approach is not simply about the scope of the work, as will be explained later, but does act as a precursor to the more intensive case studies provided in the following four chapters.

There are in fact two components to the types and patterns of ICTs development in the region. On the one hand there is the approach to ICTs developed by the regional agency known as Northern Informatics (Ni). Ni believe they have a specific remit to develop an ICTs capacity on behalf of the region. In essence, Ni aim to connect the North East to the informational mode of development and seek to articulate clear points of connection through their own strategic planning. Their organisational structure reveals how attempts to shape the space of flows are made at a regional level, and can indeed be contrasted to many other agencies aimed at stimulating technological led regional economic development. The other component is the local approach to ICTs development, seen at its most persuasive in the investment by organisations such as County Durham On-Line and through the European Digital

Cities Project involving Newcastle upon Tyne City Council. It is in fact, the latter focused on the local response to the informational age, which is at the centre of this thesis, but an intriguing relationship between organisations such as Ni and CDOL has become apparent.

This chapter begins with a review of a most significant methodological issue involved in the work. The aim of this section is to remove the chore of ploughing through the techniques and methods which have been employed in researching this work (previously outlined in the introduction), but instead to concentrate on the epistemological base of knowledge from which both theoretical and empirical development has been attempted. The value of using critical realism in this work and the process of theorising and building up an empirical base of knowledge are discussed at this point. Following on from this is an outline of the regional attempt to develop ICTs. This has mainly been pursued through the work of Ni and their work is considered in the context of other locally bound strategies to stimulate economic development. That regional and local ICTs initiatives exist alongside each other demonstrate how this is a contested domain; they have developed in spite of each other rather than collaboratively, involving political processes currently being acted out to mediate the space of flows at the level of place. Whether attempts to shape the space of flows will ultimately be through a regional approach, or through a more locally defined partnership approach is still being determined.

Based on the extensive work of ICTs activity in the North East carried out here, four ideal types of informational local economy are suggested. These are labelled as 'computopian', 'multiplex', 'narrowcast' and 'off-line' local economies. In each case these technical metaphors refer to the degree and nature of engagement between the local economy and the informational mode of development. In computopian economies we can find a distinctive strategic focus on ICTs supported by efforts from a local partnership to shape their development for the local economy. Multiplexing economies differ slightly from computopian economies because they do not place as great an emphasis on bringing together a local ICTs partnership, and will look to support local economic restructuring through a multitude of initiatives, some of which will be ICTs based. In narrowcast economies we find a reactive approach to ICTs, with key local actors unconvinced of the demand for such

development. Finally, off-line economies are at the tail end of restructuring in the region and are least able to respond to the shock of major industry closures. While these draw on technical metaphors the aim is to stress difference in approaches to integrating ICTs into local economies and at this point, it should be emphasised that these types are ideal. Such an approach is rightly questioned by critical realists who consider that ideal types lack ontological scope and that their use presents an arbitrary attitude to the theory of being (Sayer, 1992).

Since the dynamics at work in the local economic and technology domains are complex they render ideal types most useful as abstractions. The final part of this chapter summarises the regional – local contest and sets out in concrete terms the nature of ICTs in local economies, illustrating the four cases to be examined in the following chapters. Each of these cases, one in south-east Northumberland, one in Wearside, one in Durham and one in Teesside, have different characteristics that are consistent with the ideal types but which do not match the boundaries suggested by the typology. Thus, the chapter ends by using the classification to help determine a more qualitative and intensive research inquiry to examine the relationship of local economies and ICTs and the structure of the world which they occupy.

3.2 Critical realism and the method in this work

Critical realism relies neither on the approach to understanding the world that traditional positivists or empiricists adopt, nor the voluntarist approach adopted by neo-Kantian idealists. Realists start from the premise that there are real things which do exist regardless of whether we study them or not. They also recognise the importance and value of interpretivism, drawing on experience and imagination. However, the purpose of a critical realist approach is not simply to develop a critique of the world based on a capability to draw from other approaches, but to work towards a way of investigation which stimulates emancipatory change (see Sayer, 1992, pp. 252-257). It is this stance, on the value of using knowledge in certain ways, which does separate critical realism and associates it with all manner of views and methods such as 'action research', feminist research and neo-Marxist theorising.

That there are such ambitious objectives should not dissuade the researcher from recognising the value of employing realist methods and critique. It has been used here to guide the way the phenomenon of ICTs and local economies can be thought about, and then to implement an extensive and intensive research design. Finally, critical realism helps us to think about what is currently happening in the domain of local economies and ICTs, such as the structures, mechanisms and events which can be observed and conceptualised.

3.2.1 The historical and social context of this investigation

In the previous chapter is was argued that the notion of progress through technological development was associated with modernity. How this relates to the emergence of science has been more than a coincidence and the philosophies of social science were originally, at least, strongly associated with scientific method. The emergence of a new scientific and technological era (if it can be described as such), based on the rapid processing and distribution of information and new images of the world, has coincided with fresh ideas on whether we are entering a qualitatively different phase of social existence (Hall, Held and McGrew, 1992). This, as indicated in chapter 2, is why there are questions raised about the way we construct knowledge that seem to be inevitably tied up with the emergence of informationalism, such as Harvey's time – space compression and Gidden's time – space distanciation theories, and of course the work of Castells himself on the network society (Castells, 1996; Giddens, 1990; Harvey, 1989a). This does imply that the way knowledge is constructed is changing, and the way we use knowledge to understand is also changing.

On the one hand there is nothing new in such a process, as Kuhn (1962) would see this as the emergence of a new knowledge paradigm. Lyotard's views (1984) on the rise of post-modernity were in fact sparked by a report commissioned by the authorities in Quebec, Canada, on the way knowledge would be changed by the effects of ICTs (Smith, 1998). What Lyotard was able to do was to synthesise the

> "increased concern about language, discourse and culture *with* a consideration of the effects of the emergence of new information technologies and the communications revolution during the late twentieth century ... [and] argued that the forces which had

> constructed the modern industrial social order were now giving way to new dynamic processes based upon information flows and digital processing."
> (Smith, 1998, p 283 original emphasis).

Lyotard's work has added to the debate about the way in which positivist approaches to understanding the social world demarcate science from non-science, or more appropriately, objective knowledge from knowledge which is value-laden.

One significant development over the past decade or so has been the integration of culture into this debate, particularly that concerning semiotic analysis. Semiotics, or semiology, provides the researcher with the ability to extend the scope of what is investigated by drawing on the meaning of text and language, not from the intentions of the speaker or author, but from "their place in a system of signs and their relations of difference or sequence with other terms in the system" (Slater, 1998, p 238).[1] One step on from this is Foucault's ideas on discourse and how texts and language are interrelated, particularly the way in which representation can be transformed. Foucault used discourse to refer to systems of knowledge and their associated practices involving rules of conduct, often organised around symbolic or subject positions (cf. Dreyfus and Rabinow, 1982; Foucault, 1972; Seale, 1998, Smith, 1998). So, for example, the idea of different actors in the local economic domain coming together around ICTs may indicate some type of legitimation process taking place with a sharing of a common language or vision for the future. In addition, ICTs as an economic space suggests some type of mechanism which demarcates it from other forms of development. Foucault's notion of discourse allows a considered approach to the use of signs, symbols, language and images which appear to be part of the local economy and ICTs phenomenon.

While approaches such as semiotics and cultural analysis can provide a powerful addition to the social researchers investigative framework, there is always the fear that there will be an over emphasis on abstracted thoughts and theories at the expense of concrete research. This is particularly so in this work, where actors set out their intentions and goodwill through a range of ICTs strategies, visions and mission statements but may find it impossible in practice to follow these through. Academics have also been guilty of this in terms of idealising this thing called 'cyberspace' (see

Mitchell, 1995 for instance and the critique by Robins, 1997 introduced in the previous chapter) and indeed, this has been a constant anxiety here. The aim has been to avoid such rhetorical conceptualising and to develop meaningful concepts of ICTs in local economies based on a rigorous method of empirical investigation. As Sayer has warned

> "[t]he 'text' of actual social processes is usually highly disjointed and often contradictory, and whereas it is not generally necessary to know how a book was produced in order to understand it, little sense can be made of social interactions ... without exploring the production of particular actions."
> (Sayer, 1992, p 36).

This really is part of the dilemma concerning how truth, knowledge and values, and the subjective and objective, are understood in social research. Such a task remains outside of the work here, yet, for the humble researcher involved, simply to acknowledge that there are bigger debates taking place elsewhere concerning how we understand social phenomenon is helpful. Not only does it place the work in some perspective it also helps to set out the variety of concepts and methods which might be of value. In practice, the boundaries between this or that method, between epistemologies and concepts, are rarely explicit and they have been constantly transcended in this work. For this reason, Sayer's (1992) ideas on the movement between abstract and concrete research are most valuable.

3.2.2 Abstract and concrete research

Critical realists use the process of abstraction to isolate in thought one constituent part from the many other parts that, together, establish the concrete object under study. Abstractions can be real, and concrete objects are simply what exists being "constituted by a combination of diverse elements of forces" (Sayer, 1992, p 87). In this sense, a local economy (the concrete object under study) is made up of many influences and properties, each of which can be isolated in thought through the process of abstraction as an initial step towards understanding the dynamics of the object as a whole. Sayer (ibid.) explains that at the outset our concepts of objects such as local economies are likely to be chaotic. Only when each part is abstracted and examined is it possible to form a concept that realises the concreteness of the

object under study. To achieve this, the understanding of concrete objects requires a double movement, from concrete to abstract, then abstract to concrete.

In applying the abstract – concrete process to this work many levels of conceptualisation have helped to underpin the way a concrete event is explained. For instance, we might say there is an evolving phenomenon taking place in local economies encompassing ICTs projects and their governance. There are then, concepts of economies (such as what they consist of), of informationalism (the plethora of ICTs activity) and of local governance (such as local ICTs partnerships). Each of these concepts can be deconstructed to examine their abstracted components. So, in local economies there is industry, the physical infrastructure, the labour force and their skills. In informationalism there are local ICTs projects, there is the real-time capability of ICTs, their global connectedness, and the wide range of groups who occupy the space of flows. In local governance there are the local ICTs partners who combine as an identifiable group, the strategies they make and the policies they pursue. From this point, attention can be paid to objects, structures and mechanisms and theoretical claims about their relationship can be "combined with empirically discovered knowledge of contingently-related phenomena" (Sayer, 1992, p 140). Empirical investigation is essential in the field of ICTs and place, and in this case investigating the political processes involved in ICTs and their governance, help construct new knowledge on the form and fabric of ICTs projects and how they fit into their local context.

Even so, there danger from this is that something of a metanarrative, or a singular explanation of ICTs in local economies is built up, a situation at odds with points made earlier (chapter 2). However, the movement from abstract to concrete is dependent on interpretive understanding and the building up of meta-narratives can be avoided, as Sayer explains.

> "Abstractions are indispensable for providing some of the means by which we study the concrete, but they owe their origins to a process of *abstraction* which takes concrete objects as its starting point and raw material. Abstract research cannot displace concrete research and its dependence on empirical investigation ... Abstraction seeks necessary relations, conditions and properties and does not expect to find successful generalizations at the concrete level"

(Sayer, 1992, p 239 original emphasis).

Metanarrative is avoided because the knowledge generated by the critical realist approach can always be challenged. Indeed, the emancipatory ideal of this approach is strongly related to those who hold that modernity has always encompassed some form of constant internal questioning, critique and inquiry (Habermas, 1985).

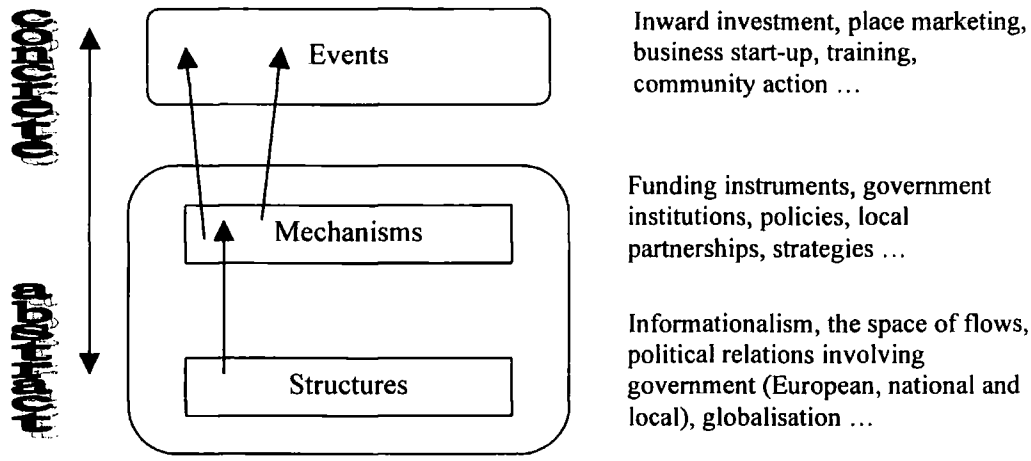
3.2.3 Extensive and intensive research: structures, mechanisms and events

It would be wrong to assume that extensive and intensive research design are simply a function of abstract and concrete research (in that one maps neatly onto the other). Nor, as we shall see, can intensive and extensive research simply be defined as idiographic and nomothetic respectively. To reiterate, the two types of research activity use different sorts of techniques to ask different types of question and to define their objects and boundaries under study. The value of the relationship between extensive and intensive method lies in appreciating how context or causal arrangements are rarely a background issue for research. The researcher should be attempting to explore the structure of the context and of the key actors who interact with this structure and form part of its constitution (Jessop, 1996; Sayer, 1992).

Using extensive methods has helped investigate how widely characteristics such as ICTs partnerships and ICTs strategies are distributed across the region. There are particular types of activity and local economic response to ICTs and the extensive work has allowed some form of description of these, but with the realisation that this requires further work to establish explanation. The intensive work, focused on a small number of cases, has sought to clarify such explanation, for instance by identifying the role of actors and the change their actions induce. It has also attempted to introduce some causal interpretation of why ICTs governance is taking the form it is. While this may not be universally representative the results from this work can have more than a local interest and will suggest a level of abstracted theory that is more generally applicable (Sayer, 1992). All the time, the double movement of abstract and concrete research is enabling the researcher to reflect and determine research strategy, and as part of the extensive work, this has allowed an initial construction of ideal types of ICTs and local economies.

The typology outlined in section 3.4 begins to show some common patterns of ICTs in local economies in the region. They are ideal because none of the economies in the region fit neatly into the matrix suggested,[2] although some will have tendencies towards one type, and because the domain is dynamic there will be levels of oscillation as economies move between types. The best the typology can offer is to begin to indicate level of explanation. It is useful for considering the first key research issue concerning whether or not connection to the informational mode of development at the level of the local economy can be identified. And then from this point, to draw on the schema of structures, mechanisms and events cited by Sayer (1992, p 237) to investigate how the local governance of the space of flows might assist in the form, function and meaning of place.

Figure 3.1 Events, mechanisms and structures: local economies and ICTs



(source: adapted from Sayer, 1992, p 237)

To summarise the research design, the ideal types are drawn from the extensive work which identifies patterns and general attributes of ICTs and local economy initiatives in the region. This extensive work lacks explanatory capability but does start to identify key structures for further investigation. The dynamics of this begin to be uncovered in the following section, where it is suggested that connection in the region is a contested space and how the work of Ni, more than context, is part of the structure of regional ICTs. The local economy types (see Table 3.2) are also part of this regional structure and they begin to denote some of the mechanisms and events

that involve key actors at the local level. The typology was arrived at following a process of recognising concrete phenomenon – ICTs and local economic development – and by ensuring that the abstractions discussed in this work are ground firmly in empiricism. In the following chapters the motivations and actions that take place at the level of events, and the relationship these events have to mechanisms and structures, are investigated through an intensive case study approach. The four cases consider in detail the political and economic processes involved in formulating ICTs strategies and their governance.

3.3 The logics of connection in the North East: a contested space

Technology in regional economic development encompass not only ICTs led development, but, as shown in chapter 2, includes innovation and technologically driven economic change and growth (Castells and Hall, 1994). The literature in this area has constantly reviewed the developments in regions such as Silicon Valley (Pao Alto to San Jose south of San Francisco), Boston's Highway 128, Sophia-Antipolis (near Nice, France) and Cambridge in the UK (ibid.; Lafitte, 1985; Keeble, 1989). It fits neatly into the idea of hierarchy in a new technological age, led by global command cities supported by second and third level cities who dominate in their respective regions (Castells, 1996; Sassen, 1991). However, this view also misses much empirical evidence which can confirm or dispute claims about technology, economic development, place and hierarchy.[3]

It would appear that the evolution of this phenomenon, or at least of the dynamics involved, are far outstripping the capacity of the social researcher to investigate the multitude of regional development and technology projects. Too often, research in this field misses how ICTs in economic development creates something of a contested space and fails to adequately consider the conflict and collaboration between many newly or recently formed technology focused local partnerships. Almost at the same time that Ni were being formed, so too in Durham did the County Durham Informatics Partnership appear, in Teesside there was the group calling itself Teesside Informatics, and in Wansbeck there was the partnership emerging around the Wansbeck Initiative. Similarly, Newcastle was designated as a 'digital city' and involved in a pan-European Union initiative. This section of the chapter outlines the

economic structure of the region as a precursor to introducing the idea of competition between different ICTs partnerships, and moreover, prior to an extensive review of the North East of England ICTs projects between 1994 and 1995.

3.3.1 The shape of the economy in the North East of England

A common perception of the North East from outside, and from within the region, is of a place that lags behind many other parts of the country both socially and economically (Evans, Johnson and Thomas, 1995). In a review of some of the region's main social and economic indicators Darnell and Evans (1995) have recognised how

> "[f]or many the everyday experience is one of basic survival on low social security benefits ... relative to the UK as a whole, the economic status of the Region remains weak. The high unemployment, the associated low incomes and spending power, and the declining proportion of GDP generated in this Region form a powerful argument for the need to construct policies which will facilitate the economic regeneration of the North and ensure a firm foundation on which to enter the next century."
> (ibid. pp. 24-25).

It might be suggested that this is a relative perception of the region, as Sadler (1995) has argued, the North East is suffering something of a hangover after the steady removal of state supported industry. The continuous shifting of industries such as coal and steel into the private sector has opened parts of the region to the benefits and costs of global international markets. It is against such a background that a new economic morphology of the regions economy is emerging.

There are currently around 42,000 VAT registered businesses in the region. The biggest proportion of these (38%) fall in the Tyne and Wear district (see SA 3.1).[4] The number of workplace units in the region suggests over 67,000 workplaces with less than 300 people, accounting for over 585,000 people employed (SA 3.2). The VAT figures indicate that the leading industrial sectors are wholesale and retail accounting for some 12,000 businesses, business services (including real estate and rentals) figure prominently with over 7,000 businesses, construction (4,425 businesses) and manufacturing (4,205 businesses, see SA 3.3). The leading sectors by size of workplace unit in the employment band of up to 10 employees are firstly,

wholesale and retail and then, business services; in the employment band from 11 to 49 employees it is wholesale and retail, then manufacturing, and health and social work; in the employment band 50 to 199 employees it is manufacturing, followed by business services and education; and manufacturing features most strongly in those workplaces employing between 200 to 299 (SA 3.4). This structure of business is typical of a region which is trying desperately to attract in industry and to stimulate new business activity, and where industrial property and office costs compare favourably with other regions (SA Figure 3.1 and 3.2).

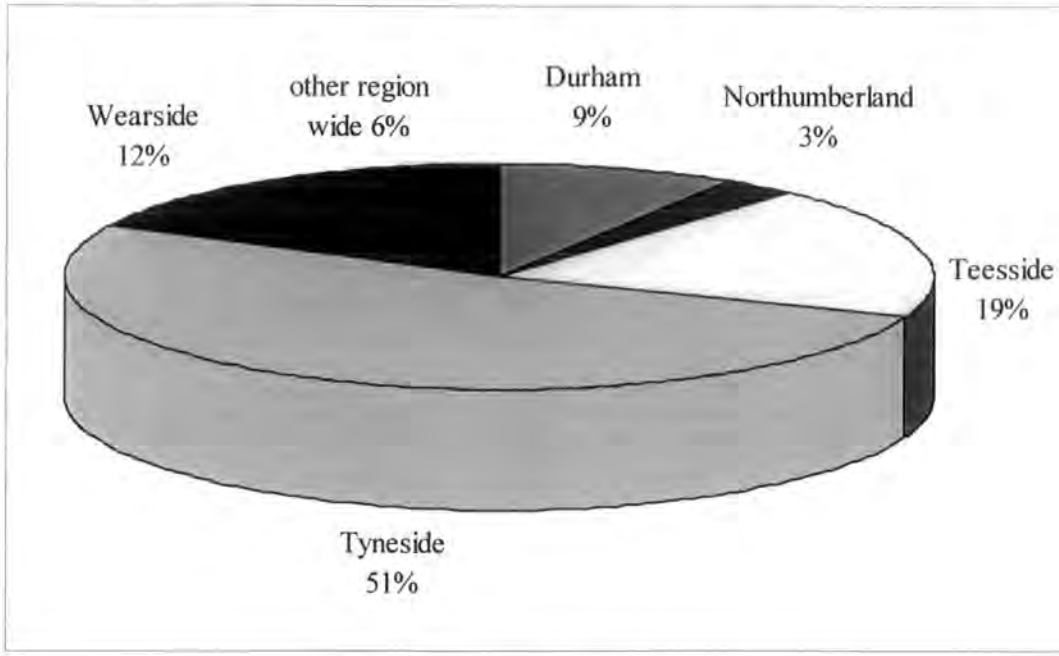
Economic activity rates of the population are among the lowest in the country. The figure of 1.1 million people in paid employment in the North East represents 74.1% of the regions population who are economically active. This compares poorly against the 1997 UK average of 78.2, against the 82.2% figure of the South East, and is only slightly better than the sub-region of Merseyside (71.3%) and Northern Ireland (71.8%, see SA 3.6). The leading sectors for employment in the region are public administration (290,000), distribution, hotels and restaurants (which includes wholesale and retail, 240,000) and manufacturing (225,000, SA 3.5). Statistics which indicate pre-labour market health show that the North East has the lowest proportion of young people who attain GCSE grades A-C. Only 20% of the regions pupils achieve this level, compared to 31% in the South East. The region has 66.4% of 16 and 17 year olds in education and training, compared to the average for England of 69.2% (SA 3.7). Some would feel that this has contributed to a regional economic performance which compares less favourably with many other parts of the UK. The region accounted for slightly under 4% of the total UK Gross Domestic Product in 1996, and GDP per head of just over £9,000 was the lowest in England (SA 3.8).

Because of this, the region has been able to draw on finance such as European Objective 2 funding and particular parts of the region have been designated as 'Assisted Areas'.[5] Places such as Sunderland, Newcastle and Middlesbrough have all received help by being appointed as 'development areas', while Durham and Darlington have been commissioned as 'intermediate areas'. According to one local authority in the region, Assisted Area Status between the years 1985 and 1991 accounted for over ninety percent of the 21,000 jobs created and over £2,400 million

of the money invested in the region (The Wansbeck Initiative, circa 1994, see SA 3.9), with an additional £358 million plus in regional preferential assistance between the years 1990 and 1997. The North East has done well from this form of subsidy accounting for over a third of the total funds to English regions (SA 3.10), while the recent allocation of European Structural Funds (from 1997 to 1999) has meant some £251 million (SA 3.11) coming to the region, and around £400 million can be added from the Single Regeneration Budget since 1994 (SA 3.12). As Figure 3.2 shows, over half of funds from the SRB which have made their way into the region has gone to Tyneside, contrasting starkly with the 3% figure for Northumberland. To some degree, this is due to the legacy of urban policy, particularly the previous funding mechanisms which were directed at urban areas, but it also indicates the levels of deprivation to be found in the Tyneside area. Wearside and Teesside SRB funds together account for nearly a third of the total. According to Eisenschitz and Gough (1993) support such as this often has a focus on economic development and includes social cohesion and training initiatives, but this can cause tension between levels of economic management. This is particularly so for regional development, as the appropriate spatial level for particular aspects of management of economic development is unclear leading to "no functional fit between local and national policy" (ibid. p 188).

The region consists of major urban areas such as Teesside, Tyneside and Wearside but also has an expansive though sparsely populated rural countryside. It often appears underprivileged compared to other UK regions and can have an image of decline. Financial support of the sort outlined above, and in the form of European funding including Objective 2, 5b and other European Community Initiatives (see SA 3.13), has been consciously targeted at the processes of restructuring. This is aimed at helping the region to cope with the end of many of its traditional industries. As with many other places in the UK, European funding and the 'beauty competition' associated with much present UK government funding has enabled the management of economic restructuring and has kept many local governance actors occupied over the past two decades.

Figure 3.2 The distribution of SRB finance in the North East (1994-98)



(source: DoE, 1994,1995,1996; DoETR, 1998)

Technologically led economic development is only one way in which the management and governance process has taken shape. From this position, the role of Ni has an obvious importance: the network of regional stakeholders that have sprung up around this organisation have effectively raised the stakes of restructuring by introducing the notion that ICTs can shape the future trajectory of the region's development. However, whether restructuring in this way takes place at the level of the region, or the locale, is at present more often a disputed terrain than a collaborative one.

3.3.2 'Connection' in the North East: the role of Ni

Ni began life as the Northern Informatics Applications Agency (NiAA) in 1994. Their initial aim being to cover the entire Northern region including the North East and Cumbria. Ni describe themselves as a "regionally sponsored, limited by guarantee company" (leading member of Ni, 3/2/95). One of the early objectives for Ni was to put together a regional integration initiative that combined ICTs with local economic development, to support the region as a whole with a leading competitive advantage, both nationally and internationally (ibid.). Much of the preliminary work to establish Ni was well underway towards the end of 1994 and the organisation came into legal existence in April 1995.

As an epitome of the ICTs partnerships which were to follow, the founder members of Ni came from both the public and private sector. They included people from local government, regional representatives from business pressure groups (like the North East Chambers of Commerce) and from the regional Trades Union Council. Representatives were involved from training and business support agencies, such as from the five TECs in the region, from the higher and further education sector, and particularly in its very earliest days, from the two Universities in Newcastle. There were representatives from private companies, such as British Nuclear Fuels, ICL and British Telecom. They all came together around the notion of 'northern informatics', an image of an agency that would enable ICTs within clear geographical boundaries. It appeared Ni began, as Shaw (1993) would argue, as a typical model of corporatist partnership to be found in the North East.

Much of the day to day work of Ni has been undertaken by a small management group which is loosely supervised by an non-executive board. Through regular meetings this group have effectively tried to govern the implementation of projects and attempted to shape the priorities for action. In the early years, Ni made a concerted attempt to disseminate their work and influence throughout the region via a number of sector and management groups. For example, they sought to coordinate ICTs activity among many public sector partners in health, education and local government. They included in their network the Chief Executive of the Wansbeck District Council (see chapter 5) and others in local authorities who had made their interest known to Ni. The leading members of Ni attempted to spin out their own regional contacts and to incorporate people who were already working with businesses and ICTs in the region, such as in County Durham (chapter 6), and tried to establish a number of projects which incorporated ICTs, business development and regional competitiveness. They also sought to initiate some rural activity to address the geographical disparity that comes with ICTs coverage (Cornford and Gillespie, 1993).

While Ni were North East centred, because governance agencies in Cumbria could call on some £60 million through Objective 5b funding a broader model was developed to incorporate rural parts of the northern region. They also widened their networks by looking for "national and international connectivity" (Ni member, 3/2/95) by opening

up a dialogue with those responsible for the Manchester Host development (see Graham, 1996), and with the Bristol – Bath Media Group.[6] In addition, they sought research and development funds from the European Advanced Communications Technologies programme, and they looked to attract potential partners from Norway, Finland, Austria and Italy. So, while Ni saw themselves as a facilitating agency it was very significant that they were keen to identify gaps in what they regarded as the regions ICTs infrastructure of cables and wires. They began to suggest ways in which this could be addressed through collaboration with others from the private and public sector. Because of the way they set themselves up, as the regional ICTs champions, they had to be quite entrepreneurial in their search for funds to create something tangible. They had to involve particular types of people to ensure their 'success'. As a consequence, it was those key actors who had prior experience in the political field, who were able to secure public and private finance, and who could apply ICTs in the domain of appropriately funded projects who were to become involved in Ni.

As we shall see in the following chapters, this model has been imitated in ICTs partnerships which came later, and in those which emerged almost simultaneously with Ni. Having key political actors available who are able to win funding for projects has been crucial to the development of ICTs in the region. This, as Graham (1996) has identified, is associated with the way political actors network and how knowledge (tacit and tactile) is transferred. In turn, such actors have relied upon, and assisted, those key technological actors who are able to implement ICTs in the context of business development, in the context of industrial and science parks, in the context of community based initiatives and in the context of place marketing, education and training. Together, these political and technological entrepreneurs have a vital role in the 'success' of ICTs partnerships, projects and initiatives.

However, Ni struggled in their early years to establish a regional legitimacy. It appeared that although they were able at least to network with many local actors, and win funding for a number of ICTs projects, that something more was needed. By April 1996 they had decided to re-focus their development. In this reconfiguration of what they felt was necessary to be successful, their scope of operation became centred on three things. First, raising awareness in ICTs. Second, by developing projects which focused on skills for use with ICTs. And third, by making more information available

through ICTs (meeting with Chris Drew, Ni Chief Executive, 4/3/96). While it appeared that Ni had cooled slightly from their original aim of supplying the region with a hard ICTs infrastructure or 'backbone', they still felt a facilitating role was needed for this (see Table 3.1). Just prior to the re-positioning of Ni, the Chief Executive pointed out how discussions were then taking place with companies such as BT, Oracle, the local cable companies and with the public utilities to see how their hardware developments could be coordinated (ibid.). This, argued Drew, was necessary not to provide more hard infrastructure but to capitalise, in a marketing sense, on the 'Singapore effect' so the North East could be recognised as a region ready for the informational age of the future. It was at this stage of development, during 1996 and early into 1997, that a concerted effort was made to re-launch the regional ICTs partnership and strategy, and the Northern Informatics Applications Agency became Ni.

At the launch of the new organisation the Chair of Ni argued how there was a fast growing interest in informatics in the region (David Cranston, 31/1/97).[7] As if to verify Harvey's (1989b) points on entrepreneurial governance, Cranston pointed out that the relevant bureaucracy in the European Commission had noted Ni's informatics work and were "impressed with the work in the region" and in principle were supportive of a range of social and economic programmes involving ICTs. The Director of Ni, Tony Foster, then added how a regional partnership was necessary to reach consensus on the regions ICTs "connectivity and priorities" by building on many local initiatives already underway (Tony Foster, 31/1/97).

Table 3.1 Ni's seven point agenda for North East informatics

Aim	And in implementation
To raise ICTs awareness in the region	To develop a wide understanding of new skills required and the social and economic benefits which could be accrued through informatics based initiatives.
To establish across the region a common purpose in informatics	To share knowledge and best practice with other regional players on informatics.
To develop an active North East in the Regional Information Society	To obtain resources commitment and support for informatics development.
To incorporate the regions telecommunications companies in the Ni vision	To win the commitment of private companies and to help develop the regions infrastructure.
To connect all parts of the region	To establish an early construction of a regional fibre-optic broadband backbone network which connects the region, including those areas disadvantaged by geography.
To develop public and private collaborative initiatives	To broker public and private funding for the development of informatics applications, particularly aimed at education and training, health, library, information and media services, local government, business and industry, small and medium size businesses and rural development.
To develop a region wide lobbying capacity	To pressure Whitehall and Brussels and so ensure the region's informatics interests are pursued, looking to achieve financial and regulatory support.

(source: Ni, 1998)

Both Foster and Cranston were demonstrating how the regional state is ready to absorb the risks which go with speculative ICTs led economic development. Ni's process of investing in the regions ICTs infrastructure, which includes hardware such as wires, computers and cables and softer issues of education and training, is one way in which the costs for international capital is minimised. In fact, one of the major problems in Ni's attempts to achieve a regional legitimacy was because they failed in their objective to build a regional ICTs backbone and to use this to draw the region together through a structured ICTs strategy. As one member of a competing local initiative argued, Ni was originally set up to "deal with infrastructure issues and it hasn't been able to achieve this" (interview with author, 17/12/96). It could be argued therefore, that Ni have failed to deliver something substantively attractive to

private capital as well as to other governance agencies in the region, and they have not been able to successfully connect the region to the informational mode of development.

At the re-launch Foster complained that there was "re-invention" taking place in the region, precisely because there was a lack of a strategic approach to ICTs development. Here, without making direct reference, he was referring to the way the ICTs domain was evolving as a contested space (Castells, 1996), and explicitly how local ICTs partnerships in some cases appeared more successful than the region wide Ni. Two issues are apparent at this point. Firstly, there is the matter of strategic selectivity as what is worth pursuing and what is not becomes operationalised in the search for a region wide ICTs hegemony (Jessop, 1997). Secondly, there is the way ICTs partnerships are competing to be regarded as *the* informational group. This is not so much a competition between places but a competition to govern the space of flows. For example, the UK programmes for the 'information society' might in some cases complement the work of the European Commission (see SA 3.14a and 3.14b) but in essence they are both seeking to secure the lead role in informationalism – a situation entangled with the larger debate on European and national governance. Of more pertinence, one member from a local ICTs partnership has questioned why Ni's presence has delivered so little. This person asked

> "have you seen a regional strategy in the last three years? Have you seen a local strategy? Have you seen any major projects they've [Ni] implemented in the past three years ... I have not seen much progress..."
> (interview on 18/2/97)

As we shall see in later chapters, the competition to govern the space of flows in the North East falls between the region wide group and the local groups (chapter 5), and in some instances, between groups which exist within a particular district (chapter 7). These groups include and exclude local actors, they set in motion the partnership approach and effectively integrate ICTs into a method to promote flexibility, achieve economies of scale and scope, and search for permanent innovation. This is one reason why the re-launch of Ni was necessary, as it tried to reinforce the ICTs future vision on behalf of the region.

The idea of the space of flows as a contested domain in the North East is an issue which has emerged during this research. To some extent Ni face the difficulty of trying to achieve regional legitimacy in an environment which encourages local places to compete with each other for limited resources. The competitive mechanisms for financing ICTs initiatives has meant that public-private relationships within local areas have been able to develop at a faster pace than relationships across the region. However, this is a dynamic domain and is a far from defined picture. There are still many possibilities for Ni to provide a regional lead on this. For instance, devolved political responsibility (if it happens) or the recent establishment of the Regional Development Agency could reinforce the position of Ni. At the very least Ni's attempts to facilitate collaboration should give them some payback, although this does remain to be seen. In the following chapters the emphasis is very much on local places and their ICTs led economic development, bearing in mind that such local development takes place not only in the context and structure of the North East region but also in a necessary relationship with the region. In the next section of this chapter the local approach to ICTs begins to be unravelled.

3.4 Local economies and ICTs: four ideal types evident in the North East

Local based ICTs projects are widespread across the North region. In addition, there is a broad scope of initiatives across the UK spurred on mainly by European funding, but drawing on funding from a wide range of schemes (cf. Local Economy Volume 12, Issue 1 and the DTI Information Society world wide web page at http://www.isi.gov.uk/). What follows in this section include a number of the projects taking place in the region mainly between 1994 and 1995. Some of these projects are now finished and others will have been transformed into something different. Nevertheless, they build up a picture of connection based on the perceptions of a number of local actors at a particular moment in time.

Over a period of some fifteen months interviews were held with people, mainly from local authorities but also from other business support agencies, such as Enterprise Agencies and TECs (see chapter 1 section 1.3.1, and the research appendices). A smaller number of interviews with representatives from business who, in some way or other, were involved with ICTs, either as a provider or user were also conducted.

The local authorities visited covered about 87% of the North East population, but it must be added, that this was in no way meant to be an exhaustive investigation. The sampling was neither purposive, aimed at capturing all local ICTs initiatives, nor probability based. The reason for this was quite simple: in 1994 the idea of using ICTs in economic development was an emerging issue and it was not uncommon to be told that 'we haven't considered this area for development' or that 'you should speak to our IT manager' even though previous work existed (Goddard, 1992). Some of the projects were of a small scale nature and many had a limited life span, two characteristics that appear to be common to ICTs initiatives.

In fact, nomination of other people to speak with proved one of the best ways of accessing the right people. For example, the Newcastle officer recommended Wansbeck because he knew there were activities taking place that would have some relevance and be of interest. One Middlesbrough council officer recommended a local TEC representative and another officer in a County Durham local district authority provided contacts for a further two organisations. And so the interviews went, juxtaposed alongside the subject ascending as a significant issue for local authority officials, and for other local governance agencies. As a result, the ideal types that are presented below are grounded in the language of the interviewees, some of whom proved to be evangelical in their views of ICTs. The frequencies which are associated with the typology are indicative only. They are a simple count and show initial ICTs areas that have come under the influence of local governance actors, such as local skills development, support for small firms, managed business sites and on-line public information points. All of which, as we see later, suggest common points of connection.

3.4.1 The form and fabric of connection: ICTs activity in the region

One clear issue to emerge from interviewing people in the private and public sector about the regions ICTs capacity is that on its own the telecommunications sector will not generate the full social, political and economic potential of ICTs. Alternatively, the public sector, in the context of the post-Keynesian state (Jessop, 1993) cannot foot the entire bill for all ICTs development. As we will see, there are attempts by the public sector to develop hard electronic infrastructure, while private businesses are involved in setting out economic development strategy along the lines indicated by

Peck and Tickell (1995). However, what has evolved are clear lines of demarcation, as the private sector seeks to gain a return on investment into hard cables and wires infrastructure, and the public sector facilitates ICTs in softer areas such as through education, training, business support, community involvement and place marketing. In effect, it means ICTs in local economies is something of a symbiotic development and a coupled relationship has evolved between the public and private sectors.

We can say how, in the North East, there are a number of local governance organisations, generally to be found in managing the overall social and economic infrastructure, who have emerged to ensure local benefits accrue from ICTs. The form of activity in which these engage are often very similar, and often encompass broad objectives to improve services and facilitate local economic regeneration and growth. Most common are initiatives such as ICTs training programmes involving TECs and further education colleges, particularly the Northern Colleges Network (see below), new electronic connections among local economic support agencies such as between the Business Link, TEC and local authority, new methods of place marketing by using the World Wide Web, new physical infrastructure in the form of a designated telecentre or business park with state-of-the-art technologies available, or perhaps, involvement in fibre optic cable laying.

Some examples of ICTs development, either in plan or implemented at the time of interview, include Newcastle City Council as a collaborator with other European partners in projects such as a passenger transport application called TURTLE providing on-line, real-time transport data and involving local travel companies, requiring a computer and modem for connection, or alternatively access via the local cable teletext system; and EQUALITY an urban and rural teleshopping project for people with special needs (interview with Policy Officer, Newcastle City Council, 22/11/94). Newcastle regards itself as the lead city in the region and projects like this are often pursued through the European Digital Cities Project (see Figure 3.3), but other initiatives such as community based ICTs projects are also in place (Walker, 1997).

Figure 3.3 A Newcastle input into the European Digital City programme

Developing an Intranet and Internet Strategy: the Newcastle Approach

Newcastle City Council has had a presence on the World Wide Web since June 1995. The Website originated because of a need to provide easy links to existing quality information about the City of Newcastle already on the WWW - indeed the homepage is a City rather than Council page.

The Newcastle Website has not been widely publicised to date, as it has been developed in an ad-hoc rather than a planned way, and mainly used to promote innovative projects or to disseminate experience of how to overcome obstacles of electronic information provision. Despite this, the Website is attracting over 300 visitors per day, and was voted UK Local Government Website of the Year for Style and Design, 1996.

Recently, the City Council decided to develop an Intranet and to use this as a basis for its Internet Website. The Intranet will enable everybody in the City Council to use Internet email, and potentially to browse the Internet. Rather than purchase an Internet server, firewall software and travel a steep technological learning curve, Newcastle is using a server operated by the City Council's Internet consultants, to evaluate the best way of connecting the City Council to the Internet.

The City Council has an Intranet server, and public pages will be forwarded to the Internet server via a leased data connection. This means that whilst information is maintained at the City Council, the Council need not have its own firewall software as outside access to the City Council Webserver is not required. This has meant that the costs of the Intranet and Internet facility have been substantially reduced at this stage. A strategy is being developed which will ensure that the information on the Intranet is user-built and mirrors the flexibility of the Internet, providing facilities for homepages (topic lists), newsgroups etc., but without the need for users to use HTML directly.

The Website will be able to develop by itself as it will allow non-specialists to develop information resources. All pages will carry a 'click here to add a new item' button. Users will be able to create, view, or add to resources such as topic lists, contact lists, discussion groups and Community Noticeboard groups. All new items will be automatically indexed and authorised.

Local organisations with whom the city works, or to whom the city grants aid, will be able to manage their own pages of information displaying appropriate header and footer images so that users can see who is responsible for the information held on the page. Facilities will be provided where appropriate to allow users to make or suggest additions to pages, to make comments to the page maintainer or to submit a complaint about the page contents to the Website manager.

All public items will be made available over the World Wide Web, and the private items over the City Council Intranet alone. This facility will exist for authorised persons to release private items for public access at any time and vice-versa.

It is clear that a comprehensive indexing system is required for all of the information stored on a Website. The index joined to a dynamic keyword thesaurus should have the capacity to handle ethnic minority languages (both for information input and retrieval), and similes (for retrieval). This is also crucial to the automatic generation of a hierarchical menu offering an additional method of navigation for Website users. Users of ethnic minority language information will be reliant on these keywords for keyword searching (image) and the automatically generated hierarchical menu and custom pages, as they will not be able to undertake free text searches for information because the Internet cannot handle pictoral scripts other than Japanese.

A Noticeboard Group will be established for Website development bulletins, so that visitors who have signed the visitors book, as well as other subscribers, are sent news about site development etc.. The use of keywords will allow Website users to 'subscribe' to given keywords and automatically receive notification by email of every addition to the Website indexed with that keyword.

(extract from the *Digital Cities Project* Newsletter, No. 3 August 1996, p 19)

In nearby North Tyneside ICTs plans were much more conceptual. Two local authority officers looked to secure European R&D Framework IV funds to develop a community on-line information network, which they had named 'COIN' (interview with local authority officials, 20/2/95). Essentially, the aim of this was to provide electronic points of information at key locations to develop a more efficient information flow between the local authority and local people. In neighbouring South Tyneside it was suggested, based on a piece of market research conducted by the local authority, that there was a latent demand from local businesses for IT support. They were collaborating with the Enterprise Agency, TEDCO (Tyneside Enterprise Development Company), on a feasibility study for a local telecentre targeted at people with special needs, so as to improve their access to the labour market. Funding for this was granted via the previous Urban Programme (interview with the local authority economic development officer, 17/1/95). In all the Tyneside districts, local actors felt the work of United Artists, the local cable company, was an important feature in developing the locality's ICTs capacity.[8]

Further south in Teesside, Middlesbrough Borough Council had begun to explore ideas for funding ICT initiatives by looking at the Manchester Host model and thinking about how European R&D money could be secured for a similar local scheme (interviews with chief officer, economic development officer and IT manager, 3/7/95). Their aim was to provide an on-line network providing information for community groups and also to target support for the local small firm sector. SRB finance had also been considered for this, specifically focused around three community centre initiatives involving the University of Teesside and the Teesside TEC. Middlesbrough officers pointed out that many projects existed which fell into such a broad category as ICTs, such as the training and consultancy CadCam Centre set up by (the former) Cleveland County Council, and the Women's Skills Initiative providing 'hands on' training for women looking to improve their skills and return to the labour market. In Stockton on Tees, Hartlepool and Langbaurgh (now Redcar) ICTs were felt to offer an opportunity but not one which should divert resources from fundamental needs facing many local communities. Grants and training were available through various schemes including City Challenge, while the Belasis Hall Technology Park offered managed workspace with "premier technology" facilities (interview with local economic development officer, Stockton

Borough Council, 25/7/95). Also, Comcast were providing an fibre optic network across the sub-region of Teesside and into Darlington.

Rural areas too had tentatively begun to consider how ICTs would effect their locality. In the Wear Valley district (County Durham) the newly opened Durham Dales Centre incorporated a telecentre which allowed local 'teleworkers' to "pick up clerical work such as word processing and desk top publishing" (interview with Dales Centre manager, 27/4/95). Carl Bendelow, the manager of the Dales Centre argued that rural areas need ICTs to overcome their geographical disadvantage. Although Bendelow held a crusading attitude towards ICTs, he made a strong argument for more rural ICTs support based around three areas of development. First, a better provision of support for rural businesses could be provided if only Business Links and other local business support services could achieve a real-time capability. Second, ICTs could be used as a tool to support learning and training in rural areas by extending the scope of further education provision through local schools. Third, telecentres as local electronic points of information could be established to support tourism and relieve the burden on the local tourist offices who are facing mounting financial pressures. The rural angle in ICTs is a developing feature in the region (Talbot, undated) as the economic development officer in Wear Valley noted when he explained how Telergos (a small private telecentre business in Barnard Castle, County Durham) were attracted to the County, not by a high technological infrastructure, but by the quality of the managed workspace and the local environment (interview with local economic development officer, Wear Valley, 21/12/94 and Managing Director, Telergos, 20/4/95).

At the same time, the Northern Colleges Network (NCN) was emerging as a regional initiative. It involved 25 out of 28 further education colleges in the region, looking to set up a further education (FE) ICTs infrastructure costing £900,000 over two years (1995 to 1997), and funded from the central government Competitiveness Fund, via the regional Government Office North East (GO-NE). This money was used to install cables, pay for line leasing costs, develop on-line education and training applications, train FE staff and to establish a closed user group and connection to the Internet. NCN sought to mimic the FE's more affluent relation in higher education and the Super JANET network in use in all UK universities.

Interestingly, the funding came through a scheme designed to support the competitive edge mainly of the small and medium size firm sector and resulted in the FE sector making inroads into the economic development domain through its ICTs plans. As the Chair of the NCN argued

> "the advantages [of NCN] is to the customer of the colleges ... the twenty odd colleges represent a virtual educational resource to them [the small firm sector] and that's why the regional aspect is important in that respect ... access to all the expertise in the colleges across the region" (interview with author, 10/1/97).

Positioning the work of the NCN next to the different initiatives of local authorities shows the complexity that has unfolded in the region as the latest wave of informationalism has rippled out. The space of flows is a contested domain and while the perspectives of local authority officers is indeed an uncomplicated, one dimensional snapshot of a limited number of initiatives around the North East, it does show how such complexity has taken shape in recent years. As one officer explained, there is a "problem for ICTs development by local authorities ... in that development takes place in isolation, leading to piece-meal development" and with the competitive nature of local development funding it leads to a lack of collaboration in many areas of economic development (interview with author, 3/7/95).

3.4.2 Local economies and ICTs: ideal types and 'successful' governance

The typology that follows bridges the gap between generalised extensive empirical data and the more intensive case study approach used in later chapters. These ideal types have arisen out of a process of abstract and concrete research and they provide part of the contextual structure in which the later chapters make sense. The structures, mechanisms and events (see Figure 3.1) that are evident in the extensive approach taken here, show a range of points of connection, and demonstrate how the space of flows is a contested terrain between regional and local ICTs governance groups. While the typology cannot therefore explain successful development it can show difference, and begin to help define what 'success' might be in this complex domain.

As Bailey (1995) has suggested the idea of 'successful' partnerships cannot be judged simply on standards which measure output, in terms of jobs, company turnover and multiplier effects. A key issue for ICTs partnerships is the way they strategically prepare for the development of their locality and how specific projects sustain the partnership vision of the future. At any particular moment in time, it is important to have a critical mass of ICTs projects, or well supported plans, which allows the strategy to develop on a tangible path supported by the continued existence of a local governance process. This is entirely consistent with Castells (1996) suggestion on the shape of the network society, based on an ecology of social actors interacting between projects, funding mechanisms and tenders. Notably, the 'quality' of a partnership is related to this network approach and sustaining the social relations involved becomes a critical factor. The most successful partnerships deliver projects within a computopian economy, with clearly articulated points of connection and strong governance mechanisms to shape the space of flows. The least successful are completely off-line (see Table 3.2). The four ideal types which follow show how different levels of importance are attached to ICTs in local economic strategy. Because of the dynamic nature of this domain, difference is relative rather than linear, or hierarchical, with current levels of ICTs unpredictable and dependent on a combination of local context and underlying macro processes.

As the local governance partnership manages this dynamic, they reconstitute their own rationale towards local economic development. They alter their immediate environment and seek to change the morphology of the local economy through ICTs, such as by building up a more competitive small firm sector. They strive to change internal and external conceptions of their area so the locality becomes recognised as vibrant, diverse, environmentally friendly and safe. On the way to achieving this, images associated with the past, such as the state supported industrial structure referred to by Sadler (1995), are purged and traditional work becomes little more than the areas heritage, meaning a different structure is required in the labour market. Such aspirations result in a need for new and different skills to complement those still in demand and to displace those regarded as outdated. In this cathartic and symbolic routine the importance of ICTs cannot be overstated; they act to create a new image of the locality and feed directly into the vision of those attempting to show an energetic and environmentally safe locality which is capable of sustaining new types of jobs.

Table 3.2 A typology of North East ICTs and local economic development

TYPE OF LOCAL ECONOMY	No.[1]	TYPE OF DEVELOPMENT (and indication of levels of activity in North East localities)						
		Upgrading local ICTs skills and awareness levels	ICTs support for small firm growth	Business support agencies ICTs networks	Managed sites for business with state of the art technologies	Franchise cable infrastructure[2]	On-Line public information points	Use of the Internet
Computopian	3	3	3	1	3	1 (1)	3	2
Multiplexers	4	4	4	2	2	1 (1)	1	
Narrowcast	8	1	8	8		4 (4)		1
Off-Line	2	1	1			(1)	1	
Examples of development		There are schemes such as telecottage initiatives to encourage local teleworking small business and co-operatives; there are women's IT projects to address the gender imbalance of technology; many projects dovetail into the work of further education colleges and the IT work undertaken by the regions schools.	Projects which include small firms using the Internet with connection services and support provided; the provision of IT 'cyberskills' training; and finance specific to hardware, software, and IT advice or consultancy	Systems which connect the increasing range of business support services, in particular the Business Link network. Other agencies such as TECs and local authorities are keen to have access to this network, and to use the forum to exchange information on local businesses and markets.	Aimed at (foreign) inward investment and indigenous small firm development. These sites use various forms of physical networks such as ISDN or satellite.	Solely driven by private cable operators who are mainly looking to secure a local base for telephony services. Local authority involvement varies, basically it means liaison with the local planning department. For computopian authorities it will mean consultation at a strategic level.	Local area networks (or Intranets) which will be provided with a community focus. Material will vary but the focus will be on public information provided at sites which are easily accessible, such as libraries, shopping areas, and community centres.	Local authorities use these for electronic mail, EDI and increasingly the World Wide Web. The latter provides a low cost medium to place market and is a growing trend among UK local authorities.

1. This row indicates a frequency count of local authorities of each ideal type engaged in the different kinds of ICTs development.
2. The franchise for installing cable is heavily weighted towards urban areas. The figure in brackets represents those authorities who would like to have a cable infrastructure installed in the medium term future.

Computopian local economies

Computopian local economies have a distinct strategic focus on ICTs for economic development. The most distinguishing feature of a computopian economy is that there is in place a partnership which clearly sets out the levels of co-ordination and funding dedicated to ICTs activity. This is coupled with the overall partnership vision to create a new kind of local economy. In the partnership, expect to see a conduit for senior officials from the public sector, or from the local business elite, to act as a figure head for the group, or who will lead the strategic direction of ICTs governance. Below such actors there will be the political and technological entrepreneurs. These people effectively market the strategy, gain the funding to implement the strategy, and oversee the implementation of the strategy and its component parts. Political entrepreneurs know the funding regimes, such as European Structural Funds, they understand the importance of networking, they seek to develop a synergy with like minded people and with the technological entrepreneurs. Technological entrepreneurs have a reasonable understanding of the technologies involved, but do not usually become involved in the actual implementation of ICTs. Instead they manage the process guided by their commitment to realise the potential of the technology. Technological entrepreneurs are not uncritical of the technology, they simply see it as a tool which needs to be mastered (Bijker, Hughes and Pinch, 1987).

In each locality there is a context to be drawn out by the partnership which emphasises their computopian uniqueness. This could be about managing new business sites in which ICTs act as a main lever to attract further economic inputs. The latest fibre optic cable will be found here, maybe even satellite communications, but the key issues will not be technological, they will be about creating new types of business activity. This sort of development will involve organisations such as English Partnerships, or other similar quangos, acting as partners to maximise potential from what may previously have been underused, derelict industrial sites of negative equity. Adding value in this way, the partnership will entice new inward investment and businesses who are keen to develop a technological edge or become involved in high degrees of information processing.

In computopian economies there will be evidence of European or central government funded ICTs projects. These will be governed by the ICTs partnership. Funding of

this nature might support specific ICTs training, through the European Structural Funds (ERDF or ESF) for instance, or it might support particular disadvantaged communities, through the SRB for instance. The partnerships will be using the projects to build up their own areas of expertise, for example in terms of new knowledge and applications, which they believe could have a market value when fully developed. This will be about developing on-line communities (of businesses or neighbourhoods), putting in place a series of on-line public information points, and generally increasing the levels of information dissemination between the public authorities, the private sector and local people. The partnership will be keen to display their work by seeking to increase ICTs awareness within the locality, demonstrating how not all groups are convinced of the value of ICTs. But at the same time, the partnership, perhaps through a paternalistic approach, includes many sections of their own local society. In other words, they generally bring together all the pieces of a holistic plan for ICTs in economic development. It matters not whether a computopian economy is rural or urban; boundaries are important but they act as a way to scope opportunities and achieve economies of scale. The key is the assembled partnership to govern the space of flows.

Multiplexing economies

The way in which multiplexing economies differ from computopian economies is that the restructuring of their local economy is not led by an ICTs rationale. In such a local economy there will be many examples of ICTs which are highly consistent with the levels of activity in computopian economies. However, they will not be championed in a coordinated manner by ICTs partnerships. They may well have actors who can 'fit the bill' as political or technological entrepreneurs, but these people will not be a position (by default or design) to pursue such co-operation. ICTs projects will not fall under the umbrella of a collective vision, nor will they be the main thrust to economic development. Key personnel in these economies will not be hostile to ICTs, quite the contrary; they will seek to combine a range of IT initiatives with other projects to provide a diversity in their plans for economic development. The partnerships that exist in these economies will be more generic, guided by an over riding objective to stimulate their local economy with or without ICTs.

In these economies projects will exist which are aimed at IT skill levels, some form of physical infrastructure development and information provision for small firm development, such as grants for hardware and software, drawing on organisations such as the local Business Link. A good example of the difference can be seen in the attempts in one such locality to establish a business park with the capabilities to run computer, electrical and telephone cabling, thereby creating a state-of-the-art informational processing environment. However, this site was not guided by an ICTs strategy, or marketed through an active ICTs partnership, and demand for premises on the site proved disappointing. One of the actors involved described this as an "initial over-estimation of the nature of hi-tech and ICTs requirements in the business park" (interview with author, 17/1/95). Multiplex economies have not developed the knowledge and expertise which bring together ICTs partnerships, and because this is an important political issue it over rides any technological features the locality may be able to speak of.

Narrowcast economies

A distinguishing feature of narrowcast authorities is that they are reactive to demands for ICTs. As with the multiplexing economies, there are no active ICTs partnerships or ICTs strategies in these economies and any governance of the local economy will be based on the belief that there is insufficient demand from local industry or from the local community to justify the efforts required to get ICTs initiatives off the ground. Basically, ICTs do not rank high enough up the political and economic agenda to warrant more than marginal attention. Local actors hold the view that local businesses, the local community and indigenous small firms demonstrate no new needs for technology led projects. Of more benefit, it is argued, are projects that secure land reclamation, improve the physical infrastructure and provide training for businesses, particularly the local manufacturing sector.

It is not a contradiction that narrowcast economies do have ICTs projects or plans. In one such locality there was a rigorously thought out concept to provide public access multimedia, including video links to schools, libraries, job centres and council offices. The motive behind this was to

> "ease the problems of the socially excluded, economically deprived by enhancing their employment opportunities and contributing significantly to their social integration"
> (interview with a local authority officer, 20/2/95).

In narrowcast economies the objectives are to meet the requirements for development which manifest within their local economy. The local partnerships which govern development focus mainly on traditional elements of their local economy, such as labour skills, accessibility of local businesses to international markets and the prospects of private industry qualifying for regional aid, believing these to be much more significant. One consequence of this is that local partnerships fail to enable an environment which encourages innovation and entrepreneurial speculation of the kind Harvey (1989b) has outlined.

Off-line economies

Off-line economies are most marked as those least able to respond to the shock of industrial restructuring. In these areas closure of traditional industry is a relatively recent event, and it means that the full impact of job loss and associated decline in income levels, house prices, population loss and general malaise are only just being felt. Coming to terms with this is extremely difficult and actors in the locality feel their area is disconnected from the social and economic benefits of the national economy. There will in fact be some levels of ICTs activity in local economies of this type. For example, in one off-line economy there were aims to develop a touch screen public information service available in libraries, financed through the County Council and European funding (interview with local authority officer, 30/11/94). In another locality there was a scheme of grant support for small firms to purchase new technology equipment (interview with local economic development officer, 8/8/95).

Off-line economies are under enormous social, economic and cultural change. Because of this they actually become the focus of attention for many public sector agencies, like the Regional Government Office or English Partnerships. They can attract major funds from Europe and central government and can win special category status, such as having Enterprise Zone status designated. However, they are off-line because many previous initiatives have passed them by and they have been marginalised in some form or other. Should they seek to develop their approach to

ICTs the availability of funding could work in their favour and their less favourable position may only be transitory. Fundamentally however, it will not be funding but the combination of actors within the local ICTs partnership which makes the difference.

The four types of local economy and their reliance on ICTs outlined in this chapter are ideals. Their presence in the region is evident only in parts. There are economies which tend towards the computopian type, as there are economies which appear to be off-line. One of the key points to draw from this section is the scope of ICTs initiative which are evident in the region, but also that there are qualitative differences to be seen as ICTs in local economies are compared and contrasted. ICTs development in the region is not uniform and the ideal types are a loose attempt to offer some generalised characteristics about local economies and ICTs. Yet, instead of making claims that these are characteristics representative of all local economies (see for example Gibbs and Tanner, 1997) the work has proceeded consistently with the critique provided by Sayer (1992) concerning events (ICTs projects), mechanisms (the ICTs partnerships) and abstraction (the ideal types) and the problems of generalisation. The aim in the next chapter is develop this in more detail by drawing on concrete research in an intensive manner.

3.5 Summarising the extensive work and choosing the four case studies

This chapter has been about the form and fabric of ICTs in local economies in the North East, based on a period of extensive research which was carried out between 1994 and 1995. The work has begun to uncover some of the concrete events which are shaping the region's response to the informational age, raising questions about how the space of flows is a contested terrain, and presenting an idealised typology grounded in the activity of local political and technological actors, some of whom are involved in the formation of ICTs partnerships. The concept of partnership is an important aspect to this work and the four cases which follow seek to draw out some of the differences which might be found in the quality and behaviour of those partnerships. This will include a purview of the dynamics within the partnerships, for instance addressing the question of what makes ICTs a legitimate domain for various actors to coalesce around and whether or not it is a case that new technology has the power to draw together groups with different agendas. A consequence of the

extensive work is that it reinforces the salience of questions such as those outlined in chapter 2.

The four cases which have been selected do not fall into each of the categories set out in Table 3.2 and it is not simply a case of comparing the difference of one economy from each of these types. To a great extent, the four cases have been selected to test out the differences between ICTs partnerships, strategies and initiatives and how they fit into local economic development. That is, how, in each case, connection to the informational mode of development is set out and whether or not the partnership approach is capable of shaping the space of flows. In the next chapter, the first of these, focused on Sunderland, consider the work of the Sunderland Telematics Strategy Working Group. Following on from this, the work in south east Northumberland, in Wansbeck, is investigated, focused specifically on the actors operating around the Wansbeck Initiative. In chapter 6, the work of the County Durham Informatics Partnership is examined, which has a wide geographical remit covering the whole of the county. Finally, the fourth case study looks at the ICTs development in Teesside where there are a number of agencies leading the charge. In each of these localities the debate on points of connection, the coalescence of groups around ICTs and the local governance of the space of flows have a clear local structure with respect to the region, and further afield, to the global informational economy.

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[1] It was a method developed from Saussure's structural linguistics approach (Saussure, 1974) which looked at the arrangements of elements in a system, and the historical development of those elements over time, identifying the sign and its position within language. Barthes (1973) provides a good illustration of this concerning 'Omo euphoria' which associates consumerism and science (see Smith, 1998 pp. 240-245 for an introduction).

[2] For instance, descriptions of a market economy or a command economy are ideal types. The former Soviet Union would tend towards the latter, the USA would tend towards a market type. Likewise, economies in the North East tend towards one of the four ideal types of computopian, multiplexing, narrowcast and off-line.

[3] For instance, among many others there are similar occurrences in Australia (in South East Queensland), in Southern California, and in the South West of England. These are accompanied by a proliferation of regional technology strategies, or through the notion of 'virtual' cities (see, for instance, Techquad, undated; Southern California Association of Government, 1996; Geelhoed, 1997).

[4] All references to figures such as these in this work can be seen in full in the statistical appendices at the end of this thesis. The figure in parentheses e.g. (SA 3.1) refers to the Table number in the statistical appendix.

[5] Prior to the reforms steadily introduced by the Conservative government from 1979 the Northern region was designated as an assisted area with Special Development Area (SDA) status for parts of Cumbria and industrial districts in the North East. In 1984 SDAs were eliminated with a shift in emphasis to selective assistance, a grant from central government that generally provides between 5% and 15% of a particular project's fixed costs.

[6] At this time the Bristol – Bath Media Group were focused on sector development, particularly looking at ICTs and its effect on their local media sector.

[7] Ni was formally re-launched on January 31st 1997 in a joint conference at Darlington College of Technology that also involved the formal launch of the Northern Colleges Network.

[8] The economic impact of the local cable companies is an issue on its own. United Artists (who are now known as Telewest) for instance are said to be investing some £170 million in their North East operations, employing around 500 people in the region, 40% of whom are sub-contractors (interview with Public Relations Executive, United Artists, 20/7/95). Comcast in the Teesside area (who are now known as TNL) employ a similar number and have an estimated investment programme worth £250 million (interview with IT Director, Comcast Teesside, 27/4/97). What the multiplier effects are from such an operation remain to be uncovered but they fall outside the focus of this work. In addition, the name changes both companies have experienced reflect the way this sector is subject to mergers and take-overs.

Chapter 4

The Sunderland Telematics Strategy: creating a computopian path

4.1 Introduction

The Sunderland Telematics Strategy came together in a very short space of time. In a matter of only 18 months the focus on ICTs went from almost nothing to a fully operational strategy, built on a rigorous city-wide partnership and aimed at coordinating a number of technology related projects. Some of the major issues raised in this process concern the way Sunderland has come to terms with the restructuring of its local economic base as traditional industries, such as coal-mining and ship building, have declined. What this has involved is a number of social and economic regeneration initiatives including a wide range of local governance agencies, such as the former Tyne and Wear Development Corporation, the City Council and the City of Sunderland TEC, who have come together under the auspices of the City of Sunderland Partnership. As the restructuring of the Sunderland economy has taken place, very recently the Partnership has set in motion the creation of a new idea, travelling on a computopian path, as local actors have sought to connect the local economy with the global informational age. At the helm of this journey are the local ICTs partnership, the Sunderland Telematics Working Group (STWG).

One thing to emerge from this case study is the way a computopian path is pursued by a city such as Sunderland. This process of connection is set out clearly in the Sunderland Telematics Strategy (City of Sunderland Partnership, 1996). As with other strategic initiatives in the region, this document is about promise, about creating a new tomorrow. It introduces to the stakeholders of the Sunderland economy a vision and importantly, a discourse about the way economic development will take shape. While some of the intentions contained in the document are likely to fade away – mainly due to the competitive nature involved in obtaining funding – this is not the real essence of the Telematics Strategy. According to one member of the STWG the success of Sunderland Telematics is unlikely to be seen in the short-

term, and is more likely to have an affect in between five and ten years time (interview with author, 16/6/97). However, even now there is an emerging image of Sunderland taking shape of which telematics is very much a part. This involves bringing together a broad range of activities and provides an excellent example of how many different groups coalesce around ICTs.

The early sections of this chapter show the points of connection in Sunderland. Some of these are currently being developed and others are simply in plan, but they include business, education and community ICTs initiatives. Prior to this, the contextual structure to Sunderland Telematics is shown. This gives an outline of the way the local economy has changed in the recent past, and additionally, there has been a period over the last 15 years in Sunderland where the capacity to enable economic development has been built up. The restructuring processes in Sunderland have been quite important in establishing the political machinery that has led to the first few steps on the city's computopian path. The form of the STWG is clearly related to the wider political machinery involved in the restructuring of the Sunderland economy, and this provides a stark illustration of how place, political process and ICTs are interwoven in contemporary measures to develop local economies. In development of this nature, there are choices to be made and legitimacy to be secured as some projects are selected to epitomise the future for Sunderland. Others do not quite have the same profile. Dynamics such as these are shaping the space of flows in Sunderland.

4.2 Connecting Sunderland to the informational mode of development

It is only recently that Sunderland has announced its intention to participate in the informational age. During an interview with a local authority officer in early 1995 ICTs were regarded as a very marginal area for development. The officer involved at the time realised there was an emerging set of policy statements emanating from the European Union about new technologies (interview with officer of Sunderland City Council, 24/1/95). Yet by the end of 1996 the city had received approval from the World Teleport Association that invested on Sunderland the award of 'most

improved teleport' (City of Sunderland Partnership, 1996).[1] At the same time Sunderland launched its Telematics Strategy. The components of this are focused on education, training, supporting the local small firm sector, supporting local communities and the enterprise taking place at the Doxford International Business Park, which includes the siting of the Sunderland Teleport. Sunderland Telematics is being driven in its early years by the public sector and involves a group of key policy-makers who, in essence, are cultivating the city's entry requirements into the global information processing economy. In this section, how Sunderland is being recast as a computopian economy is shown and there is a particular emphasis on how specific points of connection to the informational mode of development are being prepared.

4.2.1 The shape of the Sunderland economy

If there has been something of a renaissance in the Sunderland economy, it is hidden in employment figures which indicate a structural shift in the composition of local industry and consequently, the local labour force. Official figures on employment suggest that from the 1970s Sunderland has lost a number of jobs in engineering and coal, that throughout a period of recession in the 1980s industrial sectors such as manufacturing and engineering have struggled, but that in the 1990s there has been some recovery of industrial activity in the manufacturing sector (see Table 4.1). In 1971 engineering included the important ship building industry, and the figures show the substantial employment in the city located in mining and quarrying towards the end of the Fordist era. Twenty-five years on, the public sector is much more prominent in terms of proportion of employment, particularly in the areas of health and education. These figures also suggest a slight diversification of the Sunderland economy, as in 1971 the leading four sectors accounted for three-quarters of all employment. By 1996 the leading four sectors made up about two-thirds of all jobs.

Table 4.1 The changing employment structure in Sunderland: Numbers employed in the top 4 industrial sectors, 1971 – 1996

	Sector	1971	Sector	1981	Sector	1996
1	Engineering and allied trades	24,200	Other services	26,500	Manufacturing	27,700
2	Financial, professional, miscellaneous	23,900	Distribution, hotels/catering; repairs	24,400	Wholesale and Retail trades	15,600
3	Mining and quarrying	18,000	Metal goods/vehicle industries, etc.	13,000	Health and Social work	12,400
4	Distributive trades	16,800	Other manufacturing industries	8,200	Education	9,600
Sub-Total		82,900 (71.5%)	Sub-Total	72,000 (74.8%)	Sub-Total	65,400 (66.2%)
Total Employed		**115,900**	**Total Employed**	**96,200**	**Total Employed**	**98,800**

(Source: Census of Employment, Nomis, figures rounded)

Although this data is not strictly comparable due to changes in the sampling frame, such as the definition of sector and changes to the city boundary, these figures do indicate the recent trajectory of Sunderland's employment structure. Current boundaries suggest around 98,000 people employed in Sunderland, with leading employers being Sunderland City Council and the Health Authority from the public sector, and Nissan, the car manufacturer from the private sector (see S.A 4.1).

In fact Nissan is held in high esteem by a number of local actors in Sunderland. Many of those interviewed from the Sunderland Telematics Working Group (STWG) argued how automotive manufacturing is more important now to the local economy than ship building ever was. The Leader of Sunderland City Council[2] stated

> "without Nissan we'd [Sunderland] have been devastated job-wise. Nissan was the catalyst that has enabled us to survive during the loss of our traditional industries and we've continued to grow because of Nissan"
> (interview with author, 10/3/97).

Nissan, who have had little involvement in the development of the Telematics Strategy in Sunderland, are regarded as a catalyst for the local economy. In fact, during interviews with actors in the Sunderland organisations, on more than one occasion the figure of 12,000 jobs related to the presence of Nissan was put forward. These figures would indicate a significant reliance of the Sunderland economy on

Nissan. The number of VAT registered firms in the entire Tyne and Wear district in 1996 was 16,175 (VAT database, Nomis), while the number of workplaces in Sunderland in the same year was 6,650 (see S.A 4.2). If the figures related to the car giants are anything more than speculative they would account for a large proportion of the near 30,000 manufacturing jobs in the city (Table 4.1). As always, some care is needed in interpreting statistics such as these as often they miss the effect of jobs in the service sector which may rely on a major manufacturer, or might fail to record the presence of other types of firm operating in the automotive supply-chain. What is noticeable, however, is the belief that Nissan has been instrumental to the city in recent years, a view widely held by members of the STWG.

From a population of around 290,000 there are about 9,500 people claiming unemployment benefit in Sunderland (December 1998, source: Nomis). At one point in the mid 1980s, nearly 30,000 people were recorded as unemployed. Thus, the recent policy-mechanisms aimed at addressing the demise of traditional industry, at structural unemployment and geared towards restructuring the local economy have included new urban regeneration programmes, new initiatives for training, and policy support for small firms and the self-employed. The means by which these have been delivered in Sunderland have involved the local authority, the former Tyne and Wear Development Corporation, the City Challenge programme, European Structural Funds, the Urban Programme and more recently, the Single Regeneration Budget. What these are facilitating are new and revitalised business and community sectors from which Sunderland can connect to the informational mode of development.

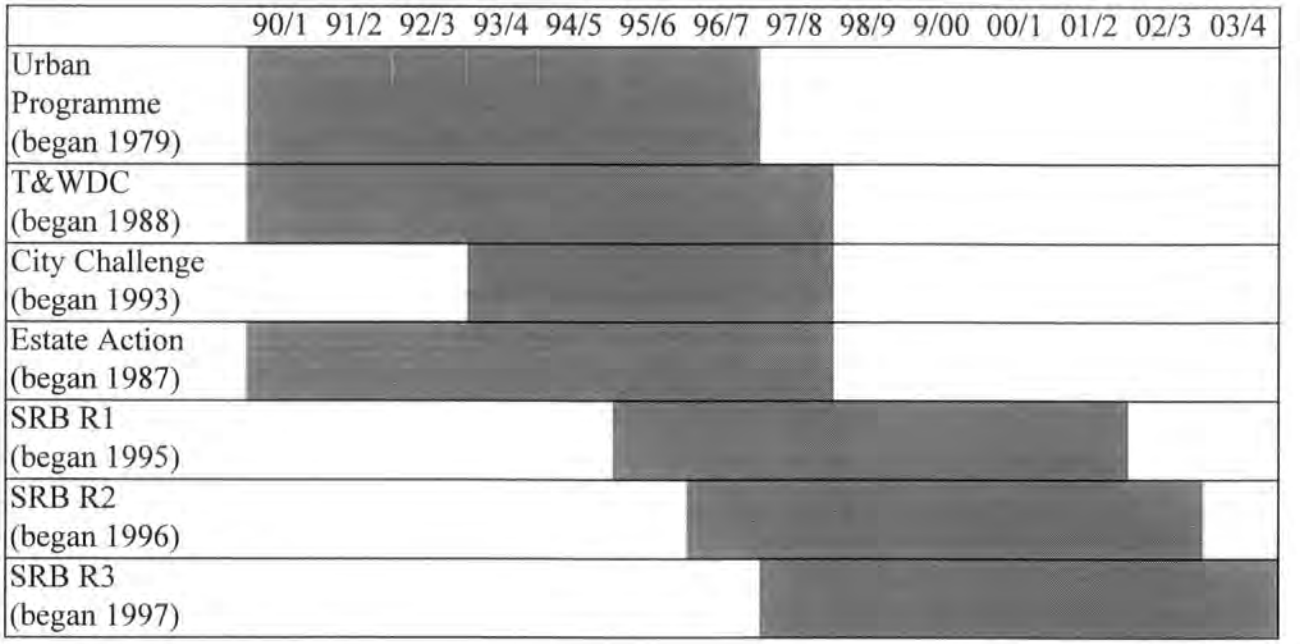
4.2.2 Building the capacity for Sunderland's connection

Over the past two decades various policy funding has helped Sunderland to restructure its local economy. New initiatives have effectively set out a fresh path for development. As with many other similar places, recent shifts in funding economic regeneration have included a move away from schemes such as the Urban Programme, and placed an increased reliance on European and central UK Government finance (see Bachtler and Turok, 1997). In essence, the way that basic points of connection have been set out in Sunderland has laid the basis for a logical

integration of ICTs into the economy. The restructuring process over recent years has set in train a series of initiatives and activities which not only embed the notion of change, but which advance a path towards the Sunderland Telematics Strategy.

Important policy mechanisms, vital to Sunderland during the 1980s, have recently come to an end, and have been replaced by programmes which fall under the banner of the SRB. Figure 4.1 shows how these previous funding arrangements have been phased out in favour of the SRB. What this shows is the ending of the Urban Programme, the completion of the work of the Tyne and Wear Development Corporation, the City Challenge programme winding up its operation, and the end of projects associated with Estate Action.

Figure 4.1 How the emphasis of major central Government regeneration funding in Sunderland has shifted



(Source: Council Minutes, May 1995; DoE, 1996, 1997)

The relevance of this shift lies in how the SRB has been used to support Sunderland's ICTs initiatives. Yet this is only one part of restructuring which includes direct finance into Sunderland to facilitate local economic development and covers "£10.917m SRB funding ... committed to the city over the next seven years" (The City of Sunderland Council Minutes, May 1995) on top of the £4.6 million previously declared through the Urban Programme between the years 1993 to 1995

(see S.A 4.3) and the near £10 million funding from European Structural Funds designated during 1989 and 1993 (S.A 4.4 and S.A 4.5).[3] The point being that these financial injections from UK and European Government acted to enliven economic activity in areas where Sunderland was struggling. They stimulated the partnership approach in local governance agencies and allowed the cross-fertilisation of ideas among key local actors, ideas which were soon to permeate into the City of Sunderland Partnership. The creation of the City of Sunderland Partnership itself drew on SRB funding, and set in motion the framework for a number of focused partnership efforts. One of these in particular, the STWG, has been responsible for developing the Sunderland Telematics Strategy.

However, the capacity for integrating ICTs into local economic development in Sunderland was by 1995, far from clear. This was particularly challenging for Sunderland, as at this time Ni had set in motion a plan for the region which sought to develop a number of key initiatives and priorities. There was also, as shown in chapter 3, an emerging issue of contestation around the governance of the space of flows as local initiatives across the region began to spring up which were, in fact, challenging the Ni lead. Sunderland had not begun to articulate any such approach and there was no sign of a local ICTs partnership in place. There lacked, at this time, a co-ordinating or visionary approach to ICTs in Sunderland and there was no sign of any conduit between the public sector and the local business elite to shape the strategic direction of ICTs in the Sunderland economy. Although, interestingly enough, there were a number of ICTs related activities which were place.

The cable franchise for the area had recently been allocated to the communications company Bell Cable Media. The work of the cable company was thought to be useful for the area as a whole, yet the main concern revolved around potential environmental damage as cable laying took place (interview with Council Officer, 24/1/95).[4] Following the enclosure of the central shopping arcade a closed circuit television (CCTV) security system had been installed aimed at reducing crime and looking to encourage shoppers to visit Sunderland. This installation had been supported by EU funding and the local authority later took advantage of the UK

Government CCTV Challenge Competition (Council Minutes, March 1996, November 1996). However, this was entirely piecemeal and there was no clarity from the local authority in the way CCTV could support economic activity, neither was any concern shown about the social implications involved in adopting CCTV, despite some £500,000 being sought for this (S.A 4.6).

Within the local authority some attention was being paid towards their internal information systems, but with little regard to how they might prove to be valuable in the broader vision of ICTs.[5] The best this might offer, it was believed, was a potential to allow the dispersal of local authority information (interview with Council Officer, 24/1/95), but as Ni had already noted, the opportunity to tap into the developed IT programmes of the public sector was huge (see SOCITM, 1997). So, it was reported that an 'A - Z Guide' of local authority services was to go on-line, first internally but with the aim of connection to the Internet or to the local cable system for wider public dispersal (City of Sunderland Council Minutes, December 1996). Alongside this there were other projects to upgrade the internal GIS capability, to introduce the BT digital system FeatureNet (with anticipated savings of £500,000 according to the Council Minutes of February 1996), and ideas emerged to think about how local companies could be encouraged to tender for European contracts via the European Tenders Daily system.[6]

There was little at this time to suggest Sunderland was heading down a computopian path. However, the change has been rapid moving from this simple overview of development in 1995 to the point whereby two years later

> "everywhere you go it is our name that gets mentioned in connection with telematics ... in less than two years, from nothing we get the most improved teleport award – that's got to say something about how fast we've been moving and how this is a tool for the regeneration of the city"
> (interview with the Leader of the City Council, 10/3/97).

But what the Leaders comments do not explain are the two significant set of processes which took shape and came to influence the ICTs work in Sunderland. The first of these centred around those urban regeneration initiatives taking place in the

local economy to prepare Sunderland for the future, which involved policy makers and planners in building a cohesive and co-ordinated approach to local economic restructuring. While the second was how a number of people not only in Sunderland, but across the region, had begun to be affected by an emerging discourse on ICTs. So while the Council Official responsible for this area in Sunderland could only speculate on ICTs development at this time, the convergence between these two areas gave the basis for the points of connection Sunderland has since decided to put in place. In fact, as we shall see, recent economic development in Sunderland has been centred around the integration of the local economy with ICTs.

4.2.3 Key points of connection in Sunderland

The strategic direction for Sunderland's economy was highlighted through attempts to develop a number areas set out in the City of Sunderland Economic Development Initiatives plan (City of Sunderland, circa 1997). This document, part of the phase of place marketing and local boosterism which all places feel compelled to indulge in (cf. Boyle, 1997; Short, Benton, Luce and Walton, 1993), was about "portraying the city as a diverse local economy but with a focus as a primary centre for advanced manufacturing, office and service activity" (City of Sunderland, circa 1997, p 4). The plan attached a high priority to developing and attracting new technology based firms and encouraging more research and development activity to Sunderland.

Table 4.2 shows how the key areas of the plan have been conceived. It also indicates the four key themes set out in the Sunderland Telematics Strategy document which was launched at the end of 1996. As this indicates, attempts have been made to map the latter onto the Economic Development Initiatives plan. While it might be expected that a consistency is sought between the two strategic documents, the efforts of STWG ensure the two are complementary, and they attempt to integrate a number of ICTs projects into the domain of economic development. What this means is that the focus on land, finance, inward investment, place marketing, training and community development support the telematics work in the areas of ICTs infrastructure development, ICTs for inward investment, ICTs for life long learning and for improving the quality of life for the city's residents. These points of

connection taking shape in Sunderland were rationalised by the Leader of the City Council who argued how they were

> "an important aspect of the development of the city; for job creation, for information in society, for education, for every angle of life within the city, it's important we get in on this revolution ... [T]his is like the last century, when you had the railways expanding, if you got a railway station in the city, you where ahead of the game in what you could do. Telematics is exactly the same."
> (interview with author, 10/3/97)

This is highly resonant with the concept espoused by Castells cited in chapter 2 (1996, p 412) and the rationale of the Leader of Sunderland has been articulated throughout the city since the end of 1996. An underling set of plans were also being carefully assembled under the scrutiny of the STWG, who set out a number of key areas to operationalise ICTs in the Sunderland economy.

Sunderland as the Intelligent City

One aim of the Telematics Strategy has been to bring together interested parties from local communities, the voluntary sector, local education institutions, local government and industry to present Sunderland as an 'intelligent city'. The recent (1997) founding of the Sunderland Host, via the local university, is the first step in this process connecting together different groups in an electronic network to encourage collaboration and knowledge transfer. This network is known as the *Wheel of Opportunity* and acts as an electronic manifestation of the way partnerships are encouraged to develop their own networking capacity and to share certain entrepreneurial skills and understanding. It also lays the foundation for the *Intelligent Democracy Project*, that aims to provide on-line services available in libraries, council offices and local community centres (City of Sunderland Partnership, 1996).

Table 4.2 The strategic vision for the Sunderland economy and key areas of ICTs development

	Focus of activity – summary	The core themes of Sunderland's Telematics Strategy
Land and Property	Development of the 14 industrial estates, 135 factory units and 536 acres of land available for potential investors, supported through the Economic Development and Marketing Team. Support for managed workspace, particularly that aimed towards small and medium sized enterprises and new business start-ups in the area. Emphasising new developments at places such as Southwick and Houghton which provide secretarial services, conference facilities and technical work areas.	Infrastructure development ICTs infrastructure development is focused on the physical hardware and the softer infrastructure centred around people. The simultaneous evolution of these is necessary, it is believed, to absorb the perceived growth in telematics activity. The Doxford International Business Park
Financial assistance	Targeted grants for the local manufacturing industry, particularly for companies moving into Sunderland (up to half of total rent charges for a year and half of total removal costs), interest relief grants on loans used for purchasing capital equipment, and to encourage local companies to market themselves at trade exhibitions.	
Inward investment	A broad target base looking to attract manufacturing, service-based and new-technology based companies to locate or developing their existing sites.	Inward investment ICTs will add to the overall infrastructure of Sunderland when it helps to facilitate inward investment. The type of new inward investors which Sunderland is seeking to attract are those companies who operate on a global basis, who seek to locate in areas of competitive advantage and can exploit the developing ICTs infrastructure.

Table 4.2 continued

	Focus of activity – summary	The core themes of Sunderland's Telematics Strategy
Place marketing	Targeting particular regions of the world for new investment, such as the Far East (at the time Korea) and the USA. Key sectors which include the car industry (building on the Nissan experience), high technology industries, electronics industry and service providers have all been targeted.	Building up the image of Sunderland as a telematics centre for the region.
Recruitment and training	Drawing on the European Social Fund, the SRB and the Trainee Employment Grant to provide local employers with a wage subsidy of 75% for one year and 25% the following year when training employees.	Life long learning Sunderland needs to provide a workforce with skills to match the requirements of new telematics related industries, this will need new programmes of training and learning in ICTs. Relevant skills up-dating and maintenance will provide employers and the local labour force with the skilled people required.
Community development	Developing the levels of activity currently in place and using European and SRB finance to support voluntary groups in areas such as Pennywell and Hendon (see S.A 4.6).	Quality of life Improving the quality of life for the citizens of Sunderland will require better access to public information, to the decision-making processes which take place in the city and make available better opportunities for training and work. This area is aimed at addressing concerns about a polarised society between those who have access to information and those who do not.

(based on the City of Sunderland, circa 1997; City of Sunderland Partnership, 1996; and interviews with various actors in Sunderland).

Electronic democracy projects are part of the UK Government's attempt to enable more on-line public information. This has been expressed at various times by Government spokes-people, but was set out in the 1996 Green Paper 'A Prospectus for the Electronic Delivery of Government Services'. Following this publication, the Society of Information Technology Managers (SOCITM) noted how there was an increasing trend for local authorities to develop a wide range of electronic infrastructure from standalone kiosks to wide area networks (SOCITM, 1997). Sunderland's intelligent city attempts are in fact mirrored in a small (but steadily growing) number of other places in the UK, including places in the North East, such as Wansbeck and Newcastle (Bellamy and Taylor, 1998; Southern, 1998).

Another aim outlined in the Telematics Strategy is to create an *Intelligent Housing Estate*.[7] The idea being to connect a housing estate electronically to various information services, such as on-line banking, video-on-demand and with the ability to book local leisure facilities (City of Sunderland Partnership, 1996). Alongside this, housed in local community centres, *Electronic Village Halls (EVHs)* would act as community based telematics centres serving the local neighbourhoods, and building on the experience of Manchester (Carter, 1995). The areas targeted for this development include Sunderland North, the Hendon area, Pennywell, Sunderland East and Washington, thereby building on the developed community enterprise and local politics which already exist in Sunderland (see S.A 4.7).

ICTs education and training in Sunderland

As the reasoning for Sunderland's involvement in ICTs unfolds one can sense the logics of connection. For example, EVHs are seen as one way in which locally based ICTs training could be provided to communities, aimed in particular at the unemployed. This is part of the general objective to increase levels of ICTs awareness across the city to "enhance relevant skills of the employed and unemployed, and to enhance the city's attractiveness to Telematics-based inward investors" (City of Sunderland Partnership, 1996, p 67). The inclusion of schools and colleges in the overall aims of Sunderland's ICTs, through a *Schools and Colleges Internet Skills Programme*, offers 'cyberskills' and new opportunities to

deliver a wide range of courses to local people in disadvantaged communities (interview with member of STWG, 30/6/97). The integration of this with that of the NCN initiative taking place across the region (see chapter 3), suggests a much more seamless collaboration between local and regional groups in further education than with initiatives involving other groups.

One sector designated in the Telematics Strategy for distinctive attention is the call centre industry. The *Customised Training for the Call Centre Industry* is designed to develop a co-ordinated approach to the provision of ICTs training and is associated with the emergence of call centres across the region (Richardson, Belt and Marshall, 1998/99). Here, Sunderland planners are actively seeking to exploit the presence of Doxford International Business Park and its success in attracting businesses which process very large volumes of information. This is considered in much more detail below, however the provision of *Foreign Language Training* is also directed towards having "a particular slant towards Call Centre operations" as Sunderland diversifies its economy (City of Sunderland Partnership, 1996, p 73).

Connecting Sunderland businesses

The logics of connection in Sunderland have been carefully steered towards the private sector. Businesses in Sunderland are being encouraged to use ICTs through a variety of schemes under a broad objective of *Increasing Telematics Activity in Local Companies*. This involves awareness raising initiatives, the provision of ICTs support for businesses via the local university, and by establishing a network for business collaboration within the city to exchange ideas on technology and its use. Other ideas include local innovation in new company start-ups, and a pilot electronic infrastructure in a manufacturing supply-chain to develop specific components of ICTs, such as EDI and electronic commerce.

The key players in encouraging Sunderland companies in ICTs activities include local business support organisations, such as the Business Link and TEC. For instance, the university and the TEC have sought to 'incubate' new technological ideas and to turn these into commercial projects by providing managed workspace on

the north bank of the river, adjacent to the Business Innovation Centre (BIC).[8] The BIC, led by initially the TEC, officially opened in 1994 to offer a support environment for "small companies who demonstrate innovation in their product or process" (interview with City of Sunderland TEC Officer, 16/6/97).

Some of the activities outlined here are in place, others are still in the stage of preparation, or waiting patiently for implementation but restricted by lack of funding. What these points of connection show is a base-line rationale for Sunderland Telematics, as ICTs are integrated into local economic planning. One member of the STWG explained this when suggesting

> "I would hope that in telematics in Sunderland, we'll find eventually that there will be more employed than there ever was in shipbuilding, because I think it is really *the area* for Sunderland, and it's growing, and growing tremendously"
> (interview with author, 16/3/97, emphasis added).

However, this is an emerging domain were quantitative benefits can only be calculated in years to come. It will be at this time when the substance of the Telematics Strategy will be tested. For now, the shape of ICTs in local economies are subject to logics associated with enabling economic development and this is because very often, local economic planners feel they have little control over global structures. Thus, they can feel quite impotent in determining the causal consequences of globalisation on local places.

Justification of ICTs is, as suggested in chapter 2, often based on an idealist conception of technology which clearly associates technological development with economic progress. In part, the logics of connection become embedded when the key points at which the local economy interfaces with the informational mode of development come into being. In the case of Sunderland it is ICTs infrastructure development, inward investment, lifelong learning and an improved quality of life for local residents which are pursued through ICTs initiatives. These points of connection are designed to establish the city as an intelligent node in the emerging global informational hierarchy, focused on education and training and by enabling a

business sector comfortable with the whole notion of telematics. In the next section of this chapter the dynamics of this process is investigated, with a particular focus on understanding how the space of flows is mediated at the level of place.

4.3 Shaping the space of flows in Sunderland

One of the most striking features of ICTs development in Sunderland has been the short space of time in which the STWG came together leading to the launch of the Telematics Strategy itself. The appearance of the STWG, a partnership which in effect seeks to govern the space of flows, holds an important role because by default, it is expected to mediate this whole process. Yet, because this is still an emerging domain there are very few examples of what might be termed as 'best practice' or likewise, very few measures of success other then traditional ideas on job creation and local output. Telematics does not lend itself to this form of measurement, particularly in the short period of time in which the Sunderland group have been pursuing them as a strategic tool for economic development. For example, numbers of jobs created in call centres may well be a subset of the connection process, but they do not stand as an epitome of all ICTs development.[9] It also provokes the question of whether local ICTs groups are capable of regulating the space of flows, and the concomitant change associated with informationalism, on behalf of their place.

Issues of informationalism such as these are the main focus in this part of the chapter. Whereas in the previous section the points of connection were outlined to demonstrate tangible activity and projects in plan. Two other projects are discussed later, but with the emphasis being on the processes of legitimation which bring different groups together around the same issue. We can see in one, a successful attempt at institutionalising ICTs in a major development towards the west of Sunderland on Doxford International Business Park. It is on this site that a number of call centres have located and this newly developed business park, built on an Enterprise Zone, is now a symbolic part not only of the telematics work in Sunderland, but of the Sunderland economy itself. Another example, that of the

Sunderland Community Furniture Services Ltd. (SCFS) situated on the Southwick Industrial Estate on the north side of the city, contrasts sharply with Doxford. This is a community enterprise and is an aspiration on behalf of community groups to stay in touch with the emerging informational age. What this section shows therefore, are the dynamics of legitimation, institutionalisation and coalescence that exist around ICTs partnerships and the attempts by those involved to shape and mediate the space of flows.

4.3.1 The genesis of the Sunderland Telematics Working Group

A fundamental event in the genesis of the STWG has been the use of SRB finance to initiate the City of Sunderland Partnership. The initial bid for funding from the SRB in 1994 was directed towards putting a city wide partnership in place to provide a "programme aimed at securing sustainable economic regeneration from a firmly established private sector-led partnership with a clear vision" (DoE, 1994, no page number). The City of Sunderland Partnership set out the framework and scope to provide a legitimate framework for economic regeneration, in the eyes of the then Conservative Government, with clear lines of involvement from the private sector and other governance agencies. Figure 4.2 shows how the relationship of the City of Sunderland Partnership to the STWG is ideally set to function, indicating the key groups involved.

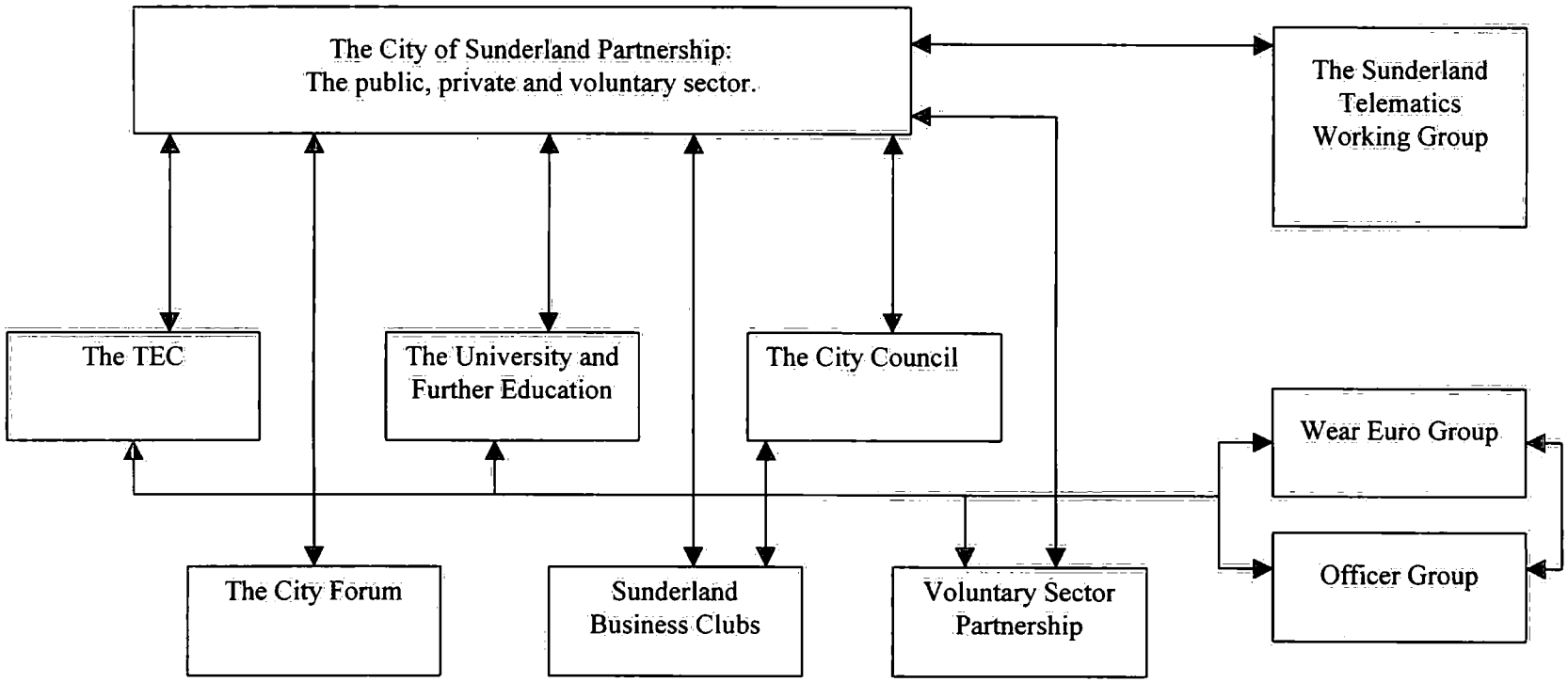
Sitting at the pinnacle of the Partnership are the group who meet to plan strategy for economic and business development in Sunderland. This group includes the City of Sunderland TEC, the City Council, the University of Sunderland, the North East Chambers of Commerce, the Voluntary Sector Partnership and representatives from Sunderland's private sector. Importantly, all significant strategic development requires approval from this group. Then there is the Partnership Secretariat who in formal terms, act as the contracting organisation and carry out the work involved in formulating SRB bids, financial and output monitoring, liaison with GO-NE, and the provision of legal and financial administration. This group involves officers from the respective governance organisations. Finally, there are those who are involved with day to day delivery and responsibility for project delivery. This group are known as

the Partnership Lead Agents and are concerned with programme implementation and management.

At an early point of the STWG inception, two of the lead players in the field of ICTs worked towards winning the support of the main Partnership. In the early stages the subject of a co-ordinated approach to telematics was raised with the Chair of the City of Sunderland Partnership, a local business leader and Managing Director of a local major brewery. This approach was made by someone from the University of Sunderland, who was aware of the technological developments taking place in the field of education and who had recently visited the annual conference of the World Teleport Association (interview with a member of the Telematics Working Group, 30/4/97). The University itself had a vested interest and at this time, regeneration initiatives enabled by the Tyne and Wear Development Corporation's land reclamation programme on the riverbanks of the Wear, had allowed the University to build new facilities at St. Peters Riverside. This included a new School for Information Systems, which the Pro-Vice Chancellor of the University felt represented a strategic strength for Sunderland (interview with author, 30/4/97).

Simultaneously, there was a political opportunity identified by officers in the local authority, and one in particular who had noticed how aspects of European funding, specifically the R&D funding programmes Framework III and IV, was available for ICTs activity, aimed at developing systems that had an end user emphasis. While increasingly, policy debates initiated by UK and European Government, such as the Bangemann Report in 1994, from the Central Computer and Telecommunications Agency (CCTA, 1994) and the DTI (Department of Trade and Industry, 1994) in the same year, were encouraging people within Sunderland City Council to think about ICTs for the benefit of their own residents (interview with a local authority officer, 5/2/97). These events, appearing at the same moment in time, brought together the executive support from the Partnership, the political experience from the local authority and a degree of technological sharpness and expertise from the University. Three crucial features in establishing an ICTs governance partnership.

Figure 4.2 The structure of the City of Sunderland Partnership



(source: Sunderland CVS internal document, various interviews with STWG members)

As Graham (1996) has noted, the efforts of political and technological entrepreneurs are key in determining the role of ICTs in a local context. Undoubtedly, the formation of the Sunderland Telematics Strategy through the STWG has only manifest because of the efforts from such people. For example, the transfer of ideas gained from an international conference involving many contributors from northern America, Europe and the Far East, demonstrated many telematics success stories to one member of the STWG. New ideas were inspired that acted as a catalyst for a revision of the development already underway at Doxford (interview with STWG member, 5/2/97). Of course, this was only one aspect of attempts to stimulate ICTs coordination and under the auspices of the City of Sunderland Partnership an inaugural meeting of the City of Sunderland Telematics Working Group took place, involving the Vice-Chancellor and two Pro-Vice-Chancellors from the University, the Chief Executive of the Sunderland City Council, and a key local authority officer responsible for identifying European funding. It was, according to one member of the Telematics Working Group, a recognition of the "great significance to the city telematics were seen to hold" (interview with a STWG member, 10/3/97).

It was a natural move then, when the STWG was formally established and included people from organisations represented on the City of Sunderland Partnership. The drive from a small number of key players led the group to pursue an 'Action Plan', turning ideas and uncoordinated activity into a single strategic ICTs method for local economic development in Sunderland. This drive and commitment has proven to be essential, because as one Telematics Group member explained, the Strategy exists "without funds" (interview with author, 30/4/97). While of course this is not strictly accurate, the point being made by this remark was how the Strategy sought to capture what was already being carried out or being planned. Thus telematics offered a 'win-win' situation, adding value to city-wide efforts to restructure at very little cost or risk. The additionality provided by the STWG lay in co-ordinating leadership and expenditure already in place and by using the better known and more authoritative Partnership to legitimise the vision which was being created by the group. Pragmatically, the STWG was able to pool existing knowledge, expertise and experience and provided an action plan which would convince individual Partnership

agencies to commit budgets and deal with implementation (interview with STWG member, 5/2/97).

In fact the members of the STWG were able to build up their own perspective of ICTs from a number of visits to other regions. Exemplifying the characteristics of technology and knowledge transfer, and ideas about the learning region (see Jessop, 1997, pp 65-66; Morgan, 1997), some STWG members visited places as far away as Tokyo and Toronto, but also visits took place to places closer to the North East. In Manchester initiatives such as Electronic Village Halls (EVH) were visited, and in Wales teleworking projects funded by the Welsh Development Agency were examined. Following this the STWG developed a set of planned activities replicating 'best practice' from other areas, and which nurtured a uniqueness to Sunderland focused around the idea of a teleport (interview with STWG member, 30/4/97). As knowledge, expertise and experience was pooled across the STWG it led to new figures emerging who would champion the telematics work in Sunderland. This could be witnessed at the re-launch of Ni when the Leader of the Sunderland City Council outlined the process by which Sunderland was to become a "wired city ... [and] an informational city because of their cross sector telematics strategy", led by the local authority and university with the aim being to support new inward investment and small business development (Bryn Siddaway, 31/1/97).

It took in the region of 18 months from the first meeting of the Working Group to the launch of the Telematics Strategy. This clearly shows the dynamic and fast changing nature of the domain, and the way in which many projects and initiatives in place are often waiting for a strategic push. That the work in Sunderland has initially been driven by a small number of individuals who fit the characteristics of political and technological entrepreneurs should not hide the fact that a number of players have been active in this field. Indeed, the Leader of the City Council stated this forcefully, when he explained "we all believe in this" and how there was "a common belief that this is beneficial" for all of Sunderland (interview with author, 10/3/97).

Apart from the support of the private sector through the Partnership, the STWG has contact with firms such as Microsoft and Compaq, as well as the local cable company, as they seek to develop new applications for use in Sunderland. It is fair to say that the STWG recognised how the notion of telematics contains an appeal at many different levels across the locality. At the level of business and their networks, at a community level, at the level of the City Council, at the level of the City of Sunderland Partnership, and by moving beyond this and engaging with regional based initiatives through work with Ni. However, while the Telematics Strategy and STWG have been able to bring together policy and practice, projects and funding, and concepts and reality, there has been a degree of selectivity taking place that is determining the most valuable parts of the Sunderland telematics picture.

4.3.2 The discursive nature of Sunderland Telematics: legitimation and selectivity

The idea that ICTs in Sunderland offers something new to the local economy is clearly seen in the comments of actors in and around the STWG. This is part of the construction of the discursive formation in Sunderland on ICTs, involving processes of legitimation that include clear choices being made to select particular types of ICTs activity. In this section two specific projects that have emerged in Sunderland are examined in more detail. In one, the work of the Sunderland Community Furniture Services Ltd. (SCFS) is outlined. This is a community enterprise that aims to provide low cost hardware and software to many groups who would otherwise be excluded from Sunderland's connection processes. SCFS are only one example of how community and voluntary groups are working in the STWG, and their efforts are used here to illustrate some of the principles and problems that community organisations have in this domain.

Another important aspect of the work of SCFS is the way it contrasts with the developments taking place on the Doxford International Business Park. This example is presented first, and here there is evidence of an emerging jewel in the regions attempts at connection, an almost priceless ICTs artefact in Sunderland's image of a leading edge locality. In treading a path towards computopianism, the activities at Doxford are central to Sunderland. The difference between these two

exemplars of Sunderland's connection process is highly significant. This is because they involve causal features in the way the meaning of ICTs is determined, particularly the way in which projects are selected for support and for future development.

4.3.2.1 Doxford International Business Park

Doxford International Business Park is situated adjacent to the A690 and A19, two major roads which connect Sunderland to Durham and the west, and to Tyneside in the north and Teesside in the south. It has developed as a major importance to the Sunderland economy, precisely because it has been marketed as a site to attract information processing industries, particularly (but not exclusively) call centres (Richardson et al, 1998/99). Because of this, Doxford has also become a key component to the way in which the STWG has positioned Sunderland, something which has not passed by without notice from the site developers, Akeler Developments

> "we use it [telematics] very much as a marketing tool because we hope they [potential inward investors] will recognise that certainly in the future this will be very important to them."
> (interview with Development Executive, Akeler Developments, 28/8/97).

Yet with respect to ICTs, Doxford has become something of an opportunist development. It shows the entrepreneurial character of the City Council who, through the STWG, have pushed for the site to be marketed as a location which offers good quality office space, built with fibre-optic cabling and energy saving, environmentally friendly building materials, offering a well trained workforce and with a clear focus on the informational economy (interview with STWG member, 16/6/97; City of Sunderland Partnership, 1996; Richardson et al, 1998/99).

Doxford Park was designated as an Enterprise Zone for a period of ten years from April 1990, with Doxford International Plc acting as sole developers[10] and the land owned by the City Council (meaning occupiers take out a fixed-term lease on property). It is the fact that the site is an Enterprise Zone which has proven to be a

most important factor, for instance attracting inward investors who would pay no business rates for an eight or nine year period (see S.A 4.8). Towards the end of the present decade the aim is to have on site, a critical mass of companies who have followed the early businesses into Sunderland, but who are attracted to the area for reasons other than low business rates (interview with Development Executive, Akeler Developments, 28/8/97).

Figure 4.3 How Doxford has attracted national publicity

Sunderland council helps fund Internet telecoms plan

A telecommunications project that will allow businesses and educational establishments in the north-east to make low-cost phone calls over the Internet has attracted £180,000 in grants from Sunderland City Council.

According to Colin Sinclair, the council's chief executive, the aim is to establish the city as the telecoms capital of the region: 'Easier access to global markets will have a huge potential spin-off for the region in business and job creation' he said. The project involves both Internet telephony and access to digital data transmission via the Orion F1 satellite. It is being managed by TCI Corporation, an unlisted technological project group in which the Royal Bank of Scotland has a significant stake.

Chris Turner, TCI chairman, said yesterday he believed the Sunderland development was the first large-scale development of its kind in the UK. He said there were some 300 medium-sized and large companies in the region that could take advantage of the project, based at the Doxford International technology park near Sunderland, Newcastle upon Tyne and Durham. Customers will be able to save up to 50 per cent on international phone calls by using Internet facilities provided by Zephyr International, a US based telecoms operator that provides international voice and facsimile services.

Calls placed over the Internet, which transmits data at high speed around the world, are cheap because the system bypasses conventional operators' networks. Internet service providers such as Zephyr lease capacity from large operators at rates that allow them to charge customers low prices. Customers will also be able to send data and images over the satellite link to sites in the UK and abroad using desktop videoconferencing. Mr Turner said TCI was planning similar projects for other UK regions.

The Financial Times, January 28th 1998, by Alan Cane, p. 10.

In the early years of development the local authority encouraged the developers to attract a certain type of industry. They were interested in investors who were looking for office space, for research and development premises or who were in the field of high-technology industrial processing. As Figure 4.3 indicates, the local authority is explicitly of the view that Doxford will act as an attractor for new inward investment. So much so, that following the recession of the early 1990s, the City Council reported with some satisfaction how, in a recent national appraisal of business park development

> "Doxford International was identified as the only business park in the U.K. where any speculative development had taken place during 1993 or was programmed for 1994. This, in the present economic climate, reflects the commitment of the partnership between the Developer and the Council"
> (City of Sunderland Council Minutes, February 1994).

In 1995 the City Council accepted a further £1.5 million ERDF funding for factory development on Doxford. This came on top of Urban Programme funding worth over a quarter of a million pounds, and for the duration of the rental guarantee period the local authority has committed itself to £375,000 per annum (see S.A 4.9). Early entrants onto the Doxford site include Royal Insurance, Northern Rock, London Electric, Aveco Trust, Camelot (the National Lottery firm), One-to-One (Mercury) and Nike. Many companies which have come to locate at Doxford have advertised the fact they are looking for new premises on a national basis and learn of Doxford through a brokering company based in London (interview with Development Executive, Akeler, 28/8/97). As the influential Chief Executive of the City Council noted Doxford provides "easier access to global markets" and this will result in a "huge potential spin-off for the region in business and job creation" (see Figure 4.3 above). More recent arrivals have included investment from Littlewoods (the home retail group) and the home banking service Barclaycall, with the latter aiming to establish some 2,000 jobs on the Doxford site (The Financial Times, 27/2/97).

There are two distinct aspects of the Doxford development which are attracting most attention, and which STWG have been able to exploit. The first is the arrival of a number of call centre companies to the site, the second is the Doxford Teleport.

According to Richardson et al (1998/99) Doxford has a certain appeal to call centre inward investors, namely the ICTs infrastructure. The authors note

> "it is notable that telecommunications infrastructure was built ahead of demand at Newcastle Business Park and Doxford Park, both of which have attracted significant call centre employment. Sunderland Teleport (at Doxford) has also recently been opened to provide an alternative option to fixed-link communications for call centres"
> (Richardson et al, 1998/99, p 25).

The early ideas to emerge in Sunderland to entice call centre businesses is an interesting example of knowledge transfer. In Niagara, Canada, the Canadian Tire Company established the major credit card processing facility in the country and this was, according to one member of the STWG, an essential part of re-shaping the local Niagara economy (interview with author, 30/4/97). This particular actor in the STWG was able to witness first hand the affect of the Canadian Tire Company call centre on a local economy that was previously reliant on the ship-building industry. Thus, the lesson for Sunderland, a city also previously dependent on ship building, was not lost. Here was a novel idea and it attracted wide spread support from the STWG and City of Sunderland Partnership. So the aim in the Telematics Strategy to develop customised training for the call centre industry has access to local TEC funding (interview with TEC Officer, 16/6/97). Thus, attracting call centres to Sunderland has not only been entwined with the development of ICTs for local economic activity, but as the Leader of the City Council has argued, this has been a conscious effort by the City of Sunderland Partnership to bring in "good quality jobs" (Bryn Siddaway, talking on BBC Look North, 26/2/97).

The idea of a teleport was contained in the Telematics Strategy for three important reasons. First, the STWG argued that a leading-edge teleport situated on Doxford would be pivotal to the overall success of the city's Telematics Strategy, precisely because it would attract information processing businesses. Second, their view was that while the development of Doxford Teleport would cost in the region of £10 million, it would be expected to operate on a profitable basis.[11] And third, they pushed the idea that the Teleport will provide an opportunity for a single aspect of the Telematics Strategy to be marketed on an international basis for maximum

impact, making an important contribution to Sunderland boosterism and image building (City of Sunderland Partnership, 1996). Thus, the Doxford Teleport has been developed around four main aspects which are briefly set out in Figure 4.4.

Figure 4.4 The four components of the Doxford Teleport

The Teleport Communications Hub	**The International Teledemocracy Centre**
The Teleport Communications Hub will offer a wide range of international communications facilities, designed to attract companies looking for a UK base. Both the World Teleport Association and the British Space Agency have encouraged Sunderland to develop their communications hub, and the STWG are proud of the fact that only London can boast a bigger teleport facility than the city.	According to members of the STWG the International Teledemocracy Centre is a concept of vital significance to the Telematics Strategy. The aim is to establish this Centre to design, test, develop and implement applications which support local government to engage citizens through ICTs. Such ideals are captured in many policy documents emerging from central and European Government.
The Global Teleport Training Centre	**The Teleport Business Start-Up Centre**
The Global Teleport Training Centre will run training courses to provide support to businesses using ICTs. Training will be aimed across the business spectrum, covering many different sectors and a wide range of employees from senior executives to call centre agents.	The Teleport Business Start-Up Centre is aimed at providing a support infrastructure for new businesses. This is to include managed workspace, business support, counselling and mentoring to new telematics based businesses. This idea is aimed at creating a critical mass of telematics related activities, in collaboration with the Sunderland BIC.

(source: City of Sunderland Partnership, 1996; interviews with various STWG members).

However, there is little evidence to suggest that the infrastructure provided through ICTs initiatives are the significant feature in locational decision making, as the work by Richardson et al (1998/99, p 25) might indicate. According to a representative of Akeler Developments, as yet the idea of a teleport has not registered with many incoming companies (author's interview, 28/8/97). She explained that as firms visit Doxford they are impressed with what is on offer – the landscaping, the communications facilities and the quality of office space – but that the quality and sufficient supply of labour is a more important issue. She stated that "in terms of their current operations, it [the ICTs infrastructure] isn't a vital criteria when choosing this site over others" (interview with Development Executive, Akeler

Developments, 28/8/97). Her points epitomised the important aspect of image building associated with ICTs. She argued that as Sunderland moves into the next century the appeal of the teleport and telematics in general, will take-off and that Doxford would be in an advantageous position, but as yet telematics has not been a determining feature for incoming companies. The real value of telematics for the current marketing of the site is that it can be represented as something for the future.

That the teleport idea has not become a major feature for investment is of no surprise. Firms locate to carry out their business and not to analyse the communications infrastructure around them, important as they are. This suggests it is too early to evaluate whether or not ICTs are part of an attractive package in locations such as Sunderland, and therefore, to assess ICTs as a key locational decision-making influence, other than in the global command centres (Sassen, 1991). Of more importance to potential occupiers of Doxford is the availability of local labour, the financial incentives on offer through Enterprise Zone status, from the DTI because Sunderland holds Development Area Status, and from the local authority who provide incentives for job creation.

It is also interesting that community groups and trade unions have little, if any, part to play in the development at Doxford. Shaping the space of flows through initiatives such as a business site teleport can introduce a latent contradiction in local economic development. This is because ICTs of this nature are shaped by the dominant groups whose spatial logic is not consistent with the aims and objectives of local governance agencies, such as the STWG. This type of development contrasts sharply with that of community based ICTs initiatives, and they appear to sit at opposite ends of the ICTs spectrum. The Doxford development is about real-time, on-line trading activity involving Giddens' ideas of absent others and Harvey's notion of time-space compression (Giddens, 1990; Harvey, 1989a). In a situation such as this, power to shape the space of flows will often lie outside of Sunderland.

Alternatively, community based ICTs are about having access to an exciting new world, one that is liable to develop without the contribution of many groups if it were

not for local activists. Yet it is the holistic view, provided by local ICTs partnerships that holds the key here. The partnership provides the conduit between the two ends of the spectrum, holding ICTs together and ensuring that groups of a very different nature can come together around the technology. However, as we shall see in the next section there is to some extent a set of processes taking place which mean the selection, or emphasis, of some economic projects over others is a negotiated activity in Sunderland.

4.3.2.2 The Computer Recycling Project

The Computer Recycling Project comes under the *Intelligent City* component of the Sunderland Telematics Strategy. According to the strategy document this is a programme to

> "establish a central, comprehensive pool of redundant computer equipment with access made available to as many agencies as possible. (Both those who wish to advertise that they have equipment for disposal and those who wish to make a bid for it)."
> (City of Sunderland Partnership, 1996, p 40).

Its purpose is to establish a large pool of redundant computer equipment which can be restored to provide low cost entry into the informational age. Schemes such as this aim to offer voluntary and community organisations, who generally have a very low resource base, with the opportunity to purchase computing equipment at an affordable price.

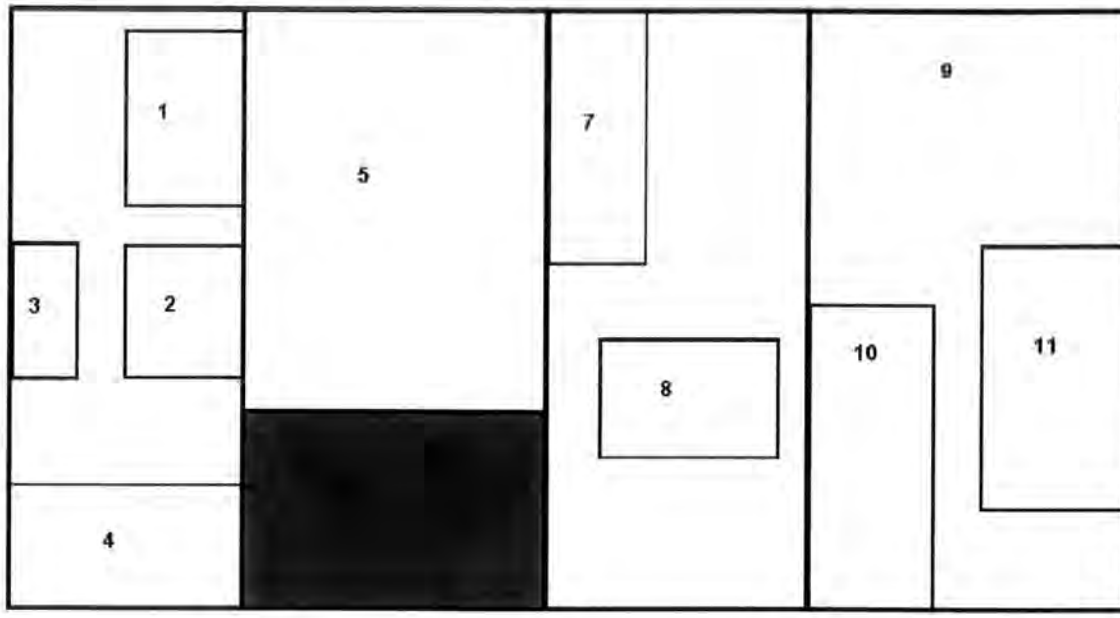
Basically, the company which took ownership of this idea did so before the Telematics Strategy had reached them. There are a number of reasons for this, one being that community involvement in ICTs is an emerging theme which is being spurred on by generic concern over social exclusion (see *Local Economy*, 1997, Volume 12, Issue Number1). Another reason is the way in which community based ICTs initiatives come to mimic the form of a social movement as they respond to the powerful structures shaping the space of flows, and seek to avoid a free fall into the 'black holes' of informationalism were they have little control over what happens (Castells, 1996). The recycling scheme, run as a social and community enterprise

from the premises of SCFS and situated on Southwick Industrial Estate on the north of the riverside, is one way in which community groups resist the more dominant groups who are dictating what will become established practice in the informational age.

SCFS is a registered charity and a company limited by guarantee. They employ some twenty staff with a similar number of people acting as volunteers. They renovate furniture, such as bedding and living room furniture (some of which is exported to raise funding), white goods and they recycle scrap aluminium, waste paper and textiles. Figure 4.5 shows how ICTs have become an integrated part of community services, in this case, as part of a series of recycling activities. SCFS also train people, for example developing skills in horticulture through a small garden centre which they have established. In many respects SCFS resembles a small business with a 1996 financial turnover of around £0.25 million (interview with the SCFS Project Manager, 30/6/97). Previously, SCFS was funded by the Urban Programme but is currently a financially self-sustaining company drawing on finance available from charitable trusts, such as the Church urban funding programme.

The SCFS Project Manager realised that there were very few organisations who recycled computers. He argued that a great deal of waste occurred when PCs in private companies were updated (ibid.). With this in mind, the firm arranged for two trainees to be employed to learn how to restore second hand computers which SCFS started to obtain as word of their operation began to circulate in the region. As the scheme got underway SCFS were approached by the Sunderland Telematics Working Group who were keen that this sort of activity fell under their overall approach to ICTs. The firm were asked to tender a bid to operate the recycling scheme which would then be supported through the STWG with appropriate funding. However, the tendering procedure has proven bureaucratic and because of the long drawn out process involved in winning support, SCFS initiated the project without the finance of Sunderland Telematics (interview with the SCFS Project Manager, 30/6/97).

Figure 4.5 ICTs as an integrated community service: ground floor operations at SCFS Ltd



Key (not to scale)

1	Textiles recycling	6	Computer recycling and PC workshop
2	Paper recycling	7	Office furniture for sale
3	Tin can recycling	8	Renovated 3-piece suites
4	White goods recycling	9	Furniture stored for renovation/recycling
5	Renovated furniture of 'good quality' for sale	10	Beds to be renovated
		11	Waste

(Source: authors visit to the premises, June 1997)

On average, 20 machines are needed to allow one computer to be distributed. The functioning components of the hardware are removed, as is the software, by donor organisations and it becomes an arduous and labour intensive task to test equipment and build a cannibalised PC. This essentially questions the commercial rationale to such a project although, as the Project Manager of SCFS, believed

> "virtually every voluntary organisation *in the region* would be able to use a computer at some point. If we can supply them it would be wonderful, but we need the support of businesses and universities and colleges and local authorities to be able to do that"
> (interview with the SCFS Project Manager, emphasis added, 30/6/97)

This belief demonstrates the power of ICTs to pull actors in and in this case, to ignore the economic realities of a recycling project, which at present is being subsidised by other parts of the company.

In fact, projects such as this provided by SCFS are regarded as a welcome development from all those involved in the STWG. They all support this scheme, but it has a much lower priority in the development of ICTs than major developments like Doxford. The SCFS initiative is an ambitious project which not only shows the way community groups are reacting to the logics of the space of flows, but also demonstrates the current trend in paternal welfarism (MacGregor, 1999). Thus, SCFS act as one of a number of community organisations who speak on behalf of the 'deserving poor' in the debate about the informational age. The legitimation of the recycling project will be justified, just as soon as the promise to charities, voluntary organisations, small firms and individuals in the community to offer low price connection is realised. Yet this will be no simple achievement.

Other groups who sit on the STWG, such as the Sunderland Council for Voluntary Services (CVS) look to support this very same ideal. They point to the need to ensure how the computopian path includes all, and how ICTs has emerged as a focal point without the political value laden content associated with other economic initiatives. For some, Sunderland Telematics has arisen as

> "a non-contentious issue around which everyone can gather. Everyone can contribute, everybody can drive it forward, everyone can do their bit ... everyone will have a learning curve ... [it's a neutral domain then? (author)] ... it is exactly that at the moment, it is a catalyst around which everyone can gather"
> (interview with STWG member, 30/6/97).

And despite the apprehension of some that the ICTs agenda is much easier set by business rather than community interests (interview with STWG member, 16/6/97), there is a process of knowledge exchange taking place here, between very diverse groups. In fact it is more than this – community involvement in ICTs in local economies is an essential part of the discursive formation which is being assembled to show how the problems of communities in the informational age are common to

those of others. As 'it' (the very nature of intense change brought about by the rise of informationalism, as shown in Table 2.2) all comes together around ICTs at the level of place, there are consequent comparative problems for Sunderland businesses, for local communities and for the local state. The networking activities which spring up through ICTs partnerships, involving groups like SCFS, are an essential part in building up the legitimation of the technology, in developing the discursive formation around ICTs and in shaping the space of flows at the level of place.

The development at Doxford International Business Park contrasts sharply with that of SCFS but they are both part of the same discursive process. Doxford has clearly been set out as a business initiative, a regeneration scheme involving a new business site. Doxford not only acts as an important component in the legitimation process of Sunderland Telematics, but is an epitome of image building and strategic selection of a particular type of technologically led economic development. The SCFS project, and the developments in Doxford, are exemplars of ICTs activities in Sunderland which reside at opposite poles of a technological spectrum. As indicated in Table 3.2, these projects are not unusual from what is taking place in and around the region. In the penultimate section of this chapter the Sunderland developments are summarised to reflect on the dynamics which shape the space of flows. These dynamics are part of what Castells (1998b) refers to as grassrooting the space of flows, and in the case of Sunderland they are about the entrepreneurship, the tensions, the domination and resistance which come out of the conflicting interface between the space of flows and the space of places as ICTs activities are pursued and implemented.

4.3.3 Shaping the space of flows: the contradictions in grassrooting

There are, as Graham (1996) notes, political and technological entrepreneurial actors who are important in establishing initiatives such as the Sunderland Telematics Strategy. In the ICTs governance process in Sunderland people of this type can be readily identified, from the University and from the City Council for instance. Yet this only tells us part of the story, as from each sector, whether it involves voluntary or business organisations, the political and technological edge provided requires an

accompanying level of support, of trust and credibility. This building up of trust and credibility is an important aspect in embedding the process of governance (Cox, 1997). Only when this is identified is the success, or the capability of local partnerships to govern the space of flows, tested.

As the pressure to integrate ICTs with economic development increase many of the negative potentialities of the space of flows will need to be addressed. For local groups such as the STWG, the essence will be about reducing the effect of absent others who are able to impose the logics of the space of flows onto the logics of the space of places. The influence of private capital, for instance, in the shape of call centres can determine the economic and political trajectory of a local economy and is an example of such power. Local ICTs partnerships provide networks of solidarity and information exchange, and may not significantly challenge the central state or private capital. Castells (1996; 1998b) would argue new social movements do this by increasingly using ICTs in the form of resistance, but in Sunderland the dominant logics of absent others, of international and often faceless private capital, are being crafted, shaped and moulded for the locality by the STWG. This is why under the auspices of the Sunderland Telematics Strategy

> "without exception, every member of the Telematics Working Group are proceeding with their own approach very firmly, but with the overall Strategy in mind. Nobody's buggering off and doing their own thing without it fitting into that Strategy ... eighteen months ago groups were doing their own thing ... now a tremendous amount of work is going into refining the Strategy and getting the Telematics Working Group together, and getting people to meet on a regular basis with everybody turning up"
> (interview with STWG member, 30/6/97).

Groups in Sunderland are pulling together, so to speak, to ensure telematics develop in a particular manner. However, while initiatives such as Doxford represent a new image, the more vigorously they are pursued the higher the risk, because the informational elite associated with the Doxford companies will reside outside of Sunderland. In contrast, projects such as the SCFS are much more grounded in the locale but cannot offer the scope of entrepreneurial opportunity as that of a teleport.

It is this duality, of simultaneous shared risk and opportunity alongside embedding (or grassrooting) the space of flows, that is important in keeping the STWG together.

Yet even within Sunderland there is some level of struggle and competition which takes place. In the first instance, as shown above, there are strategies of selection which take place as one initiative draws in more funding and commands more attention than others. This will inevitably lead to some projects becoming more influential than others in determining the shape of the local economy at a later date. However, there is also tension within Sunderland, and between the locality and region. One quasi-public sector organisation in Sunderland for instance felt the development of the Telematics Strategy would undermine their own position. The representative from this organisation believed the development of the Sunderland Telematics initiative was a highly political development rather than a technological one. It would take the meaning of ICTs into an area which would ultimately prove unsuccessful as the potential of the technology is displaced by the politics of place (interview with author, 16/6/97).[12] This was only one view representing the concerns of an organisation which itself worked in the domain of technology and business development and was fearful of the competitive nature of ICTs funding. It was, argued this representative, a clear case of other governance agencies encroaching on their 'patch' which would lead to a withdrawal of their commitment to Sunderland Telematics. So, the political processes and competitive nature of ICTs would marginalise this organisation and perhaps this could be to the detriment of the future of Sunderland Telematics as a whole.

Others in Sunderland expressed concern about the role of Ni. It was suggested for instance that Ni had not been clear about their objectives and that it was therefore difficult to couple Sunderland's initiatives to the regional vision (interview with STWG member, 16/6/97). While another local representative argued the same agenda is evident at a regional level, similar to what can be seen at a local level, but that

> "Ni have even less idea about what it is they should do, they don't have a clear idea about what it is they should be doing. Ni need an identity which they don't have ..."
> (interview with author, 16/6/97).

Yet it is likely that the tension between Ni and Sunderland Telematics is less than what might be found in other initiatives, because the first Chair of the Ni Council was the (then) Leader of the Sunderland City Council, Bryn Siddaway. In addition, Ni are a useful ally from which to access European funding and they led the way in trying to get ICTs recognised as a valid area for finance through the 1997/99 Single Programming Document (the Objective 2 financing framework), something it is felt that will be of benefit to Sunderland (interview with STWG member, 5/2/97).

So while the space of flows is a contested terrain, this is not a facet which is contradictory to the coalescence of different groups around the potential of the technology. The Sunderland case is beginning to indicate that there are cross class alliances, in this case represented in the STWG, which are making serious attempts to shape the space of flows at the level of place. This is however, a confused domain, as in Doxford the aim is to incorporate the dominant powers in the space of flows, namely private capital, while the efforts of the local state and the local community are also about embedding the meaning of ICTs in Sunderland, making the technology support local empowerment and local citizenship. So while the words of the Leader of the City Council, that this domain offers "limitless opportunities" (interview with author, 10/3/97) offer eternal hope for Sunderland, pursued through their computopian vision, there is no guarantee that the space of flows can be shaped in this way. The shaping of the space of flows, is as Castells (1996; 1998b) has noted in his references about grassrooting the space of flows, an undetermined outcome.

4.4 Summary: the computopian path for Sunderland

This chapter has provided a view of how telematics in Sunderland is being integrated into local economic planning. What is emerging is a developing interface between the global informational mode of development and points of connection in the Sunderland economy. This falls into a number of areas such as attracting in new

investment, to Doxford for example, through encouraging new types of business start-up and raising the awareness of local companies to ICTs. It also involves upgrading the technological skills of the local labour force and there are notions of democracy and empowerment also tied up in the vision of the Sunderland Telematics Strategy. The role of community and voluntary groups provide an important aspect to this. There are also a number of points which can be made about how the Telematics Strategy has taken on a certain efficacy.

First, is the rapid speed in which the Sunderland Telematics Strategy took shape. In a period of less than two years this took form, based on a concerted effort to co-ordinate activities under way, to bring together new ideas on ICTs, and to map out potential routes for funding under an overarching rationale as to why it should exist at all. Second, the form of the City of Sunderland Partnership has proven to be crucial in facilitating the Telematics Strategy. Apart from providing an executive leadership, the Partnership provides a method by which ideas can move from a concept to a plan, and then if funding is obtained, to a manifest project with bureaucratic procedures for monitoring and evaluation. The STWG is responsible for the mediation of this process. Third, is the spectrum of initiatives which are underway or in plan, and how these connect to the local economy. Two projects have been used in this chapter to show the broad range of initiatives which fall under the banner of ICTs and the principles under which they operate. The scope of ICTs is an important feature because it shows the way different groups see a solution or an opportunity in the technology characteristic of their own circumstances.

This case study has indicated the way groups of very different backgrounds, with a diverse set of aims, can come together around the issue of ICTs in the local economy. As the actors involved in these groups coalesce around the technology they conceptualise the technology with respect to their own organisation and they convince others that telematics is a worthwhile route to pursue. As they express their organisational perspective on ICTs to a wider world – for instance in principle voluntary groups have the opportunity to set the agenda for Sunderland on the same basis as business representatives – they contribute to the legitimisation of the

activities being pursued and the vision which is being raised. Collectively, these actors are building a discursive formation on ICTs, they capture certain texts, articulate specific statements, manoeuvre into political positions to support their work, and images are displayed to show the way forward for Sunderland. Yet as this domain is being configured there is no predetermined outcome which can be pointed to, no indication of best practice which will be of most benefit to the people of Sunderland. However, being powerless to the logics of the space of flows is too much of a risk for those responsible for Sunderland's future. For this reason the efforts of STWG, however contradictory or idealist, will be of utmost importance to the way ICTs interacts with the Sunderland economy now and in the near future.

In the next chapter many of these processes can be seen again but this time from the context of a semi-urban location in South East Northumberland. The Wansbeck Initiative has many of the characteristics which have been shown here, but the developments in Wansbeck are on a much smaller scale. While this means the ability to control development may well be easier, it can also be the case that the risks involved in trying to connect Wansbeck to the informational mode of development may be proportionately greater. For the actors involved in the Wansbeck Initiative, the whole issue has been about resisting the peripherality of their location and in realising a new vision.

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[1] The idea of a 'teleport' is drawn from the notion that telecommunications are used to import data and export data. It is analogous with the notion of port associated with shipping trade. This shows how such a concept of development is constructed through political and economic criteria.

[2] All references to the 'Leader' of Sunderland City Council pertain to the position prior to the May 1999 elections. At this stage Bryn Siddaway, to whom the title 'Leader' is made, lost his place on the City Council.

[3] To date it is estimated that almost £50 million has been designated to Sunderland via the SRB. This figure includes finance from the private sector (see S.A 4.3). In addition, European Structural Funding was renegotiated after 1993, and then again in 1998 with Wearside designated as an Objective 2 area. The capacity building process also involved Sunderland City Challenge (SCC) which began in 1993. SCC covered a population of around 35,000 and had a budget of £7.5 million per year for a 5 year period, plus any private finance levered in. Sunderland North Community Business Centre (SNCBC) took the responsibility for delivering many initiatives rolled up in the City Challenge.

Alongside this, the former Tyne and Wear Development Corporation in Sunderland developed projects around the riverside, such as at St. Peter's Riverside and the Sunderland Enterprise Park. The latter is particularly interesting in that this activity on the north side of the city was adjacent to the City Challenge programme and involved the Hylton Riverside development of industrial and commercial units, retail site development, Hylton Park development for offices and light industry and the Southwick Riverside Development for industry. The City of Sunderland TEC, Business Link, the Business Innovation Centre and the Regional Technology Centre are all located on this site.

[4] Ironically, one of the few pieces of hard infrastructure which could be pointed to at this time (early 1995) with respect to ICTs, apart from the telephony infrastructure (of BT), was the coaxial cable infrastructure to support communal TV and radio reception in Washington New Town – a feature of many New Towns built in the UK in the 1960s and early 1970s – but hardly computopian.

[5] This was a typical example of how 'departmentalism' existed in Sunderland City Council in the early 1990s, with little scope or reason for different parts of the local authority to speak with each other. The emergence of ICTs as an issue, and the involvement of local governance has led in some cases to the breakdown of such departmentalism as officers in IT departments and local economic departments develop some form of dialogue (see Southern, 1995; 1998).

[6] The European Tenders Daily, an electronic procurement system, is used by UK local authorities although there is little evidence to suggest this has a significant effect on local businesses.

[7] One curt response to this came from a representative in the locality who said "I've lived on a housing estate all my life and I've never thought of them as intelligent" (interview with author, 16/6/97).

[8] Business Innovation Centres are part of the European Business and Innovation Centre Network, a network under the auspices of the EC DGXVI. These are supported with funds from Europe, but in the case of Sunderland finance has also been provided by Sunderland City Challenge and the T&WDC. Generally, BICs offer managed workspace, product development and technical support, an innovation fund, sales and marketing support and clerical assistance. The remit of centres such as the Sunderland BIC goes way beyond ICTs and are about many forms of technology but in Sunderland they have been carefully included as a critical node to attract particular types of economic activity; in this case developing telematics to support indigenous small firm growth.

[9] One reason for this is because theoretically, many of the components of the informational age (such as the call centre phenomenon) have yet to be adequately conceptualised. Thus, the work of Castells has opened up an existing domain in an exciting way for researchers.

[10] Doxford International Plc are a subsidiary of Akeler Development, a company who have previous development experience in the North East, such as at Team Valley, Gateshead (interview with Development Executive, Akeler, 28/8/97).

[11] Exact costs for build at Doxford have proved difficult to obtain with both the development company and the local authority reluctant to provide a full costing.

[12] This person did not wish to be recorded or quoted and the anxieties shown are strictly from one organisational view. The representative involved provided a singular perspective, an almost lone voice in the consensual upbeat language of STWG members.

Chapter 5

The Wansbeck Initiative:

resisting peripherality and realising a vision

5.1 Introduction

Wansbeck provides one of the earliest indications in the region of a local ICTs partnership that has aimed to stimulate technologically led economic development. One of the most significant features of the Wansbeck economy has been the recent history of decline, leading the district into an image of economic blight. The response to this has been led by the local authority, Wansbeck District Council, who through establishing a local coalition called the Wansbeck Initiative, have been able to develop something of a methodology for new forms of economic activity. The Wansbeck Initiative, established in July 1992, has sought to transform the locality by building, symbolically, on the site of a former coalfield, a new business park with state-of-the-art ICTs facilities, looking to encourage new inward investment and stimulate the development of local indigenous businesses. In addition, the local authority has led a project aimed at providing the district with an on-line electronic information service called Citycard, adding to the technological image and capability of the area.

The Initiative itself is a broad church coalition involving the private sector, the public sector and representatives from the trade union movement, the education and the voluntary sector. Notably, the leadership of the local authority has been able to keep a tight control of development and has consciously shaped the way Wansbeck has connected to the global informational economy. This has led to some tension as certain actors have been marginalised and others kept outside of the partnership altogether. It is also interesting that both capital and labour has been able to come together around the principle of the Wansbeck Initiative. Both sides have been prepared to work with the local authority to build up a new vision for the locality, with impending benefits for the local people of Wansbeck and for existing and potential employers. As in the case of Sunderland, the Wansbeck Initiative offers a new economy for tomorrow, something that aims to displace the discourse of

peripherality and decline and which, even in a semi-urban locality in South East Northumberland, is a local response to shape the space of flows.

However, unlike Sunderland, Wansbeck is not treading the computopian path but seeking to reconnect its local economy to the regional, national and international economy. This is a qualitative difference. Sunderland is in a position to be at the leading edge of the regions informational character. Wansbeck, because it is a much smaller locality with a much smaller local economy can add to this but will never lead it. Nonetheless, the participation of the Wansbeck Chief Executive in the early formation of Ni (he chaired the public sector sub-group) was a sign of how serious Wansbeck's connection process has been. In fact, because of the processes set out by the Wansbeck Initiative, Ni have never been a threat to the development in Wansbeck, or vice versa.

This chapter sets out the points of connection in Wansbeck, focusing on two key aspects in particular. One is the Wansbeck Business Park, funded through SRB finance and derelict land grants, and the other is the Citycard project, funded through the European R&D fund, Framework III. As the rationale to this is uncovered, the reader should bear in mind the context (or structure) of how ICTs has been grounded in a classic, traditional North East local economy, previously dependent on industry such as deep coal mining and aluminium making. As a consequence, the chapter takes account of the organisational structures and political dynamics that exist within the Wansbeck Initiative. However, first of all, there is the configuration of the Wansbeck economy to consider.

5.2 Wansbeck and connection to the informational mode of development

Wansbeck falls within the Ashington and Morpeth travel-to-work-area. The district itself consists of Ashington, but also the smaller towns of Newbiggin-by-the-Sea, Bedlington and some rural hamlets, amounting to 26 square miles with a population of about sixty thousand. Wansbeck is made up of sixteen wards, with a collective industrial history rooted in deep coal-mining. It is an area which has suffered from a

generic belief that it is peripheral to the industrial economy of the region, and the name Wansbeck is a relatively new fascia for the district. The 'Ashington factor', that is its image of peripherality and industrial decline, has acted against the development of the district in the past. Therefore, the creation of a Wansbeck identity has provided a mental picture of an area which is different from Ashington. This point emerged time and again from a wide range of interviews with members of the Wansbeck Initiative. While some members of the Wansbeck Initiative took the new identity of Wansbeck for granted, either way, it was evident that during discussions on the developments taking place, the industrial shape of Ashington was synonymous with that of Wansbeck. The main recent development in Wansbeck is *the* Initiative and this provides the method for connecting the Wansbeck economy to the global informational mode of development.

In a sense, the local authority has seized an opportunity for a new beginning and has led the development of a particular type of economic activity. The Wansbeck Initiative has provided the District Council with the vehicle to engage its ICTs approach, but during the period of data collection it was clear that it was not only this form of development which rested in the minds of the Partners. The Leader of the local authority outlined how energy was increasingly seen as a key area for economic development (interview with the author, 22/7/96). Undoubtedly, this has emerged because of the history of coal-mining in the area, and the life-cycle stage of the nearby Blyth Power Station and local Aluminium company, Alcan. One of the most plausible aspects of the Wansbeck Initiative is the model of development it has created, and this can act as a framework for new ideas to be pursued. The post-war structure of employment experienced in Wansbeck really does mean that a major requirement for future economic development lies in the provision of something substantive, something which would act as a catalyst for new development.

5.2.1 The Wansbeck economy

The Wansbeck Initiative has been designed to address the district's peripherality and provide a new vision for the future. It is a response to the enduring difficulties associated in areas with low skill employment, few opportunities and low waged

labour. In the early part of the 1990s Wansbeck had more people on 'low pay' than the neighbouring communities in Blyth, Castle Morpeth and Tynedale. Of people earning wages below the National Insurance threshold, Wansbeck had three times more than in Castle Morpeth and Tynedale, and more than twice the rate of Alnwick, Berwick and Blyth (see Table S.A 5.1). Figures from the 1991 Census of Population show Wansbeck with a high rate of people suffering from long-term illness (17.7%), much more than the figures for parts of Northumberland. The number of lone parent households in Wansbeck (973 households and 1,598 children) is second only to that of Blyth (1,383 households and 2,339 children) which has a population of some 18,000 more. Even by the middle of the present decade, the Wansbeck Initiative partnership were arguing that the local labour force lacked the skills to develop new indigenous employment opportunities itself, and that it fell into the most vulnerable 8% of Great Britain's workforce at risk from unemployment (The Wansbeck Initiative, circa 1994).

The present employment structure in Wansbeck shows how many people in the district rely on the public sector for work, with over a quarter of all employment in health and social work. In 1996 the top four employment sectors were health and social work, manufacturing, education, then the wholesale and retail sector (see Table 5.1). The number of VAT registered businesses in Northumberland as a whole was some 7,500 in 1996 (VAT database, Nomis). Of this, agriculture is the largest sector with over 1,900 businesses, followed by the wholesale and retail sector with a figure of 1,700. However, in the Wansbeck district, the most recent figures on business registration are dated. As of 1993, the retail and construction sectors have the highest numbers, 195 and 125 respectively (Table S.A 5.2). Wansbeck has traditionally been a mining area but the decline of the coal industry in the district has been spread over the last forty years. Today the only remaining deep coal mine in South East Northumberland is located just outside Wansbeck, in Ellington. Needless to say during the long period of decline in coal, the local authorities have sought to attract new investment into the area and in the latter part of the 1960s and early 1970s the British Alcan Smelter was built along with the nearby Alcan Power Station. Other major employers in the district currently include Welwyn Electronics,

employing 1,500 at its peak, Lite-On which is another electronics firm, and a Taiwanese pharmaceutical and chemical company called Synpac.

Table 5.1 The changing employment structure in Wansbeck: Numbers employed in the top 4 industrial sectors, 1971 – 1996

	Sector	1971	Sector	1981	Sector	1996
1	Financial, professional, Miscellaneous	10,700	Energy/water supply industries	6,500	Health and social work	4,100
2	Mining and quarrying	10,600	Other services	5,000	Manufacturing	2,900
3	Construction	4,200	Distribution, hotels/catering; repairs	3,000	Education	2,100
4	Distributive trades	3,900	Metal goods/vehicle industries, etc.	2,100	Wholesale/retail trade; repair, etc.	1,900
Sub-Total		29,500 (66.0%)	Sub-Total	16,600 (78.3%)	Sub-Total	11,000 (71.9%)
Total Employed		**44,700**	**Total Employed**	**21,200**	**Total Employed**	**15,300**

(Source: Census of Employment, Nomis)

Table 5.1 should be read with some caution, due to slight changes in the definition of boundaries and industrial sectors used to calculate these figures. However, they are indicative of structural shifts in the employment base of the district, particularly the decline of coal. The demise of the mining industry meant that in just over 25 years 10,000 jobs disappeared. In 1971 10,470 people were employed in coal-mining in the district. By 1981 the figure had fell to 5,500 with practically all employed in deep coal mines (Source: Nomis). In a perverse way, indicators such as these can actually act as an attractor for inward investment, as low wage levels and high rates of unemployment can provide foreign and national companies with pools of willing labour. This point was noted by the local NUM representative who argued that the basis of jobs created in Wansbeck need to be built on more than a foundation of grants assistance. He argued that incoming investors should realise they need to pay wage levels at least that of the national minimum wage rates (interview with author, 22/7/96). Indicators of low wage levels then, and more specifically poverty, have become a serious problem for Wansbeck and its key political and economic actors.

5.2.2 Laying the foundations for transformation

In February 1995, Wansbeck District Councillors were informed of how the local authority aimed to reduce unemployment in the district so it was equal to the national average by the end of the century. The Chief Executive explained to Members how a main aim

> "was to push Wansbeck to the fore by advanced telecommunications and to bring Wansbeck to the leading edge of network information"
> (Minutes of the Wansbeck District Council Economic Development Committee, February 1995)

The Council Leader at the time, argued how establishing a communications infrastructure for the district was vital. This would help secure assurances from the (then) Northern Development Company and Northumberland County Council that any new enquiries from would be inward investors would be made aware of the developments in Wansbeck (ibid.). The local authority Economic Regeneration Strategy for the period 1995 – 2000 highlighted eight themes and for each of these an allocation of resources was made, creating something of an enabling framework for new forms of economic development (see Table 5.2). Effectively, the development of an ICTs infrastructure in Wansbeck became integrated with these.

The original thinking about transforming the economy centred around Wansbeck Business Park. The Chief Executive of the Council saw this as an integral component of integrating Wansbeck into the global economy, thereby diluting the affects of peripherality. Connection, he argued, would provide a new configuration for Wansbeck, giving the district a competitive advantage in a world rapidly changing and increasingly reliant on ICTs (interview with the Chief Executive, 21/4/95). In this, new conditions need to be enabled in Wansbeck, so many different types of business are able to use ICTs, particularly those small firms who are unlikely to be able to afford the costs associated with adopting new technology. In addition, the Chief Executive suggested different skills are required throughout the district to support new forms of industry and how the concept of the Business Park and Business Centre was a perfectly logical development for the district, providing a high profile technological infrastructure for new inward investors.

So, the foundations for transforming the Wansbeck district became focused on the vision from a small number of individuals, mainly in the local authority. This group saw ICTs as a vitally important investment to stimulate business and economic development in the district. With an estimated cost of £300 million over a 20 year period, this vision has become a major investment for a locality the size of Wansbeck (interview with Wansbeck Initiative member, 10/4/96).

5.2.3 The two principal sites of connection in Wansbeck

The Wansbeck Business Park is one of two key sites of connection for the district. The other, the Wansbeck Citycard project was an early initiative in the region that sought to develop on-line public information points to support the work of the local authority across many of the rural parts of the district. However, as this section describes, the Business Park and the Citycard have become the two principal sites of connection in Wansbeck.

5.2.3.1 The Wansbeck Business Park and Teleservices Centre

The Wansbeck Business Park has been funded from a variety of sources. Organisations such as English Partnerships and British Coal Enterprise[1] have had direct input and other finance has been raised from the European Union and central Government. Funding has come from the Derelict Land Grants, the European Structural Funds, from Department of Environment grants and from SRB funding. The development of the Business Park was, according to one member of the Initiative, "very bullish from its original inception ...[but was toned down to] ... a realistic project which contains quality" (interview with Wansbeck Initiative member, 2/7/96).

Table 5.2 The eight key themes in the Wansbeck Economic Development Strategy (1995-2000)

Aim of economic development theme	Revenue Expenditure (£s)	Jobs Target
Inward investment The aim being to create employment by "importing jobs from elsewhere" (Wansbeck District Council, circa 1995, no page number). A number of markets were identified: Taiwan, Japan and the Far East for electronics, chemicals and pharmaceuticals industries; Europe and the sectors of pharmaceuticals, engineering, port related industries and telematics; the USA and the pharmaceuticals market; national inward investment and port-related, engineering and telematics industries.	17,000	1,050
Business support and aftercare services The aim being to provide business support aftercare services through a close dialogue with companies before, during and most importantly after new investment. Partners in this include Northumberland Business Link, the DTI and the Northern Development Company targeting some 160 local and indigenous firms.		300
Development of accommodation The aim being to provide a diverse portfolio of premises, aimed at large companies overseas and in the UK, research and development units for UK and regional investors, small and medium size company units and office space for local investors. Key partners identified in this strand of development include English Partnerships, (the former) British Coal Enterprise, the EC, Northumberland County Council and local private industrialists.		

Table 5.2 continued

Aim of economic development theme	Revenue Expenditure (£s)	Jobs Target
Business development Aimed at helping the local small firm sector. Three areas in particular were set out: business start-up, business expansion, and expansion of those firms employing between 25 and 200 people. Key partners include Business Link and Northumberland TEC (NTEC).	62,100	400
Co-operative and community business development The aim being to create 150 new jobs through supporting new and existing community based businesses and co-operatives, with the local authority dedicating two full time project workers to this task (interview with Council Officer, 14/8/96). Partners include Northumberland County Council, NTEC, the Industrial Common Ownership Movement (a nationwide co-operative movement), a local ecological initiative called Earth Balance, and the IT group involved in the development of the Business Centre, MARI.	10,000	150
Tourism promotion Aiming to increase classified accommodation by 87%, a 7% increase in occupancy and to open four new industrial attractions, such as the Woodhorn Colliery a former coalpit turned into a museum and heritage site. Northumberland County Council and Northumbria Tourist Board are the main partners in this initiative.	15,000	100
Wansbeck Business Centre The aim being to attract new inward investment and to create an enabling environment for new business start-up. This is dealt with in more detail below.	20,000	253
Total	**124,100**	**2,253**

It was argued that one of the unique selling points of the Business Park has been the availability of state-of-the-art telecommunications facilities. At the time of interview, the knowledge of other developments, within and outside the region, were useful in shaping the trajectory of the Wansbeck site. Some members of the Initiative pointed to similar activity in the region, for example they regarded the Newcastle Business Park in the same light as the Wansbeck Business Park, albeit on a bigger scale, but few members made reference to what was happening in Sunderland, particularly Doxford, with any significance (see chapter 4). Although much smaller than development at Newcastle and Sunderland, the Wansbeck Business Park has been designed to meet the requirements of a broad range of industrial sectors (interview with Wansbeck Initiative member, 22/12/94). By the end of 1995, the message that began to emerge from the Wansbeck authorities concerned how the site

> "offers the worldwide communication facilities and 21st century technology that inward investors are seeking in the UK"
> (Wansbeck District Council Leader cited in the Northumberland Herald and Post, 20/12/95).

The Business Park ICTs facilities have been marketed to entice new investment. While nearby Cramlington had drawn in nearly four times the number of inward investors than Wansbeck between 1971 and 1991 (Table S.A 5.3), in the early part of 1996 the US car safety firm, Simula Automotors Safety Devices, became the first company to announce new investment into Wansbeck for 20 years. It was symbolic, therefore, that the decision to invest was announced by the Chairman of the company from Phoenix, via a video-conferencing link to an audience which included Initiative partners along with the regional media who were waiting in the Business Centre, the central point of the Business Park.

The vision of Wansbeck held by those such as the Chief Executive (of the local authority) was of a location physically prepared, by being linked to a fibre-optic network, to attract organisations such as Simula. This perspective set in motion the pursuit of an ideal, whereby connection to an international broadband network from the desk of a business in Wansbeck is simply part of day-to-day business activity, a

general provision for firms that operate on a networked basis. According to one member of the Teleservices Centre, a project located in the Business Centre, the infrastructure allows for those internationally focused companies who will use the Wansbeck site as one point in a structure of nodes, in the process of data interchange. Such an ideal visualises firms working in sophisticated supply-chains, or being involved in co-operative electronic working from remote sites, demonstrating a type of working previously alien to Wansbeck (interview with author, 18/11/96).[2]

There are three distinct components of the Wansbeck Initiative situated in the Business Centre (see Table 5.3). There is the Teleservices Centre, the R&D Centre, and the Training Centre (also referred to as the Telematics Initiative). The Teleservices Centre provides a "unique communications feature and facility" (interview with partner in the Telematics Initiative, 18/11/96). The R&D Centre is concerned with the development of ICTs and the transfer of technological knowledge to firms. The Training Centre (also known as the Interconnect Project) has a strong focus on creating a facility for (computer systems) network manager and technician training. At the centre of activity in the Business Centre is a company called Advanced teleCommunications Enterprise (ACE). ACE is a joint venture company initiated between the local authority and an IT consultancy company located in Gateshead, called MARI (Micro-electronics Advanced Research Institution). This joint venture company has proven to be instrumental to the local authority's position on ICTs, as we see in more detail below.

In December 1994 a proposal from the Wansbeck partnership to develop the Business Centre as an integrated Telematics and Teleservices Centre was allocated SRB funding (see S.A 5.4). The cost of this to central Government is a total of £1,236,000 and involves two main partners both of whom also provide financial contributions by way of labour or capital investment. The MARI Group and Wansbeck District Council formulate and implement the project on behalf of the Wansbeck Initiative, with the local authority acting as the lead organisation having specific responsibility for monitoring and evaluating the financial aspects and quantifiable outputs of the project (The Wansbeck Initiative, 1996).

To a lesser extent, Northumberland Business Link and NTEC are also involved in the Telematics Initiative. NTEC have a direct role in the Interconnect Project and are involved in the appraisal of the Teleservices Centre (ibid.). A Business Link office was established at the Business Centre in April 1995, and the idea is that, along with the usual portfolio of services provided by Business Link (see Bennett, 1995), the Personal Business Advisors will be able to offer the services of the Teleservices Centre. In essence, this means access to the hardware outlined above which translates into facilities such as video-conferencing, high performance communication services for specialists and corporate users, advanced computer printing and scanning facilities, all of which are promoted on a collaborative basis through seminars aimed at small and medium sized firms in South East Northumberland (The Wansbeck Initiative, 1996).

The SRB Delivery Plan, which covers the three areas of Teleservices, the R&D Centre and the Training Centre, has a number of expected outputs at an expected cost of £1,228,000 to the private sector and £1,663,000 to the public sector, on top of the SRB finance bringing the total investment to some £4.1 million. Estimated outputs from this are 44 direct jobs created, 1,300 indirect jobs created, 20 local companies supported through an 'Advanced Telematics Awareness' initiative, plus a further 60 firms from the region and another 20 from the UK (see S.A 5.5). The three elements of the Telematics Initiative are summarised in Table 5.3.

Table 5.3 The three elements of the Wansbeck Telematics Initiative

Main activity	Financial contribution	Total cost all years (£)
The Teleservices Centre Designed to address the peripherality of Wansbeck and the lack of a vibrant small firm sector. The Centre will also provide an outsourcing facility for larger companies, particularly in terms of facilities management (the management of computing and network facilities). Key partners are the local authority and MARI.	SRB contribution	710,640
	Capital	305,000
	Revenue	396,000
	Administration	9,640
	Sub-Total Private Sector Leverage	120,000
	Public Sector Contribution	
	Local Authority	143,000
	European funding	688,000
	Sub-Total Other Public Sector	831,000
	TOTAL	1,661,640
The Research & Development Centre Designed to encourage technology transfer and take up among local businesses and to generally raise the level of R&D in the district. MARI are the lead agency is this work, with the local authority responsible for evaluation of the work. Of the almost £2 million to be spent on the R&D Centre 57% is from the private sector, less than 20% from the SRB and about a quarter of total expenditure is from other public funding. MARI is clearly a key resource for the R&D work.	SRB contribution	327,950
	Capital	95,000
	Revenue	220,000
	Administration	12,950
	Sub-Total Private Sector Leverage	1,048,000
	Public Sector Contribution	
	Local Authority	115,000
	European funding	357,000
	Sub-Total Other Public Sector	472,000
	TOTAL	1,847,950

Table 5.3 continued

Main activity	Financial contribution	Total cost all years (£)
The Training Centre (the Interconnect Project) Designed to address the skills shortage experienced in Wansbeck. The objective of the Centre therefore, is to create a pool of technicians skilled in the use of ICTs who can enable local businesses to exploit the technology to support the development of their business. MARI are responsible for implementing the Interconnect Project, while the local authority have an appraisal role.	SRB contribution	224,250
	Capital	55,000
	Revenue	165,000
	Administration	4,250
	Sub-Total Private Sector Leverage	60,000
	Public Sector Contribution	
	Local Authority	180,000
	European funding	180,000
	Sub-Total Other Public Sector	360,000
	TOTAL	644,250

(Source: The Wansbeck Initiative, 1996).

The Business Centre has been important for Wansbeck, acting as a focal point for all manner of entrepreneurial activity by local governance agencies. It is surrounded on the Business Park by factory space provided with a transformed environment and ICTs infrastructure. However, as we see below, a most significant development from the process of winning funding for this development has been the establishment of the company ACE. The SRB funding was the first in the country for financing ICTs types activity in such an explicit manner. The partnership from the Wansbeck Initiative, led by the District Council, is the key agency for turning this vision into bricks and mortar, symbolically transforming an old coal mine into a site for 21st Century industry. However, as it has been eloquently put with respect to regeneration in the region, economic and social development requires more than bricks and mortar (Robinson, Lawrence and Shaw, 1993).

5.3.2.2 The Wansbeck Citycard project

The Citycard project is aimed at providing a dispersed electronic public information network across the Wansbeck district. It fits into the overall ICTs schema in Wansbeck, supporting the local authority as the nexus for technologically led development in the district. As the 'Telematics Manager' at Wansbeck District Council stated

> "part of my brief is to use all of the latest telecommunications technologies to improve the economic lot of the area, and also, to look at how the Council can harness the latest technologies to deliver its services, and that's where Citycard fits"
> (interview with author, 10/12/96)

The project has taken shape mainly over an 18 month period, bringing together the Wansbeck District Council and MARI and involves building an electronic architecture for the Wansbeck district. This includes appropriate hardware, such as a kiosk based touch screen information service, and the user-friendly software the system is to use. Wansbeck and MARI were able to draw on contacts in other parts of Europe, and Citycard received finance on the basis of it being pan-European, including public and private partners from Bologna in Italy, from Barcelona in Spain, and from Oreias in Portugal. In each place, the idea was that a local electronic public information system would be established, although as another council representative

in Wansbeck noted, Wansbeck and Bologna have led on this project and have developed systems simultaneously rather than collaboratively (interview with author,10/4/96).

In the Wansbeck district the aim has been to locate Citycard applications at sites such as supermarkets and remote local authority locations, particularly those rural villages which fall within the district boundary. The project has been funded since 1993 from the European Commission Framework III and was originally part of the Espirit programme. According to one Council Officer, the total funding package from Europe received by all the partners for this project was 1.8 MECU (interview with the author, 22/12/94). Again, this funding is very much about pump-priming an initiative, with Wansbeck receiving in the region of £120,000 over a two year period, with a further £30,000 per year running costs. Towards the end of the funding period (December 1996) Citycard had the equivalent of 4.5 people working on it, three from the local authority and one full-time and one working part-time on Citycard from MARI (interview with Council Officer, 10/12/96). The local authority explain the Citycard as

> "an interface with the overall mission and objectives of the Council, as well as being compatible with the individual service missions ... [t]he overall objective of Citycard for the Council must be to improve access to information and services which assists the Public's to improve the quality of life"
> (Wansbeck District Council, undated, no page number).

There are four points of connection which are specifically relevant to Citycard. The project is to be used to support economic development, thereby complementing the developments on the Business Park; to support land use planning aimed at facilitating easier processes of land reclamation and economic regeneration; to support environmental health by raising awareness on health and environmental standards; and to support the Council's management of its housing stock (Wansbeck District Council, undated). Table 5.4 provides an overview of the Citycard, the provision of information services and the subsequent points of connection.

Table 5.4 The Citycard and Wansbeck points of connection

Citycard theme	On-line information services on:
The Citycard and economic development Citycard is to be used to assist in the creation of a diverse economic base in Wansbeck.	The creation of new companies, to assist the community and neighbourhood development programmes; on inward investment, to assist in the marketing and promotion of Wansbeck; and on new training and employment opportunities.
The Citycard and planning Used in the process of land use planning, particularly with respect to enabling economic regeneration and in the protection of the environment.	Supporting the implementation of the land strategy, helping commercial growth, minimising the impact of development on the environment, enabling community involvement in decision-making.
The Citycard and environmental health The raising of awareness for producers, sellers and customers on standards and quality.	Used to support standards on food production, storage, packaging and handling; on home and workplace safety; on trading regulations and on noise, atmosphere and land pollution.
The Citycard and housing Used to support the local authority in its management of the district housing stock.	Housing type, greater choice and available accommodation, and on raising the levels of awareness about the support services available to help with housing issues.

(source: Wansbeck District Council b, undated; interview with local authority officers, , December 1994, April, and December 1996).

The development phase of the Citycard project finished at the end of 1996. At this time the MARI and local authority partnership concentrated on applications aimed at the end-user, and notably, better provision of information to the Wansbeck public began to be seen as quite significant. This is how the Telematics Manager described the development of Citycard at the time.

> "We have now developed Citycard to a point where we are now exploiting it commercially. ACE, a joint venture between Wansbeck and MARI, are now responsible for this. We've shown it at the Association of District Councils and it has been extremely enthusiastically received. There is an enormous amount of interest at the moment for using electronic information systems to communicate with the public ... to achieve more with less money".
> (interview with author, 10/12/96).

As with Sunderland's attempt at establishing an International Teledemocracy Centre, it shows the way local elected bodies have begun, in the past few years, to see the role of ICTs for developing ideas about 'democracy', about the provision of public information, and about local authority service delivery. It also shows the pressure local government has been under, for the last two decades, to reduce spending and to add more value to its services through using ICTs (Bellamy and Taylor, 1998).

The Citycard project is an important development for the Wansbeck area. Along with the Business Park, and particularly the Business Centre, it provides an image of Wansbeck as "an island of telecommunications excellence" against a background of peripherality and local economic decline (interview with Council Officer, 10/4/96). Given that the district fell outside of initial franchise programme for a local cable infrastructure, Citycard has a vast potential for development. The applications can be integrated into a local teletext system for instance, or could even be driven down the telephone system should the provision of data services be opened up to BT. Of course this is all about what might happen, a future vision for a local electronic information system, but that is precisely why Citycard fits neatly into the aims and objectives of the Wansbeck Initiative. Yet this vision of the future is wide open to critique.

In response to the pomp of Citycard, and to the pretentious nature of on-line services in general, one local representative in Wansbeck argued about Citycard

> "we've got these machines, and it's about as relevant as flying to the bloody moon for most people. They [local people in Wansbeck] want to find out about if they can get a housing transfer, or how to get a fucking burst pipe mended. To tell them to go over to a machine ... it's a resource attracting too much emphasis, on something which is not relevant to people ... [adding later] It's another example of the Initiative promoting something which is 'the only one in Britain' – so what?!" (interview with author, 10/12/96).

The development of the Citycard has been kept to a small number of people in the local authority and from MARI. What the response above indicates is the way that opposition to ICTs development in Wansbeck has been kept to the margins. As we see below, the Wansbeck Initiative has drawn people together in the name of local

economic development and while this has not been without some contention, representatives from capital, labour, and the state have coalesced around ICTs. Just as in Sunderland, where the Telematics Strategy was a local response to the space of flows with particular roles played out by business, the public sector and voluntary and community groups, so to in Wansbeck has a broad church coalition emerged around the technology. In the next section of this chapter these aspects of place and the space of flows are considered in more detail. While the role of the Wansbeck Initiative has been to mediate the affects of connection, and to shape connection in a particular way, it has also controlled contestation within the district. Also, ICTs in Wansbeck has never been a issue, or project, threatened by developments in other parts of the region.

5.3 Shaping the space of flows in Wansbeck

The Wansbeck Initiative has been an important partnership in the emergence of new economic space in the district. Building the Business Centre, and establishing the Citycard project, has been a method of development aimed at improving Wansbeck as a site of technical productivity in the global informational economy, precisely as Castells (1996) would suggest. Such a response has been an early forerunner in the region, where local partnerships have made efforts to shape the space of flows at the level of place. Just as the City of Sunderland Partnership were able to pull together a number of strategic objectives for developing their response to global change, so to in Wansbeck, attempts were made to build an electronic architecture, to establish the district in the hierarchy of hubs and nodes in the global informational economy, and to resist the overarching power of informational elites and their dominant spatial logics (ibid.).

This section looks at what this has meant for the processes of governance in Wansbeck. It begins by looking at those actors who came together under the umbrella of the Wansbeck Initiative, and who had to work to overcome a powerful discourse of peripherality and decline affecting the district. It then shows how Wansbeck has established a political process to continuously address what the

Initiative feels are leading edge issues, that will ultimately support the drive for a competitive district. Finally, this section on shaping the space of flows in Wansbeck, takes account of some of the dynamics involved in setting out Wansbeck's economic strategy as a locality with a new informational trajectory.

5.3.1 Overcoming the discourse of peripherality and decline

The late 1980s saw job losses experienced simultaneously in the aluminium factory Alcan, the local collieries, and in Blyth Power Station, all of which are in close proximity to Wansbeck. These three industries were very much integrated with each other and into the local economy. Alcan closed one production line as part of the worldwide recession felt by the metal industry, resulting in 550 job losses.[3] Because of this, British Coal reduced its workforce by 100 at Ellington Colliery, which stands adjacent to the Alcan Power Station. In the same period, National Power after announcing the decommissioning of part of its Blyth operation, made 240 employees redundant (Tomaney, 1992). At this time, indicators provided by the local authorities began to point to an unemployment rate which was steadily rising, up to 20% in South East Northumberland (Northumberland County Council, 1993). Serious concerns were raised about the future of a local economy which had developed a highly sophisticated and complex set of linkages during the post-war period. There were also worries about the affects on the nearby Port of Blyth, and concerns about primary sector activity, such as farming and fishing in the more rural parts of the county.

According to some of the leading local political actors, the South East Northumberland area faced a major crossroads in 1992 (interview with the then Leaders of Wansbeck District Council and Northumberland County Council, July and November 1996). Two things, it was argued, became apparent. First, the levels of unemployment were increasingly worsening. Second, there was a decline in the socio-economic position of those in the district who remained in work (interview with the former Leader of Wansbeck District Council, 14/11/96). This meant that on the one hand, the politicians and decision-makers in the area resigned themselves to the loss of its largest and most influential industrial players, and on the other looked

towards central Government to make up those losses through the provision of extra grants for alternative employment. Such a view was reiterated by a joint statement from the Leader of the Wansbeck District Council, the Leader of the Blyth Valley District Council, and the Leader of the Northumberland County Council, who argued

> "the likelihood of the area securing inward investment on the scale necessary is small. The international competition for inward investment is becoming more fierce as the volume decreases and its nature changes. Moreover, South East Northumberland is poorly placed to attract such potential investment as exists. The low-paid and un-or semi-skilled jobs, which characterised the inward investment of the 1980's, is a poor replacement for the high quality employment currently under threat." (cited in Tomaney, 1992, p 1).

This argument became particularly acute as the fall-out from global recession during the 1980s took effect in Wansbeck. Reclamation grants of almost £15 million were invested into the district, aimed at redeveloping land for industry, improvements to the environment, making land available for agriculture and turning polluted land into land fit for new private housing (The Wansbeck Initiative, circa 1994).

This investment was a response to rapid decline of many of the traditional industries and in particular, the collapse of the coal industry which began to threaten the whole county in the 1980s. So much so, that the Partnership estimated had the number of miners in the area in the early part of the 1990s remained the same as that in 1961, then an extra £2.4 million income per week (amounting to £125 million per annum) would have entered the area through direct wages from the mining industry and through employment in many of the mining support and ancillary services (see Figure S.A 5.1). During this period, as the wages differential between mining and manufacturing grew wider, so the importance of deep coal mining to Wansbeck intensified. It was highly significant therefore, when the coal industry dipped into terminal decline.[4] The last deep mined coal pit closed in Wansbeck in 1988 and acted as a catalyst to ICTs development.

Responding to such a bleak picture, the key players in Wansbeck prepared a case for Development Area Status (DAS). From as long ago as 1967, the district had been in receipt of DAS only for this to be replaced with the lesser financial package of

Intermediate Area Status in 1984, when the travel to work area (TTWA) boundaries changed. The Chief Executive of the District Council argued strongly with Government officials in the region, how the inclusion of more affluent areas, such as Castle Morpeth, in an assessment of local deprivation distorted the true picture of the district, and suggested that Wansbeck was falling behind other places within the North East. This, he pointed out, added to the appearance of peripherality for Wansbeck, contributing to an overall image of an area in terminal decline (interview with author, 21/4/95). Another local player stated "the fundamental weakness of it [the local economy] is that Wansbeck is not ideally placed to attract the major players" (interview with author, 10/12/96). The plight of Wansbeck has also contrasted with that of nearby Cramlington, an area more able to attract additional economic investment (see Table S.A 5.3). This was a consequence of Cramlington being included in the Newcastle travel to work area meaning that the town was able to attract DAS finance. Cramlington is also adjacent to Newcastle Airport. These factors led to some concern in Wansbeck that inward investment would never reach any further north in the region.

The local authority led the response by demonstrating how Wansbeck had greater social and economic needs than other areas in receipt of DAS grants. They constantly made claims that "Development Area Status is needed to attract inward investment to provide replacement jobs" (Wansbeck District Council, circa 1995, p 5). Representatives from Wansbeck met with the Minister at the DTI, (then Tim Sainsbury of the previous Conservative Government) and submitted their case, a case reinforced through a gloomy picture delivered by PA Cambridge Economic Consultants. The industrial structure of the district, the consultants had previously contended, was one of high unemployment, industrial decay and environmental degradation. Adding how this was a district that contained extreme levels of local unemployment and resulted in a set of negative social and economic images. They noted how

> "[o]f wider concern is the more insidious effect on the morale of the local labour force and the perception of the area by indigenous companies and prospective inward investors."
> (The Wansbeck Initiative, 1994, p 7).

The evidence of social and economic disadvantage and decline had built up a momentum by the early 1990s, and it manifest as an argument to Government in support of a wide range of policy measures to help Wansbeck (see Table S.A 5.6). Coupled to the employment loss in coal, aluminium and energy industries, it simply compounded the whole effect of economic depression in the area.

It was notable, therefore, that when the last pit in Ashington closed in 1989, the Chief Executive of the local authority met with the local coal manager and indicated to British Coal (then the National Coal Board) that the Council wished to take over the site. After some negotiation, and in partnership firstly with Northumberland County Council, the reclamation began and the first early steps to transform the image of Wansbeck were underway. In Wansbeck District Council an officer team was put together to co-ordinate the work, and to develop a working partnership with other local organisations and agencies to take the plans for development further. It was the task of this group to examine how a new business park could benefit the local economy. According to the Chief Executive, the clear aim was to provide Wansbeck with an economically competitive edge (interview with the author, 21/4/95). He noted how it was important to get the support of other local players, and representatives from the DTI in the region (at the Government Office North East), from the Northern Development Company (NDC) and from English Partnerships (then known as English Estates) were each encouraged to take an active role in the formation of the Business Park.

This spread further, and the formation of the Wansbeck Initiative was direct response to the discourse of peripherality and decline which faced the district. It involved representatives from the public and private sector, 24 in total, including people from local industry, the local authorities, trade unions and central government. The support of the local Member of Parliament was drawn in, as were the efforts of the local Member of the European Parliament, and representatives from GO-NE acted as observers and took a role in many of the sub-panels that came to constitute the Wansbeck Initiative partnership. As with many local partnerships the Initiative met on a regular basis but never established a legally binding constitution (Bailey, 1995).

However, the key ingredients had been brought together in an attempt to create a new image *and* substance for Wansbeck.

5.3.2 Political structures: economic development and the Wansbeck Initiative

The contextual structure for the inception of the Wansbeck Initiative was a local economy of relatively high unemployment and low wage levels, along with an increasing recognition that this was a community wide set of problems (interview with former Council Leader, 14/11/96). The organisational structure of the Wansbeck Initiative partnership involved a Board of Directors supported by six sub-panels. Each of these respectively became responsible for infrastructure, business development, training, marketing, community and energy and were serviced by a local authority officer (see Figure 5.1). This hierarchical structure reinforced the aims of the local authority to remain as the lead player in the Wansbeck Initiative, satisfying Government requirements to incorporate the private sector, while at the same time supporting the notion of representative democracy. The sub-panels believed it was their duty to put the principle of partnership into operation – a brief overview of its functions follows (Wansbeck District Council, circa 1995a).

The role of the Board of Directors

The Board of Directors are responsible for monitoring the Initiative and for the strategic overview which outlines the objectives of the partnership. The Chief Executive of Wansbeck District Council, the Leader of the Council and a representative from local industry, (from the Alcan company) act as the Board of Directors. In essence, the Board capture what amounts to the mission of the Partnership, aiming to harmonise the "programmes of all the partners in the Wansbeck Initiative for the benefit of those residents in the District" (Wansbeck District Council, circa 1995b, no page number).

The role of the Infrastructure Panel

The Infrastructure Panel look to maintain and upgrade the district infrastructure of transport and communication links, the quality of the environment, and the upgrading of derelict land and housing. The infrastructure panel involves the Leaders of

Northumberland County Council and Wansbeck District Council, a representative from GO-NE, from English Partnerships and from the Trades Council.

The role of the Business Development Panel

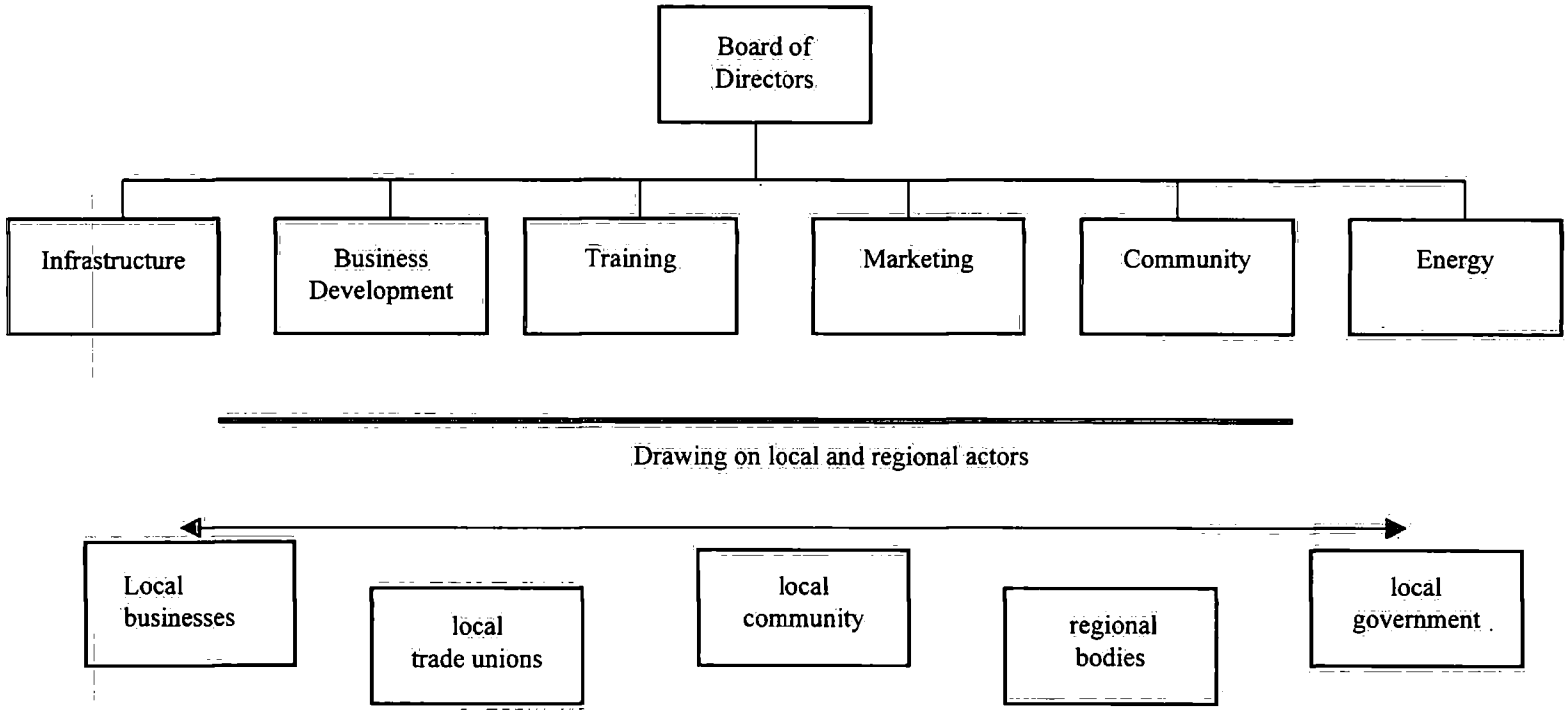
Representatives from English Partnerships, the local authority, Recharge North East,[5] Northumberland Business Link, Northumberland Business Centre, the NUM, NTEC and GO-NE make up the Business Development Panel. The role of the Business Development Panel is to

- ensure quality accommodation which meets the requirements of High Technology R&D businesses, on the Wansbeck Business Park;
- develop the Wansbeck Business Centre on the Business Park;
- enable advice, support and financial assistance for business across the district via the Business Link One-Stop-Shop in situ at the Business Centre;
- create a regional flagship scheme based on the Teleservice Centre at the Business Centre.

The role of the Training Panel

The Training Panel have three aims. First, to raise the general skills level of the unemployed. Second, to capture the needs of current and future local employers. Third, to provide a level of ICTs training for local employers, and to provide unemployed people with basic ICTs skills. This panel is Chaired by the Chief Executive of NTEC, and has representatives from some of the major employers in the area, such as Welwyn Components Ltd., Synpac, Alcan, Ashington Hospital and the Principal of the Northumberland College of Further Education, located in Ashington.

Figure 5.1 The structure of the Wansbeck Initiative



(Source: Wansbeck District Council a, undated).

The role of the Marketing Panel

The role of the Marketing Panel is to target potential inward investors. This sub-panel has set out two main objectives, which are to

- promote the district as a premier location for business and inward investment,
- develop a strong branding and image for Wansbeck.

This panel is chaired by a representative from the (former) Northern Development Company, with partners from private business, such as Welwyn Components and Synpac Chemicals, the Chief Executive of the District Council, the GONE and English Partnerships. Its structure therefore, develops the strong association between marketing, branding and inward investment.

The role of the Community Panel

The Community Panel is focused on reducing levels of economic disadvantage and increasing the confidence of communities in Wansbeck. The language of this panel, dealing with democratic business, community regeneration and social needs, is not mainstream economic development but it does represent an attempt within the district to legitimise a particular type of enterprise. Membership on this panel include people from social services, an industry representative, from education, from the local authority and from NTEC.

The role of the Energy Panel

The aim of the Energy Panel is to develop an energy strategy for the local primary and industry sectors, whilst ensuring the district benefits from advanced and environmentally friendly developments. The partners in this activity include key employers such as Alcan, RJB Mining, National Power and British Gas. It also has representatives from the education sector, from the Druridge Bay Campaign and from the Trades Council, and some involvement from the Leaders of the District and County Council and the European MP.

These panels set out a clear structure for the organisational politics and day-to-day activities of the Wansbeck Initiative. In effect, it is these that control the types and levels of different economic development activity taking place in the district, including those with a specific remit on ICTs. According to one member of the Initiative "as economic development has taken place, an important part of the jigsaw has been the Wansbeck Business Park" enabled by the partnership structure and processes (interview with author, 14/11/96). He argued that the Initiative provided a framework for new ideas and acted as a springboard for action

> "using the private sector actively in lobbying Government, who had the ear of Ministers... [providing] a free flow of ideas, most of which came from the District Council"
> (interview with member of the Wansbeck Initiative, 14/11/96).

The Initiative therefore captured many of the qualitative features associated with loosely based coalitions, such as networking and the transfer of ideas, and for those involved, looked to be more than a sum of its constituent parts (ibid.). This is an important point. The Initiative allows for some form of embedding of local economic activities pursued by local actors, and provides a basis from which the processes of legitimation and institutionalisation take place. These are essential features as local actors coalesce, achieve some type of ownership of, and provide some form of commitment to ICTs projects.

A lucid example of this is how the Initiative has allowed the contradictions between capital and labour to be transcended. The local trade unions through the trades council, but more importantly through the NUM, took their place alongside representatives from major international private organisations and with leaders of medium size firms located in the district. This is by no means new. It is in fact, an extension of the corporatist phenomena of the 1960s and 70s associated with Fordism (Allen, 1992). Yet the rules of contemporary partnership has changed the structure and meaning of the dialogue that takes place between capital and labour. In the Wansbeck Initiative labour has taken its seat but has to sing along to the merry tune of global capital concerning enterprise and investment. The best labour can argue is that Wansbeck should be about attracting good jobs "paying good rates of pay and

treating people with respect when they are employed" (interview with local trade union leader, 22/7/96). The trade union and local Labour leadership saw, in the Initiative, a chance to shape the economic landscape in Wansbeck as the power of both local government and trade unions declined. They were uncomfortable with some aspects of this change, such as the downward pressure on wages and working conditions and also the fact that voluntary and community groups were increasingly being drawn into the picture (interviews with Initiative members, November and December, 1996). Local labour has taken part in the partnership approach as effectively as any other group and they work together with private industry.

By setting out the Initiative the local authority have led on a new discourse of economic regeneration for the district. This discourse is authoritative enough to bring together groups with very different aims and objectives. Technology is an important part of this discourse. For example, the energy sub-panel are able to talk about managing the decline in coal, the requirements from the nearby power industry and Alcan Smelter, with respect to ongoing concerns about renewable energy and the local ecology (interview with member of the Wansbeck Initiative, 22/7/96). This led to the setting up of the Wansbeck Energy Company, in partnership with another local authority in Belgium, providing an offshoot of the Initiative that imitates the ICTs work. Again, this has brought together key local agents around a particular theme and again, it captures trade unions and local businesses. Similarly, the idea of a 'Wansbeck Brand' is aimed at displacing the images of the past with images about the future, notably through a new "style and tone and marketing material" (interview with member of the Wansbeck Initiative, 21/4/95).

What is emerging then, is a diagnostic method and set of political processes for addressing local economic decline. The space of flows is an important part of this process and in the next section this is considered further by examining some of the dynamics of the Wansbeck Initiative. A specific part of shaping the space of flows is the work of the joint venture company ACE, but also attention is paid to how dissension has been skilfully kept at bay, as the new discourse and trajectory of the

Wansbeck Initiative has been formed. There has been some internal opposition to the Initiative but this has scarcely changed the determination of its key actors.

5.3.3 Shaping the space of flows: the dynamics of the Wansbeck Initiative

One of the things often disguised within organisational diagrams as that presented in Figure 5.1 are the way political hierarchy takes place. As in Sunderland, in Wansbeck some local groups have been able to take the lead role in the Initiative, while others have been marginalised from the process. In Sunderland, the way this took place was through the varying degrees of attention paid to particular projects. All ICTs work was useful, it was argued, but clearly some were more useful than others as initiatives like the Doxford development took pride of place. At the same time, the work of local community groups, while in part due to funding mechanisms, was omnipresent, was never omnipotent. In Wansbeck, there are a number of issues concerning the dynamics of the Initiative and which consequently, will determine the local response and attempts at shaping the space of flows. Put briefly, this refers to the presence of ACE and the concerns of some about the way Wansbeck has been developing.

If we take the role of ACE, their remit is to run the data network for the Business Centre and provide data and telephony services to the companies on the Business Park. This provides a capability for firms to rent electronic space from an independent service provider under the auspices of the Initiative. It means the partnership is loosely responsible for providing businesses with Internet connection including e-mail and WWW pages and software on Novell, NT and Unix platforms. Additionally, services such as video conferencing and multi-video conferencing are also available through ACE. What this means is that ACE can act as the gatekeeper between Business Park tenants and the global informational economy, with the company developing its own range of services simultaneously with the growth in high speed cable connectivity, and with the anticipated demand in take up and adoption of ICTs by firms (interview with MD of ACE, 18/11/96).

Clearly, ACE provide the technical capacity for the Initiative. At the time of interview, seven of the twelve people employed by ACE were technical workers. Making their relationship with the local authority even more intriguing, ACE secured the contract to provide complete facilities management (FM) services for the Wansbeck District Council. ACE now operate all the local authority's computing and electronic networks. This occurred after a restructuring of the Council's Corporate Unit that clearly juxtaposed internal IT with the current wave of informationalism, through a

> "review of the way IT services are delivered *in conjunction* with an economic development initiative to create jobs in the hi-tech market (The Northumberland Herald and Post, 20/12/95, p 2, emphasis added).

The role of ACE has become tied to the restructuring of the local authority as much as to the restructuring of the Wansbeck economy.[6] In this joint venture, ACE are the technological entrepreneurs. They deliver not only the high-technological edge for the Business Park, but are part of the whole Wansbeck package that aims to support bids for inward investment and assist small and medium size firms in the adoption of technology. By November 1996 ACE had secured 120 customers for Internet space, of which 80 were described as SME's, with about 20 or so having developed a WWW presence (interview with MD of ACE).

The District Council, particularly its officer and member Leadership, provide the political entrepreneurs. The SRB finance, won in a political beauty contest, has enabled the Initiative to develop a key part of its ICTs strategy. In turn, the development of the Business Park has been crucial in the transformation of Wansbeck, and the emphasis on the Business Centre for the delivery of technology transfer, ICTs facilities and training in the skills required for the informational age, is a vital ingredient of the local economic strategy and the Wansbeck Initiative. This would not have been achievable without the championing of ICTs by the District Council Chief Executive, consecutive District Council Leaders and the role of MARI. However, this has not been without some serious questioning regarding the rationale of such an approach. One member of the Initiative complained that his contribution had been marginalised. As the strategic direction of the district had

been set out, he argued, the sub-panel he participated in was only able to act in a reactive manner to the main objectives, such as in training and education (interview with member of the Wansbeck Initiative, 2/7/96). Another member argued the Initiative was an undemocratic quango and that he only took part to ensure representation of his particular constituency (interview with member of the Wansbeck Initiative, 22/7/96). Yet this participation and change from within was tame compared to the vociferous opinion of another local representative who believed

> "It's all about control. When you handpick people [to participate in the Initiative] you pick the ones you can control, who are not going to rock the boat too much, who are not going to be too objective or put forward constructive criticism when necessary ... the Chief Executive has handpicked them [adding] ... we are talking about ego and we are talking about somebody who is very powerful, who needs to control. They [the Initiative] talk about partnership which we thought we had. But they have used it as an excuse to say we are displacing their work – for job creation!"
> (interview with author, 10/12/96).

While views on the Wansbeck Initiative such as these could be found during the investigation, they were always fermenting around the edges of key Initiative activity. The political success of the partnership has been that it has kept such views to the margin, while at the same time, it has nurtured an entrepreneurial project in a particular way – focused on ICTs for economic development.

The whole rationale behind the Wansbeck Initiative has been to provide the district with a competitive edge through technologically led economic development. The area needed something extra to compete with other places, and to address the image of peripherality and decline. Key local political leaders have set this is train, they believe they can attract new inward investment because of the telematics edge available at the Business Park. The Business Park is different and is new, it makes the district distinct "by having available a high quality and high specification site" (interview with member of the Wansbeck Initiative, 14/11/96). And while the others argue that the "methodology is all wrong" (interview with a local Wansbeck representative, 10/12/96), the Wansbeck Initiative was one of the first ICTs

partnerships in the region who carefully targeted technologically led local economic development.

5.4 Summary: the Wansbeck vision

The Wansbeck Initiative is the key partnership in the district. While it has been responsible for developing a new method for developing the Wansbeck economy a crucial part has been how the Initiative has mediated the connection process and sought to shape the space of flows. The political and business leaders in Wansbeck see the development of a state-of-the-art ICTs business site as an important means by which the image of decline and peripheral location of the district can be overcome. The key points of connection, between the global informational mode of development and the Wansbeck local economy, are in the areas of managed workspace, new office and factory units in the Business Park, and in the provision and accessibility of an ICTs infrastructure in the Business Centre. Wansbeck's transformation, seeking to replace the discourse of peripherality with a new vision of a technological future, also has another angle in the provision of electronic information services through the Wansbeck Citycard. These are 'real' projects which have specifically drawn on SRB funding and finance from European R&D grants. In this sense, Wansbeck can appear to be much more leading edge than a place like Sunderland, who in essence have brought a number of initiatives together under one programme. In Wansbeck, the vision has been created out of the ashes of derelict land and the pit closure programme of the 1980s, and a measure of success is the bricks and mortar of the Business Park.

It is also interesting that a joint venture between the local authority and a private firm acts as an important player in the development in Wansbeck. Here is as clear a case of political and technological entrepreneurship as one could see. While this has been taking form, a number of local groups have felt marginalised from the whole trajectory of the Initiative. Another measure of 'success' of the Initiative therefore, has been the political footwork which has kept such groups at bay and allowed the entrepreneurial nature of contemporary management of economic development to

take place. In this, any contradictions between the role of labour and capital has been moderated as both have come together around the new technological vision for the district, led by the Initiative. The Wansbeck case study further demonstrates how shaping the space of flows is a political and economic issue, and should not be reduced to some form of technological analysis.

In the next chapter these issues are again investigated, but in a different context. The geography of the two cases to this point has differed, from city to semi-urban area. The next case study is an examination of County Durham Informatics Partnership (CDIP), and County Durham On-Line (CDOL). The scope of the work of CDIP and CDOL is the rural county of Durham and interestingly, here is a case were the work of the local TEC has been much more significant that that in either Sunderland or Wansbeck.

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[1] British Coal Enterprise acted as a development agency in areas which had suffered from pit closure and were actively involved in the development of the Wansbeck Business Park during its inception. There overall remit was wide, offering advice and grants for small business start-up and self-employment, and working with local governance agencies for site re-development. The agency left the region before 1995 and were unavailable for interview.

[2] The hardware available in the Business Centre includes asynchronous transmission (ATM), over 60 ISDN lines, 500 extensions for digital telephones, data invoice to 80 offices, X25 connection (the international standard for packet-switched networks), multi-media information services, video-telephone terminals and video-conferencing terminals. There is an Ethernet 'hub' and ATM cable which is distributed across the Business Centre, with a switching capacity of 155 Mb per second (hardware which facilitates moving video clips and multi conferencing). Telephony services are provided through BT and Mercury, the latter also establishing a satellite connection on the Business Park adjacent to the Business Centre. This physical site of hard infrastructure is concentrated in the Business Centre but accessible across the Business Park.

[3] It is notoriously complex to maintain metal producing processes once they are run down, mainly because of costs and technological advancement (see Sadler and Southern, 1995, pp 69 - 72).

[4] Even as recently as 1994 the Partnership was campaigning on behalf of the local coal industry. The closure of nearby Ellington Colliery led the Partnership to put to the DTI a case for special policy measures for the district. The closure of Ellington in February 1994 (which was later re-opened by RJB Mining but with a much reduced workforce currently standing at about 360) resulted in 1,100 jobs lost. This added to 300 jobs lost two months earlier at the Ashington Mine Service Centre, and the total of 3,000 jobs lost in Wansbeck since 1989 (The Wansbeck Initiative, 1994). The question which faced the Council and other local economic development agencies throughout the 1980s was how to overcome such a structural change in a relatively confined semi-rural area.

[5] The organisation established by central Government to assist areas badly affected from 1980s and 1990s pit closure programme. They were a spin off from British Coal Enterprises and had moved away from Wansbeck by 1996.

[6] A large proportion of the work undertaken by ACE is spent on maintaining the Council's systems, and the company are involved in replacing the local authority Unix system with Open Systems Interconnection. It has meant that most of the Council staff were incorporated into the work of ACE following the outsourcing of IT management. Wansbeck were therefore an early runner in outsourcing IT functions. The role played by ACE demonstrates how the development of ICTs is increasingly effecting local authority structures, while the overlap with local economic development shows how ICTs are increasingly significant for local governance.

Chapter 6

County Durham Informatics:

the space of flows – more than an urban phenomenon

6.1 Introduction

If the previous case studies reinforce the belief that the new age of informationalism, or the network society, is distinctively an urban phenomenon, then this study of County Durham challenges such a view. From Castells (1989) idea of the *informational city*, Sassen (1991) and the *global city*, or Graham and Marvin (1996) and *telecommunications and the city*, each provides the image and symbolic association of the space of flows as urban. However, because this domain is increasingly interwoven with economic development the convergence of technology and the rural will be a feature of economic development, just as in places like Sunderland. ICTs partnerships will be found in places with high degree of rural space (see Talbot, undated).

In County Durham, an area covering some 240,00 hectares with over 80% of the population living in settlements of under 30,000 people (including Darlington, County Durham Economic Development Partnership, circa 1995) it is the work of the County Durham Informatics Partnership (CDIP) and County Durham On-Line (CDOL) that has taken forward ICTs in the local economy. CDIP is a loose based coalition group involving many representatives from the public and private sector. The role of County Durham TEC, and importantly but to a lesser extent, Durham County Council has been important in establishing this group. CDIP act as the body which effectively, legitimises the strategic orientation of ICTs for the Durham economy. CDOL began as a joint venture company acting as the executive decision making body on ICTs initiatives outlined in the County Durham Informatics Strategy. There are dedicated resources in CDOL aimed at developing the Informatics work and this is governed by the CDOL Board which includes representatives from Durham TEC, the County Council, Derwentside District Council, the University of Durham, the Durham Business Club, the North East Chambers of Commerce and from a local further education institution.

The case study indicates how the mapping of ICTs initiatives and projects in County Durham is consistent with that of Sunderland and Wansbeck. There is more of a bias towards small firms which is due to the lead role adopted by the TEC in CDIP and CDOL. There is also evidence of community based initiatives, albeit not under the direct control of CDOL and led by Derwentside District Council. The same organisation has made progress in securing funding for the development of hard infrastructure. Education, training and place marketing are also identifiable in Durham, as important points that secure connection of the local economy to the global informational mode of development. CDIP brings together local political entrepreneurs who engage in local political processes and are an important part of shaping the space of flows for the county. Yet it is CDOL who provide the technological expertise, in winning funding for projects and in aligning projects with the broader aims of the Informatics Strategy and the strategic economic development route for the county as a whole. At times therefore, the work in Durham contrasts with the work of Ni, and more so than with Sunderland and Wansbeck, there is evidence that differences exist between Ni and CDOL regarding the correct way to pursue economic development by utilising ICTs.

6.2 County Durham and connection to the informational mode of development

To the north and north east of County Durham are the urban conurbation's of Tyneside, with the Digital City of Newcastle, and Wearside, with the Sunderland Telematics Group. To the south is Tees Valley and the ICTs initiatives underway in that sub-region (see chapter 7). With the recent move towards unitary status Darlington, previously the largest town in Durham, has been removed from the boundaries of the county resulting in a mostly rural landscape and a population of around 500,000. The county has suffered from outward migration, particularly during the 1980s, but projections are for a slight increase in population (see S.A Figure 6.1). Almost 80% of the population live in settlements of under 30,000 people and County Durham Economic Development Partnership (circa 1995) estimate that during the second half of the present decade there will be a slight

reduction in the proportion of 16 - 24 year olds (3.4%), and an increase in the over 85s (by as much as 12%) which they feel will impact upon the local economy.

6.2.1 The County Durham economy

In the early part of the 1970s over 200,000 people were employed in the county (see Table 6.1). Of this, 12% were employed in the coal industry, mainly deep-coal mining, which after a period of decline in the 1960s was still the third highest employer in the county. Engineering was also a strong sector in terms of employment. The top four industry sectors accounted for 60% of all employment in the county. In the following decade, just after the start of the global recession which had a serious effect on UK manufacturing industry (Gamble, 1985; 1988) metal goods manufacturing made up 17% of all employment in County Durham reflecting the prominence of the nationalised steel works in Derwentside (Beynon, Hudson and Sadler, 1991), with other manufacturing industries making up a further 9%. At this time, deep-coal mining still made up 8% of employment, however, the four leading industrial sectors in the early 1980s accounted for nearly seven out ten jobs in the county (source: Nomis).

Table 6.1 The changing employment structure in County Durham: Numbers employed in the top 4 industrial sectors, 1971 – 1996

	Sector	1971	Sector	1981	Sector	1996
1	Financial, professional, miscellaneous	49,900	Other services	54,000	Manufacturing	52,200
2	Engineering and allied trades	28,600	Metal goods/vehicle industries, etc.	33,900	Wholesale/retail trade; repair, etc	26,800
3	Mining and quarrying	24,500	Distribution, hotels/ catering; repairs	31,400	Health and social work	25,000
4	Distributive trades	17,400	Other manufacturing industries	18,700	Public administration, social security, etc.	14,000
Sub-Total		122,500 (60.2%)	Sub-Total	140,000 (69.8%)	Sub-Total	120,000 (63.8%)
Total Employed		**203,600**	**Total Employed**	**200,600**	**Total Employed**	**188,100**

(Source: Census of Employment, Nomis)

Manufacturing is still an important part of the local workforce in Durham. In 1996 over 52,000 jobs were in this sector accounting for 28% of the total workforce in the county, although as in the previous cases, the rise of the public sector has become

much more prominent. Almost 21% of jobs are in the public sector representing two out of the four top industry sectors in the region. While there is still some open cast coal mining in operation (less than 0.2% of employment) all deep coal mines in the county have closed, some after real bloody confrontation.[1] By the mid 1990s then, the top four industrial sectors accounted for 64% of all employment in the county. Overall, the decline of traditional industries, particularly the nationalised coal and steel making businesses, have had a serious effect on the County Durham economy. So much so, that in a recent statement made in the *Economic Development Strategy for County Durham 1995 - 2001* the County Durham Economic Development Partnership outlined how "County Durham has undergone a fundamental transformation from an economy based upon a few basic industries to a much more diverse and robust industrial structure" (ibid. p 4).

Many efforts have been attempted to move the county towards a more diverse economic character, yet there is a belief that the county lacks a strong entrepreneurial base. Attempts to stimulate economic diversity rests with the County Durham Economic Development Partnership which includes representatives from County Durham Business Link, County Durham TEC, the North East Chambers of Commerce, and also from the University of Durham, local further education colleges, voluntary groups, the local TUC and of course, from the county and district local authorities.[2] The partners involved in setting the economic strategy for Durham bemoan the fact that the small firm sector is not as dynamic as elsewhere in the UK suggesting

> "[d]espite a highly effective network of business support, the rate of business start-ups in the County has been lower that that for the country as a whole ... in 1991 there were 43 VAT registrations for every thousand economically active people in the County, compared with 59 per thousand in Great Britain as a whole. According to the 1991 Census, 10.1% of the County's workers are self-employed, compared to 13.2% nationally."
> (County Durham Economic Development Partnership, circa 1995, p 13).

Recent figures for number of small businesses in the county suggest a stock standing at around 10,000 (see Table S.A 6.1). Calculated by the number of workplaces, and

their size, the figures suggest around 95% of workplaces in the county employing less than 50 people (see Table S.A 6.2). The biggest proportion of larger firms fall into the sectors of manufacturing and the utilities. However, these figures also include references to public sector workplaces demonstrating how they should not simply be interpreted as statistics on small firms. However, the debate in Durham on diversifying the local economy through rousing a new entrepreneurial class has found its way into the plans taking shape in CDIP and CDOL, as we shall see below.

One way in which this has been pursued is through the range of finance available from central UK and European government. Parts of County Durham is covered by Intermediate Area Status, covering an area from south of Chester-le-Street to Spennymoor; other parts are covered by Development Area Status, such as the areas of East Durham (including the Enterprise Zone sites of Bracken Hill, Seaham Grange, Peterlee North West, Peterlee South West, Dawdon and Fox Cover) and parts of West Durham which include Crook, Bishop Auckland and Newton Aycliffe. The county can also access Objective 2 and 5b structural fund status while Rechar funding, the European Community Initiative for former coalfield areas, is available in Easington, Chester-le-Street, Derwentside, the City of Durham, and parts of Sedgefield and Wear Valley. European Leader II funding is available in the rural south of the county and Objective 3 funding also finds its way into the area (Durham County Council, circa 1996). In addition, the three year Rural Development Area Operating Plan is worth around £3.5 million to Durham (ibid.) while over £95 million pounds is to find its way into the county through SRB leveraged funding through projects initiated since 1995 (see Table S.A 6.3) – although this amounts to less than 10% of SRB money into the region as a whole (see Figure 3.2).

While the geography of this case study means that the types and levels of regeneration funding, which find their way into County Durham, differs from the cases of Wansbeck and Sunderland, the objectives of the Durham ICTs partnership find a strong resonance with the two previous cases. The situation in County Durham, initially through CDIP and subsequently through CDOL, is one whereby the potential for ICTs is to be realised through new skills development, with a focus

on helping small firms becoming more competitive, and by thinking carefully about the county's attempts at place marketing. In the next section of this chapter the points of connection in County Durham, that is, connection of the local economy to the global informational mode of development, are mapped out in more detail.

6.2.2 The discursive nature of connection in County Durham

The discursive nature of connection in County Durham was epitomised at the launch of the Durham Informatics Strategy and Action Plan, at Morton Park, Darlington on January 15th, 1997. One of the key presentation speakers at this was Professor Heinz Wolff, the eminent and high profile scientist. Professor Wolff, in an upbeat tone, related the development of Durham ICTs into the next millennium with the Enlightenment ideals of science and progress of previous centuries (see chapter 2). Other speakers included Doctor David Hall the (former) Chief Executive of County Durham TEC, Michael Bird the Chief Executive of the North East Chambers of Commerce and Patrick Conway, Director of Libraries, Arts and Museums in Durham County Council. This combination of speakers associated the first County Durham Informatics strategy with the notion of progress through ICTs for training, economic development and as an information resource for all.

Hall spoke of the great significance attached to moves to develop ICTs in County Durham, noting how the "groundbreaking informatics strategy" was focused on protecting economic growth, maintaining the levels of highly skilled employees and supporting new inward investment into the county. Something which was reiterated by Bird who noted the "terrific potential for business" and how small businesses will be able to connect into affluent and educated markets. While Conway spoke of the "implicit power structures" which are emerging through ICTs and how the question of equality in access and ownership of information are issues to be addressed for the benefit of ordinary people in County Durham. It is, from within this discourse, that the broad church development of the ICTs strategy has been aimed at bringing together representatives from business, education, government, the community and voluntary sectors. Many ICTs activities in place and in plan have been brought under

the auspices of the Durham Informatics Strategy and Action Plan, initially through the County Durham ICTs partnership of CDIP and latterly by CDOL.

In addition, there has been some attempt to map out the ICTs infrastructure in County Durham. However, local ICTs partnerships, such as CDIP, are facing the prospect of ICTs infrastructure being developed with a definitive geography, with places subject to the experiences and competitive nature of the telecommunications market (Cornford and Gillespie, 1993) but also to that of economic restructuring financing from private and public investors. A recent report for CDOL (Mellor and Mallalieu, circa 1997) looked at the use of land lines, microwave, mobile and satellite services highlighting the rural geography of County Durham, particularly how the west of the county was disadvantaged in terms of telecommunications services. The authors took time to consider the physical electronic architecture of local service providers (ISPs, cable companies and other telecommunications companies), public services, education, emergency services, and public utilities (ibid.). They showed cable company provision located in the urban area of Darlington, the infrastructure bias of the NCN with seven colleges involved from the county, located in Derwentside, Durham City, East Durham, Bishop Auckland and Darlington, and the Business Link IT Network also concentrated in the Derwentside, Darlington and Peterlee axis. There is some limited provision of Business Link services in Stanhope and Teesdale (as noted in chapter 3).

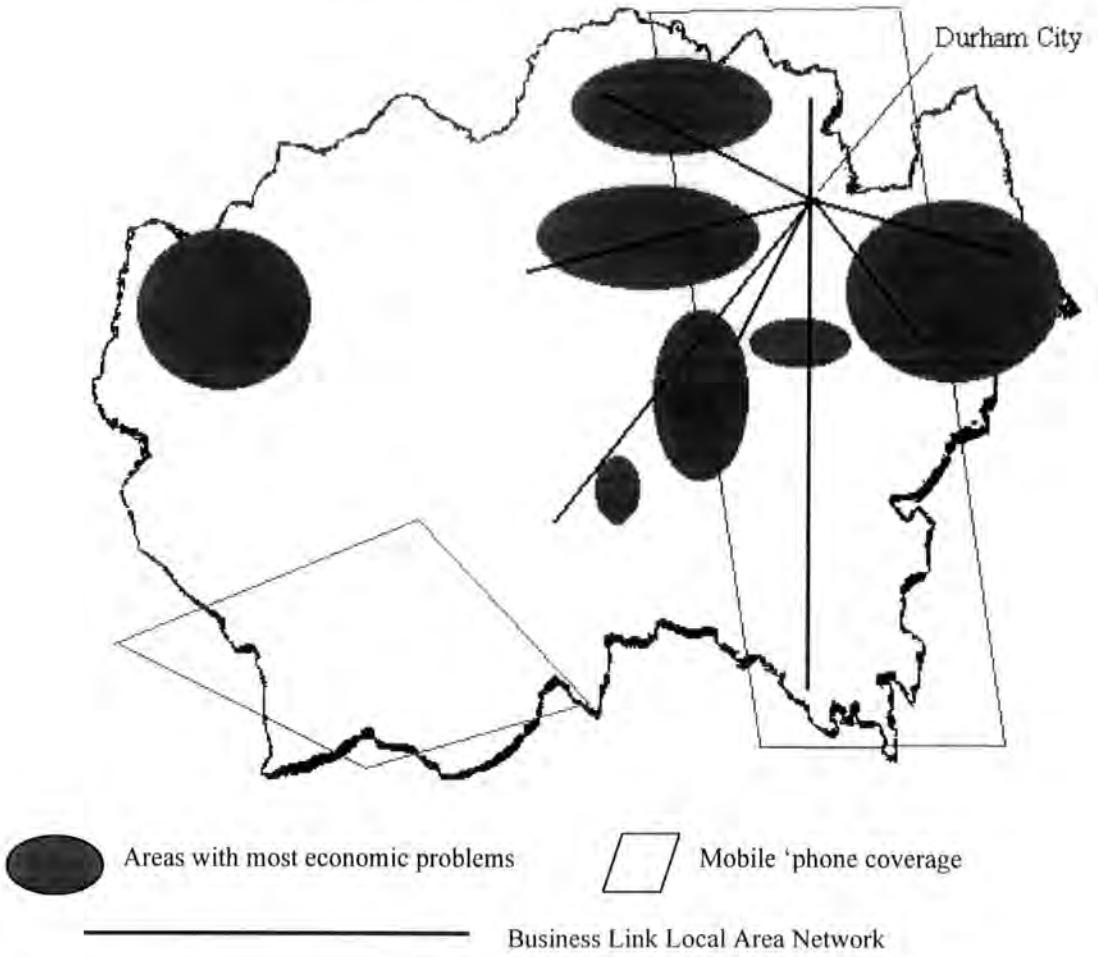
Adding to the image of Durham as an rural-urban dynamic with more telecommunication exchanges and mobile communications sites, and therefore mobile coverage, available in the Derwentside, Darlington and Peterlee axis, the authors of the report noted how

> "[m]ost users will not be able to buy raw technology as evidenced by current provision of access to the internet. One does not buy internet access but a service including many features such as email, web pages and perhaps somewhere, in the midst of these, access to the internet." (ibid. p 26).

Thus, the geography of ICTs provision in the county has not gone unnoticed by CDIP, leading to efforts to establish a West Durham Point of Access initiative. Industrial sites and business location, for instance, also follow the same Derwentside, Darlington, Peterlee axis and current and near future road developments are targeted at the Durham City, Consett, Tyneside route (the north of the county), the A1 to A19 route (the east of the county) and the Bishop Auckland to Darlington routes (the south of the county – see Figure 6.1). With this geography in mind, an important message to emerge from the CDOL report is that an ICTs partnership can be most influential in an enabling role, rather than as a provider of physical infrastructure. Yet according to CDOL ICTs initiatives "tend to be either County wide, or pilots with potential else where. The Rural Challenge [the RuralNet project – see below] is the only geographically focused project we currently have" (personal communication with CDOL General Manager, 1/9/98).

To some extent the discourse of connection in County Durham has been about addressing rural disadvantage. While this was set out in the first Durham Informatics Strategy, it is an area under review as the strategy has recently been updated and re-launched in much more modest circumstances. Mapping out Durham's ICTs infrastructure is an important part of such a discourse, but even more symbolic has been the nature of the Durham Informatics visions, objectives and actions, set out precisely to complement the structure of those institutions involved in the partnership body, CDIP. A clear example is the consistency sought between CDIP and the objectives of the County Durham Economic Development Strategy. Yet the revised strategy not only represents a subtle shift in the focus of the ICTs work in Durham, perhaps reflecting a more realistic view of ICTs development in the county, but has also become a forerunner to an expedient shift in the make up of the partnership approach to lead on ICTs in the county. As we shall see below, quite recently attempts have been made to breathe new life into CDIP and to restructure its base to utilise partnership groups already in place that exist to support County Durham Economic Development planning.

Figure 6.1 Indication of deprivation in County Durham and ICTs infrastructure



(source: County Durham Economic Development Partnership, circa 1995; Mellor and Mallalieu, circa 1997)

6.2.2.1 The first County Durham Informatics Strategy

The first Durham Informatics Strategy has sought to support moves in the county to create a more diverse economic base through maximising the perceived benefits from continuous advances in ICTs. Table 6.2 sets out the four key objectives of the first Durham Informatics Strategy and here, through an emphasis on infrastructure development, business development, winning the support from the residents of County Durham, and in place marketing, lie the broader aims of connecting the local economy to the global economy. These aims are entirely consistent with the County Durham Economic Development Strategy, most notably Policy PD 4.6 (see S.A Figure 6.3). Each of these points of connection is explained in more detail below.

Table 6.2. The four objectives in the first Durham Informatics Strategy

To ensure County Durham is equipped with the latest telecommunications *infrastructure*.	To ensure *businesses* in County Durham are aware of the opportunities and threats of ICTs, and to encourage business to see the technology in a positive way.
To ensure the *people* of County Durham are able to access the benefits arising from advances in ICTs.	To ensure the greatest use is made of ICTs to promote a positive *image* of County Durham.

(Taken from County Durham Informatics Partnership, 1996a, emphasis added)

'Hard' ICTs Infrastructure

Many local actors do feel a sense of insecurity about the competitive nature of the informational age. As a consequence the Strategy itself stresses the need for the county not to fall behind in the race to connect, so preventing Durham from becoming "disadvantaged in relation to the Region or Country" (ibid. p 11). However, the extent to which public agencies can lead on physically laying cables and wires is extremely limited, as the regional group Ni have found out (see chapter 3). One member of CDIP echoed this belief when he stated that many local partners felt "swamped" by the size of the task of providing a physical ICTs infrastructure, and that infrastructure development "was one of the areas where we were particularly looking to Ni for a regional approach" (interview with author, 17/12/96). Both in the case of Sunderland and Wansbeck attempts to initiate ICTs infrastructure has been wound up in the building of traditional types of economic activity, namely at Doxford and at the Wansbeck Business Park.

Yet in Durham the option to develop ICTs in this way has not been easy to achieve. The development of the Durham Science and Innovation Site adjacent to the University of Durham, does imitate developments in other parts of the region, such as in Wansbeck, while other local authorities in the county have sought to build similar types of office and managed workspace. Because resources are extremely limited, most efforts in County Durham have consistently been concentrated on developing those enabling mechanisms for broader ICTs development, rather than

physical infrastructure build, but at the same time, to support initiatives which do have a physical development aspect as part of their remit. The Durham Colleges Competitiveness Project, the Business Link IT Network and establishing a West Durham Point of Access were all cited in the first Durham Informatics Action Plan as current hard infrastructure activity (County Durham Informatics Partnership, 1996b). Proposals for further development included establishing a Cyberskills Centre and conducting an audit of the hard ICTs infrastructure in the county.[3]

The Durham Colleges Competitiveness Project is specifically aimed at using the NCN (see chapter 3 section 3.4.1) to support local Durham small firms by providing access to information and training. It was also envisaged that by connecting this to the Business Link IT Network, the small firms involved would be capable of accessing, when need be, on-line advisory services. The assumption of course is that the small firms will use such services, thus, the Colleges project is not about using ICTs in Further Education but

> "about making local businesses more competitive by providing them with easier access to training and other support, particularly by making it available on their premises, so people aren't constrained by the need to provide employees on day release, or to fit into traditional college term" (interview with CDIP member, 17/12/96).

Although the difficulties associated with incorporating small firms into such initiatives are being experienced both in Wansbeck, by ACE at the Business Centre, and in Sunderland by means of improving supply-chain efficiency and supporting telematics based business start-ups at Doxford, in Durham a main concern of ICTs use has been about small firm development. Nevertheless, the involvement of one member of CDIP in the college project led him to suggest there was insufficient evidence to show that small firms and owner-managers understand how ICTs can support day to day business operations (interview with author, 23/1/97).

The inter-linking of the Durham Colleges Competitiveness Project with NCN is an interesting one. It shows how, despite evidence which suggests redundancy can occur in attempts to use local partnerships to stimulate development (Bennett, 1994)

extra resourcing can be obtained to roll out initiatives. The Durham initiative would have looked quite bare without its bigger regional 'brother', both in the context of ICTs and in the context of stimulating regional businesses to use the technology. It also shows how the same local actors can play many roles in different local coalitions (Peck and Tickell, 1995; Shaw, 1993). Thus, for example, the Principal of the Darlington College of Technology has led the NCN project, but at the same time is active in Ni and CDIP.

ICTs, people and access

The people and communities objectives in the first Durham Informatics Strategy was centred around education and learning. Awareness raising and the provision of access to "appropriate IT services" (County Durham Informatics Partnership, 1996a) were targeted under this objective and current activities cited in the Action Plan referred to the Durham Colleges Network (the Durham Colleges Competitiveness Project) and the South Stanley Infonet (considered in more detail below). Other proposals included moves to connect a number of schools in the county to the ICTs infrastructure, a broader consultation with communities and their representatives on access, and an audit of school IT facilities. Much of the work for this was an issue of coordination and a review of how to develop better use of existing facilities.

Place marketing and image building

CDIP argued that promoting the image of the county through ICTs was an essential part of attracting tourists and potential inward investors. This idea of how place can be promoted through the Internet is based on a premise of achieving a world wide presence to show the informatics and industrial capabilities of the county, and is akin to that demonstrated in Sunderland (see Table 4.2). Similarly, the idea is that this can allow the local Durham business community a route to global markets, again something demonstrated in Sunderland and Wansbeck, involving the potential for on-line trading with absent others. There is of course, almost a gravitational pull to see world wide web pages as a leading edge medium for promotional events and marketing. Certainly this is how it is often presented in management training, as a low cost advertising platform with little risk and the potential for big returns (see for

instance Pitt, Berthon and Watson, 1996). For CDIP the intention is to develop a county world wide web home page with links to the web pages of small and medium size firms and business support services, and the aim is to show a number of case studies which show the success of economic activity in the county (County Durham Informatics Partnership, 1996b).

There are two points to make about place marketing in Durham. First, that the discursive nature of place marketing in the county has real and manifest outcomes. World wide web sites are built and disseminated alongside the economic activity which actually takes shape around the new advertising medium. Overall, this means that the images, symbols and representations of place do feed through into other events and proposals for economic development in the locality, such as in bids for scarce resources from public and private organisations. The second point is that with respect to ICTs, place marketing has as much a role to play internally to a place, to the communities, residents and businesses who have little 'awareness' of the role of ICTs and the message of CDIP in this instance, as externally to potential inward investors and visitors. The emphasis on place marketing in Durham through ICTs provides a vision of place which involve new industries, new ways of working, new ways of learning, and new ways of participating in every day life. However, as Bailey (1995) notes more mundane factors such as labour supply, transport and communications access, housing availability and environmental quality are an underpinning agenda for place marketing and image building. So too, the objectives on image building should be understood in light of the other parts of the CDIP work.

ICTs and business in County Durham

The fourth objective of the Durham Informatics Strategy is focused on business and has a discernible bias towards small firms. In part, this is a response to the diverse nature of the economy in the county (see Table 6.1) which has evolved from the continued decline in major nationalised industries such as rail and coal (Beynon, Hudson and Sadler, 1991). How ICTs might stimulate further diversity and small firm activity in the county was set out in the Durham Informatics Strategy as thus.

> "New forms of work – teleworking, including homeworking, telecottaging and 'back office' functions - may be encouraged in the County. There are already some examples e.g. the Lloyds Bank back office at Newton Aycliffe and the Dales Telecentres at Stanhope and Wearhead. There may be a strong economic, social and environmental arguments for supporting such developments, and it would be helpful to take a more strategic view of the assistance required. Finally, there is a strong sustainability argument i.e. informatics can reduce the need for travel and can support scattered communities and employment opportunities."
> (County Durham Informatics Partnership, 1996a, p 14).

Despite being set out in the context of a dispersed geography, this perspective is by no means unique to Durham, and in both Sunderland and Wansbeck similar aims are held.[4] Yet a question mark still remains about how ICTs *will* address the problems of uneven development in the county.

The projects being developed through this theme of ICTs and business have pragmatic aims, such as more training and events which raise awareness of the technology. The first Durham Informatics Strategy outlined five ICTs projects underway with a further nine at various stages of proposal (County Durham Informatics Partnership, 1996a). At that time in progress were the Durham Colleges On-Line Services to SMEs, the PAGE 2 project (considered in greater detail below), the Business Link Network, the Virtual Reality Project and the Cyberskills Workshops Phase I. Table 6.3 provides a summary of the progress of these and other projects launched in the early part of 1997.

Table 6.3. Summary of the Durham Informatics business initiatives in progress in 1996/97

Project Title	Aim of Project	Lead Durham Partners
Durham College On-Line	To provide training and information services to SMEs.	7 Further Education Colleges.
Business Link Network	To provide advice to client small firms along with access to business databases.	Business Link
PAGE 2	To provide ICTs applications to small firms with relevant training and advice.	Durham TEC, DUBS, ISP firm
Virtual Reality Project (Article 6VR)	To provide to manufacturing and electronics SMEs virtual reality training solutions (for instance in potentially hazardous situations.	Durham TEC, Teesside TEC, Tyneside TEC
Cyberskills Workshop (Phase I and II)	To introduce SMEs to informatics.	Business Link, Ni
'Made in Durham' Initiative (later renamed as ELECT)	To provide online product sales and marketing services for SMEs in the Teesdale EC Objective 5b area.	Durham TEC, Business Link, Teesdale Enterprise Agency
Promotional events and materials	Including the development of materials for world wide web pages and running open days at CDOL.	CDIP Business sub-group, Durham Business Club, North East Chambers of Commerce.
Pentagon Project	To provide hands on ICTs experience for small firms and thereby raise awareness.	CDOL, Ni, plus the five Business Links in the North East
COBRA	To provide a distributed online catalogue and electronic purchasing of products (i.e. a brokerage service).	Durham TEC (plus European partners)
EuroPAGE	To provide an interactive online manual on electronic commerce for SMEs.	CDOL (plus European partners)
Fit 4 the Future	To support innovation by providing an IT advisory service for SMEs and financial support for R&D.	CDOL, Durham TEC, Durham City Council

(source: various County Durham Informatics Partnership documents)

The small and medium size firm is a key target for ICTs development in Durham, showing a marked bias. The significance of small firms in the national economy is often debated with so much redundancy (see for instance Birch, 1979; Storey and Johnson, 1986; Gallagher and Doyle, 1986; TUC, 1997), although the role of the small firm in the informational economy has received much less attention. One member of CDIP summarised a belief held by the partnership about the potential for

small and medium sized firms. He noted how this technology offers a major opportunity for small firms because

> "they could start from scratch, many of them. Very importantly I could see how small remote companies could appear big, central companies on a world information highway. On the web you are as big as any other company. You are as near as any other company and I could see the benefits of getting hooked into that ... PR, marketing and particularly exports."
> (interview with member of CDIP, 18/2/97).

But as Castells (1996, p 156) has argued, we should not confuse the decline of the organisational model of large firms, away from the hierarchy relevant to a period of Fordist hegemony (Sayer, 1989), with an ascendancy in the economic power of smaller firms. He suggests that the dynamism evident in the small firm sectors of all advanced economies is well suited to the shift towards an informational mode of development, and in particular, to the flexible functionality demanded in the informational economy. As argued in chapter 2, the powerful informational elites reside in those firms with major international sway. These, almost without exception, are still large multi-national businesses and are shaping the trajectory of the informational mode of development (Castells, 1996). The attempts being made by the County Durham ICTs partnership reflect both their enthusiasm and anxiety concerning how the small firm sector should be capable of being more than recipients of this trajectory. This theme of ICTs in business, and the bias towards small firms, is one important aspect being developed by local actors who see the technology addressing issues of uneven development in County Durham.

6.2.2.2 The revised Durham Informatics Strategy

By the end of 1997 work was well underway to revise the Durham Informatics Strategy. By the middle of 1998 a new version of the document was available from CDIP and was accessible via the web pages of CDOL. The revision covers the period October 1997 through to March 1999. In essence the same principles were carried forward although some slight changes to the wording had been introduced. The four objectives had changed slightly to four key areas covering business, community, foundation education and lifelong learning.

The first of these, business, re-emphasised the focus on small and medium size firms and talked about "a management framework for the business in which outputs, processes and skills are enabled, improved and amplified" by ICTs (County Durham Informatics Partnership, 1997, p 6). The second key area (with the nuance of dropping the term 'people' in favour of the increasingly in vogue term of 'community'), is based on the principle of "social inclusiveness" to prevent a polemic divide between groups of people in Durham (ibid.). The third area, that of foundation education, makes schools an important target for ICTs development, and fits neatly into central government ideas on schools and technology. School children, teachers, Heads of schools and school communities are all to be part of the drive to raise educational standards through the integration of ICTs in schools.[5] The final key area is lifelong learning. Groups to be targeted include small firms (managers and employees), further and higher education students and staff, youth and adult trainees, those from disadvantaged groups "especially those with deficient skills" (ibid. p 7) and trainers. While there does appear to be something for everyone in the revised strategy, there are some subtle changes which reflect the experiences of those involved in CDIP and CDOL over the previous 18 months or so.

The nature of connection in County Durham sets out the role of CDIP as an advisory partnership. It attempts to minimise duplicated efforts when funding for projects is sought. This role seeks to exploit the partnership as a regime for "promoting innovative new approaches to the application of informatics ... [and] acting as a forum for the exchange of information" (County Durham Informatics Partnership, 1997, p 19) emphasising new ideas on how local agencies network and share knowledge. There is also a greater recognition of the work of other organisations and an alignment with many of the objectives captured in the previous two case studies, as the discourse of connection in County Durham shows consistency with Sunderland Telematics and the Wansbeck Initiative. Sunderland, for instance, concerns itself with education, training, small businesses, community, and place marketing and the same claim can be made about the Wansbeck Initiative. What this is resulting in is a competition for resourcing many different types of ICTs initiatives

(as indicated in chapter 3) between the different ICTs partnerships in the region. In addition, the overlap with the work of Ni is clear and reinforces the image of the space of flows as a contested terrain. Thus, the failure of Ni to bring to the region some form of legitimacy in shaping the space of flows becomes more acute as locally based ICTs partnerships develop their own response to the logics of informationalism.

6.3 Shaping the space of flows in County Durham

The enabling role of ICTs partnerships is an important point to draw from the work of CDIP. They place a lot of emphasis on increasing local awareness of ICTs, promoting experimental approaches to technological and business integration. They have sought to establish, under one umbrella coalition, a regulator and monitor of the social and economic effects of ICTs on places such as County Durham. The current Durham Informatics Strategy notes how

> "[t]he provision of infrastructure and commercial services is very largely a matter for the private sector ... The basic infrastructure comprises the telephone, mobile communications, microwave, satellite, cable and related systems. The equipment needed to operate these systems, including computers, modems and peripherals, is a cost which will fall on businesses and the community."
> (County Durham Informatics Partnership, 1997, p 19).

Yet the space of flows in County Durham, left to the vagaries of the commercial market in hard infrastructure provision, is distinctly uneven. To date, the market has provided a clear disadvantage to parts of rural Durham. CDIP have recognised this, noting how the county has already experienced access difficulties, and they have expressed a desire to achieve a balanced geography of ICTs development. In the following section, how attempts to grassroot the space of flows in Durham is examined in more detail, despite this uneven distribution of wires and cables.

As the Sunderland case was outlined, the grassrooting of the space of flows was illustrated by the coming together of political and technological entrepreneurs but also through the tensions, domination and resistance associated with the political

processes of connection. For example, there were clear instances of strategic selectivity taking place in the support of particular parts of the local economy. In Wansbeck, this process took shape as conscious efforts to resist peripherality as two particular sites for connection have been developed. In County Durham, the emphasis on grassrooting the space of flows is about embedding ICTs into the aims and objectives captured by CDIP, and this can be seen in the work of Derwentside District Council who have focused on community based initiatives and the provision, to a limited extent, on hard infrastructure. In addition, it can also be seen under the direction of the local TEC and the Durham University Business School, as an early example of ICTs for small firms unfolded.

6.3.1 Attempts to grassroot and embed the space of flows

Typifying the way in which ICTs partnerships and projects are a chaotic development, the efforts of Derwentside District Council began irrespective of CDIP. In contrast, the PAGE project was one of the early forerunners of ICTs projects developed in the county funded from Europe, initially under a restructuring package targeted at former textile localities. The way in which these two disparate initiatives have unfolded portray not only the scope of ICTs in County Durham but how ICTs have become embedded into the economic development work in the county. They also show processes of ICTs legitimation and institutionalisation taking place through the social structures of the space of flows, the mechanisms of funding from government and the aims and objectives of the initiatives. The two examples show how ICTs partnerships are an important aspect of grassrooting the space of flows, and indicate a duplication of projects and again, contestation over who takes responsibility for shaping the space of flows.

6.3.1.1 Grassrooting in Derwentside: infrastructure, communities and regeneration

The circumstances under which ICTs initiatives have taken shape in Derwentside are similar to developments taking place in Wansbeck. In both places there is the end of traditional industry, particularly state sponsored nationalised industry, which supported much of the social and economic activity in the locality. There is the reworked image: Derwentside is branded as an environmentally safe place to work

replacing the older image of Consett (the main town in Derwentside) as an area reliant on its steel industry, just as Wansbeck displaced the idea of coal dependent Ashington. Both areas have been keen to be associated with a new wave of economic development drawing on, and showing to the outside world, an appropriate informational infrastructure. In their reflection on the restructuring in Derwentside during the previous decade Hudson and Sadler wrote

> "[t]here is no doubt that, in the 1980s, Derwentside witnessed the vigorously publicised promotion of a 're-industrialisation strategy', centred around the existence of 'probably the best project package in the UK..' In general terms, it is possible to say that firms have been attracted to Derwentside as a result of some combination of: investment in infrastructure and the general conditions of production by the EC, central and local Government; provision of grants and loans directly to companies by these same organisations; labour market conditions, including direct wage subsidies; environmental considerations; information and advice, with the DIDA [Derwentside Industrial Development Agency] taking a high profile in this and laying particular stress upon its involvement in the preparation of Business Plans"
> (Hudson and Sadler, 1991, p 4)

It was then, the closure of the steel works, the decline of the local coal pits and the persistence of high unemployment rates, which led to efforts to restructure the Derwentside economy (ibid.; Derwentside District Council, 1994).

Hudson and Sadler (1991) also questioned the positioning and marketing of Derwentside as a new high technology economy. They suggested it could well distract from developing appropriate policy responses to address local poverty and inequality. The emergence of the high technology site phenomenon was indeed a feature of the 1980s (Massey, Quintas and Wield, 1992) although such industrial locations are not the same as an ICTs infrastructure. The culture of informationalism, as explained in chapter 2, is about the shift towards an informational mode of development and should be seen as coinciding with the restructuring processes evident in local economies (Castells, 1989, 1996; Castells and Hall, 1994). The decision taken by Derwentside District Council in 1994 to develop a more proactive strategy to ensure the locality was positioned to take advantage of

the "considerable economic development potential" from ICTs should be seen in the context of such structural shifts (Derwentside District Council, 1994, p 41).

There are two ICTs initiatives in Derwentside that are part of the restructuring processes taking place in the area. Both of these have some emphasis on physical infrastructure build which, as we have seen in all the cases to this point, is a difficult aim to achieve but inevitably appear to permeate the thinking of ICTs partnerships. The Stanley Infonet project has drawn on SRB funding and is pitched towards the social and educational role of ICTs, while the Durham RuralNet Project has recently been awarded funding through the Rural Challenge Competition and is targeted towards more orthodox forms of economic development.

Informatics in the community: the Stanley Infonet

The Stanley Infonet is a community network which connects voluntary agencies to the global informational electronic architecture and has provided the basis for the local authority to develop a 'Derwentside Infonet' (see S.A Figure 6.2). This project was one of the first informatics project in England to be funded with SRB finance 'won' in the 1995 Round of the Challenge Fund, and is part of a five year plan aimed at stimulating the local economy (DoE, 1994). In the region of £420,000, has been allocated to provide a network of multimedia PCs, plus technical support, training and running costs. Publicity information on the Stanley Infonet outlines the objective of the initiative as being to enhance communication between the agencies and volunteers in the network and to others who are interested but fall outside of the Infonet project. It states the network

> "will entail the use of email, newsgroups and publishing on the Internet. It is about the creation of an on-line community. At any point on the network it should be possible to find information about any of the other organisations, and it should be possible to contact them."
> (Derwentside District Council, 1996, p 1).

This project then, which is part of a broader SRB initiative with funding (or equivalent) of some £17 million, is specifically aimed at community development and cohesion through the introduction of an ICTs network.[6]

The Infonet provides a number of locally based electronic public access points. This means that local people gain access to general local information and to the Internet via the local authority FeatureNet telephone system, which basically provides low cost connection. The groups involved include environmental trusts, community associations, local schools, residents associations and youth clubs with an estimated 150 active volunteers (Derwentside District Council, undated). According to the Economic Development Officer involved in the project, a number of groups act as 'host agencies' (hosting an electronic point of access) and volunteers act as the 'pathfinders' to encourage other members and individuals from the community to become involved with ICTs (interview with author, 28/1/97).

For one local authority member the infrastructure is an important means of providing local people with unlimited access to information, and will help raise awareness of ICTs among the local community. The Infonet is able to

> "increase the opportunities for developing local governance through a range of user groups, but also to attempt to open up the operation of the [local] authority in particular, and a whole range of associated service suppliers"
> (interview with author, 3/3/97).

This statement has a twofold meaning. First we can see it as a reaction to the way in which a number of public sector agencies, such as in health and education have become removed from their constituencies, as new public sector management techniques have combined with restrictions on public sector spending (Stewart and Stoker, 1995). In the case of Derwentside, most recent has been the decision to close the General Hospital and transfer operations to Durham city. The councillor identified ICTs as one way to allow services to be delivered to local communities, for instance through telemedicine projects as the local authority seeks to institutionalise ICTs into a broader range of services, just as in the Citycard project in Wansbeck.[7] The second point concerns the way in which the local authority provides a legitimacy for ICTs initiatives, and in this case, ensures that the community has a chance to access the informational mode of development. This process of embedding ICTs in

the community is similar to the way SCFS Ltd. have tried to enable local community groups to be part of attempts in Sunderland to shape the space of flows. It is essential here to draw out the point that through the Stanley Infonet the local authority has acted as a nexus for community based responses to the space of flows.

The Durham RuralNet: an ICTs backbone for Durham

The Durham RuralNet Project 1997-2000 was successfully submitted to the 1997 Rural Challenge Competition. Its implementation began in September 1998 after agreement was reached between partners on the formalisation of a local delivery plan. This RuralNet Project is aimed at extending a high speed telecommunications network into Derwentside and to the west of County Durham, to serve the industrial estates in Consett and Stanley (Derwentside District Council, circa 1997). The value for Derwentside is that it will incorporate a number of rural settlements into a cable infrastructure network, previously only provided in urban areas following the arrival of cable companies in the region, such as Telewest and Bell Cablemedia. For the local authority, having a physical ICTs capability for the district is a necessity which ensures Derwentside companies have some type of competitive edge, for instance, through the provision of reduced telecommunications tariff rates for inward investors.

Ideas such as these emerged from the dialogue which took place between the local authority and Telewest, the cable company who have installed cable to the edges of the Team Valley Industrial Estate, Gateshead and up to the borders of Derwentside (interview between Derwentside Economic Development Officer and author, 28/1/97). It was further prompted by enquiries from an engineering firm located at Team Valley who sought to expand their production operations. The company only began to consider Derwentside seriously when they realised they could have a close physical presence on a nearby Consett industrial estate, served by the cable infrastructure which Telewest agreed to install, so ensuring a direct cable link between the Tyneside and Durham sites. In turn, the decision by Telewest to expand its cable operations into part of Derwentside lay the basis from which the RuralNet bid could be made.

The estimated cost of RuralNet is approximately £3 million. Table 6.4 provides an outline of the estimated costs involved in this initiative, although it must be stressed that this is based on figures from the submitted proposal. It therefore provides an indication of the potential costs of the project and the source of major investment.

Table 6.4. Estimated cost of the Durham RuralNet Project (£000s)

Capital Costs	**Private Sector**	**Public Sector**	**Rural Challenge**	**Total**
Fibre optic cable	600	200	200	1,000
Microwave links	200	200	100	500
Community facilities	0	600	200	800
Public access points	0	30	40	70
School links	0	30	60	90
Total	*800*	*1,060*	*600*	*2,460*
Revenue Costs				
IT training	20	130	150	300
Education support	0	70	20	90
Business support	0	50	40	90
Community support	0	50	40	90
Total	*20*	*300*	*250*	*570*
Project Total	**820**	**1,360**	**850**	**3,030**

(source: Derwentside District Council, circa 1997)

It is interesting then that the majority of the costs for the physical infrastructure is to be borne by the public sector, with only one third to be provided by the private sector. The benefits therefore to Telewest from their decision to extend their cable infrastructure to Consett is potentially vast, as they broaden their markets through their capability to deliver business and leisure services into rural parts of the County (interview with Economic Development Officer, 28/1/97). Needless to say, back in 1995 when a representative from the cable company was interviewed there were no plans to develop rural coverage, and the other cable companies in the region have not expanded into Durham in this manner.

Derwentside District Council have been particularly entrepreneurial in their attempts to establish a backbone of ICTs throughout the locality. Because Derwentside falls between two urban conurbation's – Tyneside and Durham city – the district is a mix

of rural and semi-rural settlements. No doubt, it would have been sometime before the private sector cable companies entered many of the areas included under the RuralNet scheme. Once complete, RuralNet will provide a fibre optic backbone running from Consett in the north of County Durham to the city of Durham, with the aim being to develop the system through microwave technology linking up the west of the county. As the rationale is explained by Derwentside District Council, new job creation will be of a "higher calibre" than normal, enabling rural communities to secure higher skilled, higher paid employment (Derwentside District Council, circa 1997, p 3). This sort of political entrepreneurial posturing by local authorities is exactly that which Hudson and Sadler (1991) reflected on with some reservation. Nevertheless, the drive for this type of initiative has come from the public sector, who have sought to 'get things done' in much the same way as Peck and Tickell (1995) suggested was the preserve of local business elites. Rather, here is a classic case of a relatively small public sector organisation developing a prestige project that is often considered only in the context of large cities (Graham and Marvin, 1996). We have here a key aspect of grassrooting the space of flows through a local authority facing the structural changes associated with the informational age (Castells, 1996) and who, importantly, have taken the risks of new development away from the private sector (Harvey, 1989b).

6.3.1.2 Entrepreneurial embedding: the TEC, the University and European finance

The PAGE initiative concentrates entirely on small firms and began early in 1995. This project became an exemplar of how partnerships work to enable entrepreneurship through the medium of ICTs, firmly placing in the county, small firms at the apex of embedding the space of flows. PAGE began as an initiative which involved County Durham TEC, Teesside TEC and Durham University Business School. Its initial funding was through a European Community Initiative known as Retex, a restructuring funding package aimed at those areas who previously had relied on the textile industry as a main provider of local jobs.[8] The importance of PAGE as a signifier in the work of CDIP and CDOL cannot be overstated. It was one of the first ICTs initiatives, certainly in Durham and quite

possibly in the region and it was, according to one CDIP member, a project "ahead of its time" (interview with CDIP member, 17/12/96).

After the initial project PAGE was re-launched using ERDF finance and targeted at small firms from a wider geographical base in the county. The firms were provided with Internet access through an Independent Service Provider (ISP) which had spun off from MARI, the organisation involved in the Wansbeck Initiative. Again, technical assistance in connecting and operating the systems was provided to small firms involved, alongside some limited business advice. Awareness workshops, web page design and use, experiments with e-mail and reskilling workshops held at the University of Sunderland (providing owner managers of small firms with so called cyberskills) all took place under PAGE.

Other efforts were made to develop special interest groups and mini ICTs projects involving like minded small firm owners. For instance, one special interest group focused on marketing through the World Wide Web. This aimed to get owner managers to think about the potential pitfalls of advertising their goods or services in regions were perhaps they would fail to deliver. At one workshop owner mangers voiced their concerns about web pages in particular, raising issues concerned with the identity of their business, and how it is represented through a web page. They asked what sort of newsgroup would be appropriate for their business and how could they deal with e-mails about their business, which in the case of one firm, had been received from different parts of the world. PAGE therefore provided the small firms involved with a form of public sector subsidised protection from the management gurus who advocate small firm use of ICTs without due respect to circumstance (see for instance McBride, 1997; Dou, 1996). At the same time PAGE helped to embed the use of ICTs as a business method for small and medium size firms.

There are a number of interesting features about the PAGE project. The first is how it has come to symbolise the activities taking place through CDOL. It has a small firms focus and is about learning rather than infrastructure development. That PAGE was an early runner of ICTs initiatives in County Durham has meant that key

individuals have had a stake in its development and ownership. This has led to it being seen as an example of what can be achieved for small firms. The second is that PAGE has developed from a partnership between the University and the local TEC. This is a deviant form of the ideal outlined by Castells and Hall (1994) who pointed to the relationship between industry and higher education as a catalyst in new technology firm innovation. What has emerged from PAGE is a relationship between higher education and a quasi public sector body which has acted, in part, as a catalyst for CDIP. Business itself is a recipient of this partnership rather than a leader of it, as Peck and Tickell (1995) would suggest. The third thing to note is that by the second phase of PAGE other small firm support and local governance agencies had become interested in the project. The local Business Link became involved, mainly because of the potential overlap with the work of their own Personal Business Advisors (PBAs) but interestingly enough, Ni had heard of the project and were looking to emulate it in other parts of the region.

Both the work in PAGE and by Derwentside District Council indicates how the space of flows is a contested domain. Derwentside proceeded with their own view of how ICTs should be shaped despite the belief in CDIP that infrastructure provision on such a scale was beyond the capability of a local governance group. Yet in Derwentside, CDIP found a major ally in showing how local initiatives are better placed to receive funding, more so than a regional governance group like Ni. The aim from the leaders of CDIP was to carefully integrate Derwentside initiatives into their overall view on ICTs. PAGE on the other hand was led by the leaders of CDIP and took a form close to the objectives of County Durham TEC, concerned with training provision and supporting small and medium size firms. The approaches made from Ni to copy the 'success' of PAGE demonstrates how embedding the space of flows in an entrepreneurial setting is a key aim for ICTs partnerships, notably because it establishes some form of legitimacy that is reflected in the continued financing of the project over a number of years. As Table 6.3 shows, many other similar type initiatives spun off from the perceived success of PAGE.

6.3.2 Local governance and the County Durham Informatics Partnership

Early in 1999 the decision was taken to approach the County Durham Economic Development Strategy, Business Working Group and ask them to act as the business sub-group of CDIP. This was a reflection of two things. First, a further realignment of the objectives of CDIP with those set out by the County Durham Economic Development Partnership. Coordination of this kind has been a consistent feature of the discourse of economic development in the county and the work of CDIP, according to one member, has been to place IT and communications into the context of the broader strategy for Durham (interview with author, 18/2/97).[9] Second, that CDOL was to revert back to being an "arm of the TEC" and the focus would be about "informatics partnership" development (words of CDOL member addressing the Business Working Group, 16/2/99). Clearly, the form and shape of the local governance of ICTs is set within a complex web of relations in County Durham involving key organisations and agencies such as the local authorities, the local TEC, higher and further education and the local Business Link.

Right from the beginning, fed by the success in achieving funding for projects such as PAGE, Durham TEC led on ICTs. According to one member of the Partnership "the TECs involvement is more to do with economic development than it is to do with training" (interview with author, 17/12/96) but this does not explain the leadership role they adopted. The TEC have provided the Chair of CDIP and coordinated the tight group of people who act as CDOL. The wide range of partners involved in CDIP, covering some 34 organisations and over 50 people, was a deliberate effort to maintain enthusiasm across the partnership body as the work rolled out. Because of this it was difficult for the full partnership group to deliver strategy on informatics in any pragmatic sense. It was the networking role of the Chair in contacting people and asking them to join in the work, in raising awareness in the county, and by telling people that something was coming together around informatics, which enabled participation (interview with CDIP member, 18/2/97). Four sub-groups were set up each with the remit to define their own role, to provide a SWOT (strength, weaknesses, opportunities and threats) analysis particular to their subject, to identify key issues and objectives and to outline strategies and key

projects to pursue. As Table 6.5 shows, each of the four sub-groups had a diverse membership.

Table 6.5. Organisations represented on the four Sub-Groups of CDIP

Business	**People and Communities**
NE Chamber of Commerce	Rural Development Commission
Northumbria Tourist Board	Durham Dales Centre
Durham University Business School	Rural Community Council
Durham County Council	Darlington FE College
Durham Business Club	Derwentside FE College
Business Link - Durham	Durham County Council
Wards Group	Durham TEC
Weardale Brewhouse	Derwentside District Council
ICV Wolsingham	Bishop Auckland FE College
MHT Technology	TNL
Durham TEC	Teesdale District Council
	Durham University Business School
Physical Development	**Image**
Durham County Council	Darlington FE College
Durham University Business School	Durham County Council
Octacon	TNL
Business Link – Durham	Durham University Business School
Durham TEC	Octacon
	Durham Business Club
	Durham TEC
	Rural Focus Group

(source: CDIP minutes, 11/10/95)

The majority of these represent organisations and agencies in the public sector, or closely related to the public sector. There is a notable lack of involvement from businesses themselves, other than those consultancy businesses who work in the area of technology and offer, to the partnership, some form of technological entrepreneurship. While attendance at CDIP meetings from the private sector was not good, one member of the partnership argued that the forum it provides is all about bringing

> "the County to the trailing edge of modern technology ... to help them [County Durham businesses] to make the best uses of existing technology and to reduce the gap between information haves and have nots"
> (interview with CDIP member, 18/2/97).

ICTs partnerships act in the belief that they are supporting the business environment. Although Logan and Molotch (1987) make the point that those who devote time and resources to supporting local partnerships are usually those with most to gain from participation, this message has failed to register with Durham businesses. Those who did become involved offered their time on a voluntary basis but for many, the time commitment was greater than the benefits they considered could be achieved. In both the Wansbeck and Sunderland cases this was also a feature. Thus, the argument by Peck and Tickell (1995, p 59) that success for partnerships rests with "pro-growth interests being coterminous with the locality" is an indication that the public sector needs to be heavily involved in ICTs, particularly if capital is not place bound (Giddens, 1990; Harvey, 1989b; Harvey, 1982).

Yet another difficulty with the work of the sub-groups was one of executive power. For instance at one meeting of the People and Communities Sub-Group the members involved had to come to terms with how the main Partnership resisted some of their suggestions. One member of the Sub-Group noted how those involved could offer time and moral commitment but lacked the "ability or power to turn ideas into action" and bemoaned the fact that the principles of the Sub-Group are diluted by the main group (People and Communities Sub-Group, 13/5/96). Another member of CDIP was concerned that the more effective CDIP became the more it would act to distort the market for ICTs support from businesses (interview with CDIP member, 5/2/97). Such a line (see Bennett, 1994, 1995) was countered by a representative from the Durham Business Club who argued that the principle of CDIP was one of consensus politics, and that he was happy to see it develop in this way as long as the small firm voice was heard and responded to (interview with CDIP member, 3/2/97). This view was supported by the local Chambers of Commerce, whose representative saw only benefits from the partnership approach, although we should note, such allegiance between public and private sector has a long tradition in the North East (Shaw, 1993).

6.3.3 Shaping the space of flows: County Durham On-Line

If CDIP provide the political leadership, or entrepreneurship, on ICTs in the county then it is CDOL who provide the technological entrepreneurship. Here lies the expertise in lining up ICTs with the Durham economy, in developing projects for funding and in coordinating the efforts emanating from the political processes of CDIP. At a meeting of CDIP on April 10th 1996 the scene was set:

> "the view that the best way to achieve real progress in this field, full time effort was required... [the Chair] replied that he agreed and was making a proposal to ... [the] Director of the EDRU at the County Council that the Informatics Partnership would be best progressed as a formal joint venture between the TEC, the County Council and other key members of the partnership."
> (minutes of CDIP, 10/4/96).

This was one of the earliest cited recordings of CDOL taking shape, involving the TEC and the Economic Development Research Unit from the County Council (ERDU). In a paper prepared by the Chair of CDIP the mission of the joint venture was outlined; it was "[t]o expediate the implementation of the County Durham Informatics Strategy" (Toon, 1996).

It was argued by CDIP how it was not intended that the joint venture should be self financing, nor would it offer commercial services which were available elsewhere in the region thereby preventing it from becoming direct competition to local small IT based companies. Funding, it was suggested, would be sought from the partners involved, from the DTI and the Information Society Initiative, via the SRB and from the European Commission. In the interim period, prior to funding being established, it was proposed that Durham TEC and the County Council provide funds to staff the joint venture and to initiate some small projects (ibid.). Indicative costs were estimated at some £150,000 in the first year with the TEC and County Council meeting almost 50% of this, and slightly less at £110,000 in the second year with the TEC and County Council proportion rising to almost 60% of the total (CDOL minutes, 1/10/96). In line with its 'state of the art' image CDOL located its offices on the University of Durham Science Park.[10] So while in the early days CDOL was "feeling its way" one member of the CDOL Board noted that the relationship

between CDOL and CDIP required a more formal structure to ensure responsibilities are met (interview with author, 18/2/97). This was reiterated by another CDIP member who told me

> "one of the points about the venture and the Strategy is to try and ensure as much compatibility as possible. There's such a great opportunity to waste vast amounts of money, by buying kit [hardware and software] that's not used or only partially used, or is used but can't be connected to someone else's system ... to reduce duplication, but also to make sure the best possible value for money is obtained from the resources which are actually available."
> (interview with author, 17/12/97).

Business representatives saw CDOL as a way to develop the ICTs infrastructure in the county and those who took part were generally upbeat about its potential. One business representative took the view that businesses in the county needed a wide range of ICTs support, adding how both the Informatics Strategy and the Economic Development Strategy would provide a path for a successful local economy. Thus, it was important that the 'business voice' helped to shape development during the next five years (interview with author, 10/2/97). This person went on to suggest how economic growth in the county depended on the application of new technology in business, the development of new skills and training to apply the technology, the provision of an adequate physical infrastructure and the linking up of education establishments, particularly FE colleges to support businesses. As this was outlined, the goal oriented, project with tangible outcome, led approach associated with local partnership initiatives was being drawn out (Peck and Tickell, 1995).

However, views were expressed within CDIP about CDOL being too business focused. It was argued that the reason for pursuing ICTs in the county was to achieve social cohesion and that social change could not be disassociated from ICTs developments. Durham Informatics, it was suggested, is a representation of a transitionary phase in the county and in the rest of society (interview with author, 29/1/97). Another member was concerned that there was a lack of evidence to suggest there was any need for CDOL (interview with author, 10/1/97) and again, there was an articulation of that issue that has always remained just below the surface

of ICTs development in the region; namely the contestation between pursuing a regional policy and a local policy. We have seen in chapter 3 how the work of Ni has led to levels of competition concerning who governs the space of flows in the region. This rivalry was much more in evidence in County Durham than in Wansbeck and Sunderland and is more to do with institutional responsibility than with geography. For example, Durham Informatics is mainly TEC led, while in Wansbeck and Sunderland ICTs has relied on the drive from the local authority.

One CDIP member felt that the fact Ni had failed to deliver on a coordinated approach to ICTs contrasted sharply with the efforts of CDIP (interview with author, 18/2/97). Alternatively, it was suggested that Ni's role was to lead on the provision of physical infrastructure in the region and leave organisations such as CDOL to deliver applications (interview with author, 17/12/97). Another CDIP member expressed concern that the relationship between the county and Ni "was not happening" and wondered what Ni were actually going to deliver (interview with author, 10/2/97). Furthermore, it was argued strongly that more progress on ICTs had been achieved through the coordination of the five TECs in the region precisely because there was a lack of principle support from Ni for local developments. Too often, it was suggested, Ni tried to initiate ICTs actions without the full agreement and commitment of some of the local players (this point was made by various CDIP members).

The space of flows is however, a contested space and this view was disputed. Others noted how Ni could attract European partners of a similar size and potential, thereby bringing in more funds for ICTs initiatives in the region (interview with author, 29/1/97). It was also noted that the frustration felt at regional level, due to the processes of fragmentation which had emerged around ICTs, sometimes led to decisions made at a regional level which were countered at a local level. While this was not a specific reference to Durham, it was argued that

> "some of the specific proposals [by Ni] I think have touched on issues that some of the Training and Enterprise Councils thought were their domain, that's where there's been some differences of opinion ...

> [adding] ... there's major advantages to Durham by contributing and supporting a regional initiative."
> (interview with author, 10/1/97).

In the North East shaping the space of flows is a contested domain. This includes the way in which ICTs are legitimised, the way they are embedded and how the space of flows are grassrooted. However, it must be made clear that all CDIP members who were interviewed wished to see a structure in place for regional and local initiatives on ICTs to take place. The area of conflict was whether the space of flows should be shaped by regional governance bodies supported by local agencies, or should be shaped by the local governance of ICTs supported by a regional body. The recent focus on a Regional Development Agency, and the transformation of the Northern Development Company into such as organisation looks set to fuel this debate over a wide range of economic development issues.

6.4 Summary: the space of flows – more than an urban phenomenon

One of the main points to draw from the ICTs work in County Durham is that developments of the type outlined in this work are not confined to urban areas. The geography of the region is such that economic development cannot be considered without reference to those parts which often fall outside of the definition of urban. Connection to this new world of informationalism is a rural issue as well as an urban one, and coalitions such as CDIP are organised in such a way that the legitimacy of their operations, and that of CDOL, finds more resonance with local players than other regional based initiatives. CDIP are equal to the Sunderland Telematics group in this respect, and already they have shown some degree of (very limited) longevity. The establishment, legitimacy and simple endurance of CDIP and CDOL shows that shaping the space of flows is more than an urban phenomenon.

One feature of connection in County Durham is the distinct bias towards small firms. This has been led by the work of the local TEC and early initiatives, such as the PAGE project aimed at encouraging small firm use of ICTs. As with Sunderland and Wansbeck, ICTs development in Durham has key points of connection. Apart from the small firms angle there are other initiatives which exist within the county, and the

work of Derwentside District Council will add significantly to the hard infrastructure, connecting the urban areas of Tyneside, the city of Durham and Darlington. Derwentside have also made inroads through ICTs in the community, developing this aspect of ICTs in a more tangible manner than the CDIP People and Communities Sub-Group. The involvement of local education institutions has supported the small firms focus of connection and has focused on awareness raising and training. Finally, place marketing through this medium has been identified by local governance agencies who see it as one way of supporting the Durham economy.

The work of CDIP in the county is well established, with at least one iteration of an informatics strategy complete. In addition, the partnership itself has recently undergone change to integrate its approach with the work of the County Durham Economic Development Partnership. While Durham County Council are involved in CDIP it is the local TEC that has had a key role to play in the ICTs partnership. This is a significant qualitative difference compared with the cases in Wansbeck and Sunderland. CDOL, after a period of working as a joint venture between a number of agencies, is about to revert back to an arm of the TEC. CDIP developed as a loose based coalition involving many representatives from a variety of agencies rather than as a constitutional partnership. Most of the participants on CDIP have some connection with the public sector ranging from educational institutions to community groups, but membership also includes local business representatives and has, on occasion, involved local businesses themselves. While CDIP brings together local political entrepreneurs who engage in local political and economic processes it is not the case that this is a political partnership *of* business elites, rather it is a political partnership *for* economic development of a particular type.

CDIP are an integral part of shaping the space of flows but it is CDOL who have the responsibility for getting things done. This smaller group provide a level of expertise which is directed at winning funding, aligning projects with the objectives of the Informatics Strategy and leading the bigger partnership on its strategic direction. CDOL are the key body who seek to shape the space of flows in the county and on occasion, find themselves at odds with other groups in the region competing for the

same resources to fund ICTs initiatives. Most notably, there is some (albeit mild) antagonism between Ni and the work in Durham but, as shown in the previous two studies, this is because the contradictions between the space of flows and the space of places are, at this very moment, being constructed.

In the following chapter a further case study, that of Teesside, is introduced. Here we see a situation were the development of ICTs is much more fragmented, demonstrating competition within a sub-region of the North East. In this, the work of the University of Teesside group, called the Community Informatics Research Association, efforts by Middlesbrough Council and by the Tees Valley Joint Strategy Unit are considered in more detail. As the following case confirms, connection to the informational mode of development, and the shaping the space of flows in the North East is a disparate project.

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[1] See for example Pattison and Beynon, undated for a graphical account of the resistance of the community of Easington in the 1983/84 Miners Strike, but also see Beynon, 1985; Fine and Millar, 1985.

[2] During this work, the author has been a participant in the County Durham Economic Development Strategy Business Working Group. See chapter 1 for an overview of the research methods used in this work.

[3] When a progress report on the county wide ICTs initiatives was presented to County Durham On-Line in March 1997 it was noted how an operational ICTs infrastructure was in place for each of the three networks (NCN, Durham Colleges and Business Link network), with staff in position to develop them further. The West Durham Point of Access, providing local call charge access to the Internet via a private Independent Service Provider (ISP) was also up and running (minutes from County Durham On-Line, March 1997).

[4] Two recent surveys from the RAC have provided contradictory messages on the sort of development outlined in the above quotation. On the one hand it was suggested that how over the next ten years, if businesses employed more video links, almost 20% of business-related journeys could be replaced (BBC News, 13/11/97 see http://news.bbc.co.uk/); while alternatively it was suggested that restrictions on car use would lead to unemployment (RAC, undated see http://www.rac.co.uk/fut/). Furthermore, Adams (1996) has pointed out how a greater rate of ICTs use stimulates physical transport, particularly car use but also air travel, mainly because electronic communication encourages more physical contact, discussion, negotiation and conferencing. This points to the complexity involved as the reality of the informational mode of development unfolds in local economies and the somewhat utopian view that links teleworking, homeworking and economic sustainability – an area which clearly requires further thought.

[5] See for instance the Budget Statement of Chancellor of the Exchequer in March 1999 and the emphasis placed on ICTs in schools.

[6] Strategic Objective SO11.1 of the Stanley Southern Single Regeneration Budget Delivery Plan is aimed at improving "community cohesion, stability and co-operation through provision of community work support, development of local networks and effective channels of communication between sectors" (Derwentside District Council, undated, p 11) and it is this which captures the essence of the Stan

[7] For example by using an Internet link from a hospital to a health centre where advice can be given remotely. The Prime Minister Tony Blair, indicated this as a way forward for the NHS recently, calling for a harnessing of the information revolution for the benefit of patients, with telemedicine being one such method (BBC News, July 2nd, 1998 On-Line at http://www.bbc.co.uk/).

[8] It was the Hartlepool district which fell into this category, hence the involvement of the two TECs. The objectives of the project have been aimed at increasing the awareness of ICTs among small firms, and developing new skills in the area of ICTs. In its early days only a small number of firms were involved but more recently the number was 80 plus.

[9] So much so that the four areas set out in the original Durham Informatics Strategy (see above) reflect those in the Economic Development Strategy for County Durham of physical development, image, business and people. The principle statement which lay the foundation for ICTs in Durham was Policy PD 4.6 which set the tone for the coordination of the informatics work across the County (see S.A Figure 6.3).

[10] The costs of CDOL can only be indicative because the boundary between some of the activities of the organisation are not clearly distinguishable from some of the projects which fell under their umbrella but were funding was secured from elsewhere. In its first year up to six people were employed by CDOL including a General Manager, a Development Officer, a Technician, a manager for one of the projects and a 'Modern Apprentice'. The sixth position was an IT advisor for small businesses. This position was slightly different to that of the Business Link PBA and was therefore believed to be unique in the UK, as it sought to combine business advise with ICT advise. It also reaffirmed the focus of the county ICTs work towards the small firm sector.

Chapter 7

Teesside connection:

good intentions, but a mixed picture of development

7.1 Introduction

Teesside is another location that is currently attempting to cast a new image of itself as Tees Valley. Teesside is a sub-region of the North East consisting of five unitary local authority districts: Hartlepool District Council, Stockton on Tees District Council, Redcar and Cleveland District Council (formerly Langbaurgh), Middlesbrough Metropolitan Borough Council and recently, Darlington District Council (having left the jurisdiction of Durham County Council). In this recasting of image, exactly how the five districts inter relate and the form the sub-region takes as it interacts with the rest of the region is currently being determined. The catalyst to many recent developments in Teesside was the decision taken during the Local Government Review in the early part of the 1994 to abolish Cleveland County Council (CCC). At about the same time work began in Teesside to develop ICTs that, it was felt, would support the trajectory of the local economy.

A mixed picture has emerged in Teesside. A number of groups have become involved in ICTs, some of whom, at some point, have championed ICTs on behalf of the sub-region, and have attempted to set in place a partnership approach to govern developments in this domain. Each attempt appears to have fallen short of the legitimacy needed to be seen as the lead organisation in this domain. There has been a lack of clarity concerning who is responsible for ICTs development but there is, in fact, more than one strategy to on informatics to be found. This case study shows the space of flows as a contested and negotiated space within a particular local geography.

Organisations such as Middlesbrough Borough Council have attempted to initiate working groups to integrate economic and technological development; the Teesside TEC tried to kick-start a small informatics group under the banner of Teesside Informatics; from the local University of Teesside the Community Informatics

Research and Applications Unit (CIRA) have been successful in raising finance to develop community led initiatives on ICTs which subsequently turned into a broader partnership approach to informatics; while the Tees Valley Joint Strategy Unit (TVJSU) emerging from the ashes of the County Council abolition, has most recently taken the ICTs mantle. There are a lot of good intentions on Teesside, but the political and economic structures in which the sub-region operates has, as shown in this chapter, resulted in too many groups emerging to lead on ICTs which paradoxically results in a lack of leadership in the field of ICTs.

7.2 Teesside and connection to the informational mode of development

The connection processes in Teesside are difficult to ascertain. In comparison to Sunderland, an urban area of some similarity, or County Durham, there is no single body which is able to command the authority in Teesside to determine the ICTs path. In addition, the economic structure of the sub region has, during the past two decades, suffered severely from the fall-out from a continued downsizing and closure of previously nationalised and traditional industries centred around steel and chemicals. This has resulted in concentrated attention and no little effort by many local economic planners, who have often focused in a reactive way, towards some of the worst social and economic trends and statistics to be found in the UK. Both deprivation, and efforts to reduce it, are highly visible in Teesside.

Added to this, recent political change to the sub-region has been marked, and has led to a complete shift in the structure of local government on Teesside. The introduction of unitary status into the hierarchy of local government resulted in the abolition of Cleveland County Council (CCC) in 1996, an organisation who previously had played an active role in local economic development. The abolition of CCC has added to the flux and uncertainty in the delivery of a range of local authority services and crucially for this study, in the domain of economic development. Also, in recent years the not uncontroversial Teesside Urban Development Corporation (see Robinson, Lawrence and Shaw, 1993) has been wound down. During the interviews and discussions held with many local actors in

this field it became apparent how unclear it is who leads or should lead on economic development in Teesside, and it is fair to say that there is indeed an element of contestation between agencies and organisations for such a leadership role.

7.2.1 The Teesside economy

The Teesside economy has evolved with a specific morphology through many economic, political, social and cultural processes. Although the idea of technology determining its shape has never been far away, as Goodman (1999) shows in his historic account of the birth of Middlesbrough.

> "Middlesbrough was created by the changing policy of railway managers. The world's first freight railway had been designed to carry coal from Darlington (the point of concentration of produce from the surrounding pits of County Durham) to Stockton, a port on the River Tees, for shipment to London. But within a few months of its opening in 1825, the Quaker managers of the Stockton and Darlington Railway Company discovered that the Tees on Stockton was too shallow for heavily laden colliers. So they planned an extension of the railway line to a point a few kilometres downstream where the water was deeper. This bleak and marshy terrain was to be the site of an industrial city of wholly unforeseen size and importance."
> (Goodman, 1999, p 6).

The challenges facing Teesside in the current period of connection to the informational age is still fundamentally linked with its industrialisation. In the Teesside economy, two particular sectors stand out above everything else: the iron and steel industry and the chemical industry. Both of these industrial sectors were complemented by the natural resources available in Teesside, and within the region more generally, such as coal, other minerals and fresh water. The availability of port facilities integrated the two sectors into a global market place and as the Teesside industries grew they drew in labour from surrounding areas (Beynon, Hudson and Sadler, 1994).

Much more recently, the four districts of Teesside, those of Middlesbrough, Stockton on Tees, Redcar and Cleveland and Hartlepool, figured in the Government's 1998 top fifty listing of deprived local authority districts in England (DoETR, 1998). Add to this the dependency throughout the modern period of the sub-region on particular

industries, plus the relatively low base of indigenous firms, and one can see how the local economic structure in Teesside is highly constrained. As Table 7.1 begins to indicate, while manufacturing is still a key employment sector in Teesside, the demise of the chemical and metal manufacturing industries is marked. The top four industry sectors in 1971 accounted for 61.2% of all employment in Teesside. Ten years later the top four sectors employed over 150,000 people, nearly three-quarters of all employment in Teesside, and by 1996 the figure had fallen so that under two-thirds of all employment in the sub-region came from the top four industry sectors.[1]

Table 7.1 The changing employment structure in Teesside: Numbers employed in the top 4 industrial sectors, 1971 – 1996*

	Sector	1971	Sector	1981	Sector	1996
1	Financial, professional, miscellaneous	49,100	Other services	50,650	Manufacturing	47,100
2	Coal, petroleum and chemical products	32,400	Extraction manufacture: minerals metals	41,350	Wholesale/retail trade; repair, etc	27,500
3	Metal manufacture	30,000	Distribution, hotels, catering; repairs	37,900	Real estate, renting, business activities	23,250
4	Engineering and allied trades	29,450	Metal goods/vehicle industries, etc.	20,050	Health and social work	22,100
Sub-Total		142,900 (61.2%)	*Sub-Total*	151,950 (73.4%)	*Sub-Total*	122,000 (63.5%)
Total Employed		**233,500**	**Total Employed**	**206,950**	**Total Employed**	**192,200**

(* figures rounded and refer to Cleveland County boundaries
Source: Census of Employment, Nomis)

Yet the structural shifts in employment indicated above do mask somewhat how in the two most important sectors (chemicals and steel) employment has fell in absolute terms by more than 43,000 over a 25 year period (see S.A Table 7.1, see also Sadler and Southern, 1994). In 1971 the two sectors accounted for over 26% of all employment in Teesside, but almost 40% of male employment. By 1981 just under 20% of all employment in the sub region was in the two sectors, accounting for over 35,000 male jobs. By the mid 1990s, the two sectors represented over 12% of employment in Teesside. They were still a significant presence but had declined from being directly responsible for over a quarter of all male and female jobs in Teesside. The recent global decline in metal manufacturing and chemical industry

sectors has had a marked effect on Teesside. Reflecting on the post-war history of the sub region Beynon et al point out that

> "Teesside's difficulties were most emphatically not of those of a 'classic', 'depressed' or 'old' industrial region dependent on under-capitalised, technologically backward and uncompetitive companies and sectors. Indeed, nothing could be further from the truth: the steel and chemical industries which formed the mainstay of the local economy received considerable financial investment and the dominant companies – British Steel and Imperial Chemical Industries (ICI) – were among the world leaders in their product range."
> (Beynon et al, 1994, p 3).

The lack of a diverse economy has proven to be a concern for many on Teesside. While unemployment at the beginning of this year (1999) stands at some 25,000 (source: Nomis). According to the Tees Valley Joint Strategy Unit there is a substantial underestimate of the Teesside unemployment figures with the real unemployment rate being twice the official unemployment rate (TVJSU, 29th May, 1997). Thus, it could be argued that it is only to be expected, and as indicated in chapter 2, that many local planners and policy makers in Teesside will seek to associate their local development with leading edge technology, to bring in new forms of industry that are entrepreneurial, flexible and leading edge. This idea of economic development, place and progress has a long standing in Teesside as Beynon et al show (ibid.) albeit as one local actor observed, Teesside has to ensure is has "got knowledge based activity and that we don't become a branch plant economy" (interview with a member of the CIRA Advisory Group, 28/4/97).

7.2.2 Creating a discourse of connection in Teesside: different players, same ideas

The organisations involved in building up a discourse of connection in Teesside are many. Three key bodies have recently emerged, each of whom have made some attempt to initiate innovation and technology strategy, or thought about stimulating carefully bounded technologically led projects. These are CIRA, the Tees Valley Joint Strategy Unit and Middlesbrough Borough Council. Efforts from another group who formed around the Teesside TEC have played a part in this discourse, but this group failed to manifest into a single strategic partnership or coalition around ICTs, and are considered in more detail a little later. Yet it has been implausible for

any of these efforts to develop without recourse to the two major industries of steel and chemicals, and more generally, to those endeavours aimed at restructuring the local economy.

For example, in recent years over £75 million has been designated through the SRB alone to address some of the social and economic difficulties facing Teesside. Hartlepool for instance, appears to be particularly successful in attracting this form of funding with some £28 million designated between 1995 and 1998, so too has Redcar and Cleveland with some £18 million total SRB finance designated. Stockton is pulling in around £11.5 million and Middlesbrough has just under £7 million allocated (see S.A Table 7.2). Following unitary status being confirmed, Darlington has sought to get closer to the Teesside groups and will bring in a further £3.6 million in SRB finance over the coming years. In addition, Teesside has drawn in City Challenge funds from 1992,[2] and add to this European finance and the previous presence of the Teesside UDC in the district, and one can see a considerable funding package making its way into Teesside for social and economic restructuring.

The restructuring of the Teesside economy, the fortunes of the steel and chemicals sectors and the rise of the informational economy has combined at a time when local actors, politicians and planners are coming to terms with what Beynon et al (1994) see as the end of a Teesside wide consensus. One reason for this is because Teesside hasn't "got one single local authority, so it wouldn't be obvious which local authority should lead" on ICTs development (interview with member of the CIRA Advisory Group, 28/4/97). Such a picture contrasts with the embedded nature of ICTs in Durham and the legitimacy achieved in Sunderland. While at the same time other, private sector telecommunication companies are emerging in the sub-region. In particular, the role of Comcast Teesside is a good example of representatives from the business elite (maybe even the nouveau business elite) referred to by Peck and Tickell (1995), yet they act something as a lone business voice in a number of ICTs working groups. Comcast Teesside are the local cable franchise telecommunications company who have been encouraged to take part in the discussions and debates about how to develop an ICTs strategy for Teesside.[3] This does indeed compare with the

way Bell Cablemedia have remained a peripheral player in the Sunderland Telematics Strategy.

7.2.2.1 CIRA and points of connection in Teesside

CIRA, a research centre in the University of Teesside, seeks to "provide a forum for the analysis and development of informatics applications" (Community Informatics Research Applications Unit, undated, no page number). According to one of the Co-Directors it was borne out of a conference on the "governance of cyberspace" (interview with author, 8/4/97) that raised the key issue of where Teesside would sit in a new society based on information processing and what people in industrial areas such as Teesside would do in such a society (see Loader, 1997). The key activities of CIRA are the provision of research, consultancy, seminars and conferences on the informational age and one of their most notable successes has been in developing work with a rural community in Durham in the village of Trimdon.[4] The work of CIRA with local communities is analogous to the hands on small firms ICTs development which has taken place in Durham involving the Durham University Business School. However, in principle it is more consistent with the community focused work in Derwentside and Sunderland seen in chapters 6 and 4 respectively.

CIRA are attempting to achieve three things. First, they are looking to develop a programme of awareness raising within local communities through the provision of ICTs demonstrations. This, they argue, will demonstrate the potential benefits of the technology to community groups and individuals, supported by holding a broad range of discussions on the global developments in ICTs. Second, CIRA provide teaching and training courses in communities, and in the University, aimed at upgrading skills and enabling people to use the technology for themselves in the context of their own community. Third, they are looking to provide informational access for people who would not usually be able to gain access (interview with author, 8/4/97).

The points of connection being enabled by CIRA are a symptom of the ICTs work taking place as localities respond to the effects of the global informational economy.

One person argued that the whole ICTs phenomenon was likely to be unsuccessful precisely because it was being judged on economic criteria, such as profit making, rather than on aims and objectives worked out in consultation with local communities (interview with CIRA member, 8/4/97). In each case study, the idea of uniform access has become apparent: through the Citycard project, through various Sunderland initiatives and through the Stanley Infonet, the message is that local communities should have equal access to the informational age. The consistency across case studies show objectives that increase access to hardware and software specifically, but also to open up new opportunities that, it is argued, connection can bring. This is a response to anxieties about technology rarely becoming embedded at the level of place, and that people in local communities, or in small businesses, too often simply become recipients of the technology rather than shaping it in ways they believe are worthwhile.

Many on Teesside are of the opinion that much of what is taking place in areas such as Sunderland and Durham is replicated in their own locality. This was a view shared within the CIRA Advisory Group, one of whom suggested that Teesside "hasn't produced the glossy brochures yet, but if you look at what is happening on the ground there is at least as much here as there is in other towns" (interview with author, 28/4/97). Indeed, as Table 7.2 shows there are a number of organisations involved in various technological and innovation type programmes which can fall under the concept of connection. Each of these organisations are involved with connection activities in some way, such as in the provision of electronic access points, training and new skills development, or infrastructure build and supply. This is one reason why local actors have recently begun to talk about co-operation and partnership around ICTs. In the next section of this chapter efforts to connect made by another group, the Tees Valley Joint Strategy Unit, are outlined.

Table 7.2 An indication of the ICTs areas and players on Teesside

ICTs area	Key local partners involved
Infrastructure and service provision	BT Comcast Teesside Onyx Internet Tees Net North East Regional Information Service
Research and Development	CIRA (University of Teesside) Computer Architecture Research Unit (University of Teesside) Distributed Communication Systems (University of Teesside) Electronic Commerce (Onyx and CDOL) Training and Learning Environment Network Tutoring (Cleveland Open Learning Unit) Virtual Reality Centre (University of Teesside) Virtual Reality in the Construction Industry (University of Teesside)
Business Support	ADAPT 2 (NCN) Business Information Services (Business Link Teesside) European Process Industries Competitiveness Centre Information Society Initiative (Teesside TEC) Shopfloor Solutions (CADCAM Centre)
Education and Training	Electronic Community Classroom (Evening Gazette) Teesside Forging Ahead (Teesside TEC) Newstart (Teesside TEC) Tees Valley Education Computing Centre Redcar and Cleveland Community IT Outreach (Redcar and Cleveland College) Stockton On-Line (Stockton District Council) Youth Media Project
Public Services	Public Health Promotion (Tees Health Authority) Tees Wide Area Network Project (Tees Health Authority) Community Information Database (Stockton District Council) Community Information Points (Middlesbrough District Council) Cleveland Constabulary Information Network (Cleveland Police)

(source: based on Community Informatics Research Applications Unit, 1998).

7.2.2.2 The Tees Valley Joint Strategy Unit and connection

The Tees Valley Joint Strategy Unit (TVJSU) emerged following the imposition of unitary authority status on Teesside. TVJSU have a legal agreement between the five local authority's (the four on Teesside plus Darlington) to operate until 2001. It is, in effect, or more pertinently has the potential to be, the planning arm for local authority economic development in Teesside. TVJSU has a resource of some 40 staff dedicated to economic development and business support, and they provide various types of research on the local economy. TVJSU put together policy for the sub-

region by pulling together 25 local authority members, a number that includes four of the five sub region's political leaders. The Director of the TVJSU has been keen to develop their ICTs work and to this end there has been something of a limited resource dedicated to this area. One person in TVJSU has the responsibility to run awareness raising and political networking activities for ICTs.

In an early document, from May 1997, TVJSU began to outline a telematics strategy for the area (TVJSU, 29th May, 1997). It was argued in this that the Teesside economy needed to develop its competitive base and should look to integrate ICTs into the industry of the sub-region in the following ways:

1. By developing a knowledge based environment associated with the local university or with a business or science park.
2. By concentrating resources to enable an available skilled and flexible workforce.
3. By providing a well developed ICTs infrastructure which included satellite links, telecentres and access to the Internet, making this available to all groups within the local community, based on the presence of a modern support systems of fibre optic cables delivered through private companies such as Comcast and BT.
4. By ensuring a dynamic local authority group which is capable of enabling new partnerships emerging between groups in the business community.

(TVJSU, 29th May, 1997).

In as clear a tone as one can find, this TVJSU document associates political process, place and ICTs. This listing, while setting out a vision of a new type of Teesside, is firmly ground in the belief and experience of a small number of local influential players responding to global change.

Table 7.3 The three strategic areas for TVJSU Informatics work

Sector	Aims
Business	• to develop understanding and adoption of ICTs amongst businesses as part of strategic business planning and a core of business activity; • to support the development of electronic commerce amongst Tees Valley businesses; • to increase employer commitment to learning and to improve skills at all levels amongst employees; • to create work experience and job opportunities for students with information and communications technology skills; • to stimulate and support new businesses in information technology and creative industry sectors; • to encourage inward investment from high technology companies; • to improve awareness of telework and the opportunities this offers for business and employment in rural and urban areas; • to ensure leading edge research and development brings product and service benefits to local companies; • to improve services and develop coherent information, support and referral processes between agencies.
Education	• to raise awareness of the applications and benefits of new technologies in teaching and learning; • to invest in training for all teachers, lecturers and trainers in IT, E-mail and the Internet; • to ensure the education system develops courses appropriate to the changing needs of employers both in basic information and communications technology skills and specialist fields; • to ensure all schools, colleges, higher educational institutions and mainstream training providers have Internet access and a web presence; • to promote and embrace the opportunities to deliver education and training in new and distributed ways through the use of information and communications technologies; • to develop networks for both students and staff between education and training providers locally, regionally, nationally and internationally; • to develop and support creative applications of technology to raise educational achievement levels.
People and communities	• to raise awareness of the applications and benefits of information and communication technologies for people and communities; • to establish community-based access points with resources, advice and training; • to support voluntary and community organisations to go on-line and to develop the skills to use technology effectively within their organisations; • to improve public access to resources, services and information provided by the public, private and community sectors; • to improve the level, quality and maintenance of on-line local information from statutory and voluntary sector organisations; • to support the creative application of technologies for social, leisure and cultural development; • to facilitate remote networking between communities.

(source: TVJSU, circa 1998)

By the time of the launch of the Tees Valley Informatics Strategy, in September 1998, the focus for ICTs began to have a familiar ring to it, as Table 7.3 shows. The three strategic areas for informatics in Tees Valley, according to this TVJSU approach, were business, education and people and communities – almost replicating the CDIP approach in Durham and some of the principles of the STWG in Sunderland. Awareness raising across the region (concerning ICTs) has led to a broader dissemination of ideas and transfer of knowledge, in much the same way indicated by Morgan (1997). Furthermore, as the informatics work in Teesside began to be rolled out a familiar discourse has emerged concerning 'connecting SMEs' and of 'capacity building for communities' (Tees Valley Joint Strategy Unit, circa 1998). The strategy suggests small firms awareness raising activities that include a review of Internet Service Providers (ISPs), subsidised equipment, such as providing modems and connection to the Internet, and grants which cover 50% of the costs associated with training, support, advice and content development for small firms websites. These are the classic response of business support organisations who seek to get small firms involved with ICTs, whether or not it is of benefit to the firm (see Fuller and Southern, 1999).

The strategy is also aimed at using ICTs to support local communities, particularly those who can access RESIDER funding, the European Commission package which helps steel areas to restructure (Tees Valley Joint Strategy Unit, circa 1998).[5] By drawing on the political and technological expertise, already shown by CIRA, to access funding and to implement ICTs initiatives, the aim is to provide communal points of access to the Internet akin to that in operation in Derwentside and Wansbeck, to give individuals their own e-mail address and to provide ICTs training for local people. The minutes of the TVJSU Community Development Sector group meeting of January 8th 1999 notes with regards to this project:

> "These are the core aims and after this basic level of access and ability is achieved the development of the project is essentially in the hands of the community and will develop according to their needs ... [adding] There is a fair degree of optimism in regard to the approval of this bid and it is hoped that it can link up with other similar projects in the UK and EU."

(Available On-line at http://www.tvip.teesvalley-jsu.gov.uk/ no page number).

The work of the TVJSU is another indication of how ICTs partnerships come together in a very short space of time. When representatives of TVJSU were interviewed for this work some 15 months earlier it was mainly ideas that were taking shape, rather than a shaping of the political processes needed to instigate a broad-church coalition of the CDIP and STWG kind. As we see below, only recently has the work come together under one umbrella, and to date, the good intentions on Teesside provide a mixed picture of ICTs development.

7.2.2.3 Middlesbrough innovation and points of connection

In another recent attempt to coordinate a strategy for ICTs the Middlesbrough Borough Council established a working group named the Framework for Innovation, Technology and Communications (FITC) under the auspices of their Economic Development unit. There are two interesting points to note from this work. The first is how the FITC group feeds into a larger group of working parties and potential partners that involve over 40 different organisations aimed at coordinating economic development strategy for Middlesbrough. Four other groups were set up to develop plans for business support, education, skills and training, image and inward investment, and community economic development. This effort was aided by further work towards assessing the nature and role of the Middlesbrough Town Centre. The second point is that the focus on ICTs is only one component of the work of the FITC group with other areas of innovation and technological development also considered simultaneously. To some extent, this has emerged out of European Commission efforts to develop regional innovation strategies but overall the rationale for the Middlesbrough FITC working group is to create new forms of economic space by developing ideas on how to integrate new technologies into the forthcoming strategy for economic development.

Table 7.4 provides an indication of the scope that FITC have sought to address. As this shows only one of seven impending actions fall into the ICTs domain, although clearly, the scope of this framework confirms how planners see a correlation between

various components of technological development, innovation and economic restructuring. This is about putting in place an infrastructure to support technology businesses, and technology transfer between businesses (see Bell, Chesnais and Wienart, 1991; Lawson, 1997) but despite efforts to plan, is often a chaotic way of pursuing economic development (Simmie, 1997). The particular focus on ICTs that will ultimately feed into the Middlesbrough Economic Development Strategy is limited. It is aimed at supporting and advising businesses about the effective use of ICTs, and about establishing a "discretionary fund for small and medium local companies to allow them to act upon this advice" (Middlesbrough Metropolitan Borough Council, June 1998a).

Table 7.4. The scope of technology projects for Middlesbrough identified by the FITC Group

FITC action area	Significance for Middlesbrough
Innovation, technology and communications support services	To provide an information point on technological support for the district
Identify technology and training trends in Higher and Further Education	To support the development of the local innovation and technology capability in the district
The Teesside benchmarking study	To develop sector specific strategies on company benchmarking and to input into the Regional Competitiveness Project
Innovation, technology and communications funding sources	To produce a simplified guide to technology assistance to firms within the district
Supply chain innovation, technology and communications opportunities	To develop supplier linkages between firms in the district and with firms outside the district
Local area communications infrastructure	To identify the costs and benefits of developing an ICTs infrastructure
Develop links with other regeneration initiatives and groups	To develop linkages with other parts of the Middlesbrough economic development strategy as part of a broader coalition

(source: Middlesbrough Metropolitan Borough Council, 1998b).

The three groups, CIRA, the TVJSU and the Middlesbrough FITC group, cover many of the ICTs areas outlined in the previous case studies and in the region

overall. However, two of these – TVJSU and FITC group – are relatively recent and there is little indication yet of their capability to turn the good words and promises into action. The third, CIRA, have concentrated on embedding their activities in local Teesside and Durham communities, and have spent much less attention on developing a new vision for the locality. There is then, an issue of who legitimises the ICTs work on Teesside and how it is an activity which is demarcated from other economic spaces. The work on Teesside contrasts markedly from other areas like Sunderland, where economic projects such as that in Doxford have become integrated with ICTs initiatives. Even though the Durham case shows some level of contestation between the region and local, in Teesside there is contestation within as the sub-region lacks an ICTs leader group. In the following section this is considered in more detail as the groups behind CIRA, TVSJU and the FITC group are examined. In addition, the work of Teesside Informatics is introduced, as this group began their operations well before groups came together under the banner of Middlesbrough Borough Council or the TVJSU.

7.3 Shaping the space of flows in Teesside

In a recent paper presented to the CIRA Advisory Group it was suggested that the CIRA "Advisory Board members consider whether they could appropriately adopt the role of 'Task Force' for the purposes of progressing the Teesside Information Society" (CIRA, 1996, p1). Clearly, the purpose of this argument was to adopt the lead position in an ICTs based partnership on Teesside. Most significantly the authors of the paper had originally been involved in setting up Teesside Informatics. This statement from the authors verified how a common belief had emerged in Teesside concerning the need for one lead body on ICTs, but also how there was a lack of clarity about where this might come from. The confused picture on who should take responsibility in shaping the space of flows in Teesside resulted in a number of groups believing that they should be the body who adopts such a role. The following sections in this chapter show how this came to be.

7.3.1 Contest, leadership and governing the space of flows in Teesside

None of the groups reviewed so far have been able to establish themselves as the key ICTs partnership. Undoubtedly, some of the individuals involved believe they play an important role in the development of ICTs in Teesside although it is difficult to see a holistic path towards development. There is the work of CIRA who have made substantive efforts to set up community-based projects; there is the work of the TVJSU, of the Middlesbrough FITC group and also from a group that called itself 'Teesside Informatics'. Connection on Teesside is patchy and fragmented and coalition and partnership building in this domain is disparate. Teesside groups have so far failed to develop a co-ordinated approach to ICTs other than in specified areas. To date, there has been an overall failure to integrate ICTs into a broader vision of restructuring the local economy.

7.3.2 The early plans of 'Teesside Informatics'

In the latter part of 1995 Teesside Informatics (TI) was brought into play led by the Education Advisor from the local TEC, a Research Officer from the Middlesbrough Borough Council and the Principal from a local Further Education College. Teesside Informatics was an initial attempt to provide a partnership approach to developing a strategy for ICTs. According to the local authority officer involved, the end of the Local Government Review provided "a 10 month window of opportunity to initiate new ideas on how ICTs might be helpful to Teesside" (interview with author, 12/3/97). The ideas for TI were developed early on through a meeting between the three representatives with five main aims to take the work forward (see Figure 7.1).

TI therefore, began as a very loosely based forum. There aims were to initiate a would-be 'champion' for Teesside. The group were able to draw on the objectives of the TEC with respect to training and economic development, on the objectives of the local authority who were restructuring their own operations to include some of the economic development work previously undertaken by CCC, and to a lesser extent, were able to draw on the work that was developing through the NCN (interview with TI member, 12/2/97).

Figure 7.1. The early development aims of Teesside Informatics

1. The provision of awareness raising activities in order to offer individuals in the community an opportunity to sample, reflect and act on the potential benefits of Informatics.

2. The development of strategies and activities for the learning of basic IT skills which are co-related with numeracy and literacy skills in order to enable members of the community to increase their self-fulfilment and potential to participate successfully in life-long learning.

3. The gathering and analysis of information concerning infrastructure provision and education, training and business needs analysis in order to identify needs, threats and opportunities.

4. The development of linkages and mechanisms in order to achieve synergy of existing and developing attitudes, initiatives and activities on ICTs.

5. The establishment of a dedicated resource including administrative and research capability under the leadership of a Teesside Champion in order to achieve the above aims in an agreed minimum of time.

(source: Teesside Informatics, 1996).

The group believed it was necessary to draw up a list of people in other organisations who were regarded as sympathetic to the idea of ICTs development and who would be willing to become involved with TI. In this way, and under the auspices of the TEC, a series of meetings to explore support for a Teesside informatics strategy were arranged. It was also thought necessary to search for a common ground between TI and the CIRA group who had separately begun to develop activities based around ICTs. TI members felt that it would be useful for one group to focus on initiating projects while the other could develop a strategic view of ICTs. As Figure 7.1 shows, efforts were to be concentrated on awareness raising, education and upgrading skills, (hard) infrastructure development and by creating the conditions for the networking of organisations, which as we have seen in earlier cases acts as a forerunner to the local governance of ICTs. While these are aims that sit in a consistent manner with the likes of Sunderland and Wansbeck, how interesting it is to note that, at this time, the STWG did not exist and CDIP was also in its infancy, acting as an informal grouping.

TI attempted to initiate a broad based coalition group, involving between eight and twenty-five people, who potentially would act as a steering group for ICTs development. It was believed that this group could provide a strategic direction and legitimacy for ICTs in Teesside. In its early days there was little attempt to establish any form of report back structures or levels of accountability within TI, illustrating the almost exploratory nature of the work. However, contradictory accounts of TI can be found. According to one member of the CIRA Advisory Group TI became involved in the ICTs domain because of a specific project,

> "the TEC got involved with a major project [Teesside Forging Ahead] which was about putting computers into schools, and out of that certain people got together [TI] but it was running alongside CIRA ... we realised that there was some synergy. The issue for Teesside is what the appropriate role of the TEC is. At the moment the University is leading [on informatics in Teesside]"
> (interview with author, 28/4/97).

That two groups emerged around ICTs at similar times did lead to confusion. As a result there was some despondency about having competing groups within Teesside, a view shared by TI, CIRA and other actors in Teesside who noted what was happening. This is one reason why the people involved in TI sought to integrate their role into the work of CIRA. Thus, in November 1996, some 12 months after the inception of TI, their leading members suggested that the CIRA Advisory Group should become the organisation responsible for development of ICTs in Teesside and tabled the aforementioned paper (CIRA, 1996).

Yet according to another observer, TI became confused as to what their role could be in this lead body. This was because at this time CIRA were increasingly successful in winning resources to fund the development of particular ICTs programmes and areas of work which were in fact, protected by the apparent political neutrality that their University surroundings could offer. Even so, in the early part of 1996 TI had slowly moved towards composing a group of like minded people who shared consistent views on the need for the locality to be shaping developments in ICTs. They sent out invitations to participate to the business sector (including BT and

Comcast), to people in education and to training representatives in local Teesside organisations (interview with TI member, 12/3/96).

TI felt an early priority was to establish a coordinating role, bringing together ideas taking shape regarding ICTs and local economic development. This, they believed, would help identify the means (that is the programmes and funding mechanisms) in which initiatives could take place. An early justification of this, according to one of the principal players behind TI, was to provide an improvement to the economy of Teesside and to the general welfare of the local community (interview with author, 12/3/96). This, it was suggested, could only be achieved by bringing together people from different agencies and organisations and by building up a local ownership of ICTs development (interview with TI member, 12/3/97). Also, the group felt it was important to maximise the projects that were in place in Teesside, and to leverage out some additional value from the existing ICTs infrastructure in the locality. The lead members of TI therefore, tried to underpin ICTs development in Teesside by looking to act as a catalyst for other agencies, as well as themselves, to lead on projects.

Membership of TI changed as the meetings took place and really, it was the three representatives outlined above who worked towards coordination. They took on board the views of other representatives, and they initially became concerned with education and training and supporting indigenous business development, a position reflecting their own organisations. Reinforcing this, they also began to argue that ICTs was a good medium for helping some of the education and training activities which were already taking place. TI looked to see how ICTs could support the local small firm sector and they believed a World Wide Web presence would aid efforts to attract new inward investment. These, as we have seen time and again, are a remarkably similar set of ideas which can be found across each of the case studies in this work.

TI were looking to develop a governance role on ICTs which they believed was lacking. They knew this was developing in the region as a whole as they had some limited contact with Ni (then NiAA) and their work. Awareness raising, helping

small firms to take advantage of technologies such as EDI (electronic data interchange), supporting supply-chain development and looking to dovetail into local competitiveness projects such as the Teesside Forging Ahead initiative[6] was all part of the connection programme. The involvement of the TEC along with the early ideas taking shape through NCN, meant that ICTs were perceived by TI as an instrumental tool to be used in Adult Education, if possible supported by the local cable company. The consistency of this approach between districts within the region, and by Ni, vindicated the approach taken by TI and they began to believe they could replicate the organisational structures Ni had been developing. As they became involved in this domain TI began to represent, in the Teesside area, some level of technological and political entrepreneurship, although with the contradiction that they could not claim to be leaders either within the field of local economic restructuring or ICTs.

TI felt their work could be justified and legitimised simply by adding value to existing projects. One consequence of this line of thought was that it was unlikely that the group would have an infinite life and TI would seek to "enable in-dependency" rather than "increase dependency" suggested one member (interview with TI member, 12/3/96). This is why the group initially set out to behave as a consultative and discussion group, having little status in terms of executive leadership and low expectations from participant bodies other than helping "something to happen" with an "open and permeable" structure (ibid.). To this end TI, whose work coincided with Comcast Teesside arriving on the Teesside scene, and with the early ideas of CIRA beginning to take shape, have achieved some success. Their work has become diluted into the development of CIRA, while the coalition they managed to bring together for a short period never sought accountability in the same way that CDIP did for instance, and always lacked the legitimacy of the Sunderland Telematics Working Group or the Wansbeck Initiative. Yet the work of TI was not taking place in isolation. The perspective of CIRA was having an increasing influence in the sub-region as the University of Teesside increasingly raised their profile in local economic development and political posturing.

7.3.3 CIRA and the role of the University in shaping the space of flows

By early 1998 CIRA were able to publish a draft strategy with the preliminary title of 'Connecting the Tees Valley to the Future' (CIRA, 1998). This again argued the case for "Partnership and Participation" between public, private and community sectors in Teesside (ibid. p 7). By this time the University group had become central to any attempts to shape the space of flows in Teesside precisely because they were increasingly seen as a main point, an attractor, and other groups were coming to them to coalesce ideas on ICTs. This in spite of the limited remit of CIRA which was totally focused on community development. There can be little doubt that at this time it was CIRA who acted as a magnet pulling together other organisations in the sub region who, for whatever reason, were unable to take on the role of leading Teesside's response to the logics of the space of flows.

Those involved with CIRA came to appreciate early on how Teesside required a greater vision for ICTs development, something that could bring together, in a synergistic manner, human and technological initiatives (interview with CIRA member, 8/4/97). The investment in CIRA by the University drew together political and technological players and this was one reason why CIRA began to act as a key component in moves to develop a local governance of ICTs. It was suggested by the Pro-Vice Chancellor of the University that one early aim of CIRA was to develop additional value to projects already taking place in Teesside. CIRA, it was suggested, could provide a co-ordination role and was ideally placed to develop a strategy for education in the sub region (interview with author, 28/4/97). Within the academic community, CIRA made attempts to foster a 'global debate' on policy issues and awareness of the technology, its implications and development. Also, as a reaction to the dialectics of globalisation, CIRA worked within local Teesside neighbourhoods, wards and villages to raise levels of education and to provide a forum for the delivery of education in a devolved manner into communities (interview with CIRA member, 8/4/97). This is the basis from which they were able to argue how the constituency of connection for CIRA is education, both globally and locally.

CIRA have an important role to play in grassrooting the space of flows in Teesside. They have developed similar projects to those in Derwentside, in Sunderland and in Wansbeck (and in many other local communities see *City*, Number 7, 1997; *Local Economy*, Volume 12, Number 1, 1997). While shaping the space of flows is much more about the powerful, such as mobile global capital, who collectively hold enormous power to restructure economies (Castells, 1996), responses such as those provided through CIRA are crucial, as they create an alternative discourse about connection, and about reacting to the power of global capital. The question for Teesside is where is the local leadership to help shape the space of flows at the level of the locale? This *problematique* is illustrated in the following argument.

> "One of the key things we're interested in is sustainability. Huge sums of money have come into Teesside through the bidding process. Huge sums. The problem is, and it is a problem with the process itself, is that it is not clear that the money is being used wisely ... In our simplistic view, the only thing that we can see that is going to make these communities sustainable is through public money being invested in there, through stakeholders like the University, like the FE sector, like the Health Service, like local government ... the private sector are very reluctant to put money in unless they can see good return potential ... or good publicity"
> (interview with Co-Director, CIRA, 8/4/97).

Such a route has been the choice made by the CIRA actors. As they seek to develop local responses to support the use of ICTs they are have become involved in the politics that surround the space of flows. The inevitability of ICTs and place is not some pre-determined outcome whereby local economies either take a particular technological form or become redundant. It is the wave of informationalism washing over the advanced nations that has within it deeply embedded political processes. This is why shaping the space of flows is such a crucial issue and involves many. It has led others to question whether the remit of CIRA is broad enough to deal with the bigger issues involved in economic development and ICTs on Teesside. However, the responsibility taken on board by CIRA, and this has been by default rather than by design, goes way beyond such a local community approach. Connection for communities has spilled over into issues of ICTs governance.

According to the Pro-Vice Chancellor of the University, CIRA's Advisory Board, set up to capture a Teesside wide support for their work, and this has brought together the lead players in Teesside for ICTs development (interview with author, 28/4/97). There are a broad range of representatives from the public and private sectors cited as being involved in this process including, amongst others, the local press, Middlesbrough and Redcar local authorities, Teesside Tomorrow, the voluntary sector, the local TEC, the Rural Development Commission (as was), GO-NE, the Tees Health Authority, representatives from Ni, from CDOL, and from the telecommunications companies BT, Comcast Teesside and a local independent service provider (ISP) named Onyx.[7] Such a mix of potential partners is entirely consistent to that found in other case studies. The Advisory Group enables different member organisations to be aware of what others are doing, to share knowledge and networks, and to comment on the scope of the projects initiated. There is also a key role to be played here in terms of supporting the bidding process for funding for new projects. It was this Group, led by CIRA, who financed an audit of ICTs work in Teesside and the initial publication of a 'Tees Valley Informatics Strategy'.

However, that the strategy making process for ICTs and the day to day operations of CIRA have become entangled is not lost on local actors. One can almost see an analogy of the community development workers who initiated a neo-Marxist critique of the place based responses to housing policy and poverty in the late 1960 and early 1970s (see for example Cockburn, 1977) and, as a member of the CIRA Advisory Group suggested

> "it's rather a bizarre situation that a very small, very new, research unit has really found itself having to do things that it's not its job to do. We can't really do our project work, which is what we want to do, without actually setting up the things which should be in place and which should be the job of other senior people. I don't think there is a senior executive on Teesside who is pushing this forward. It is a bit odd. We are one of several movers and shakers. It could cause problems but we'll have to wait and see ... at the moment people are rather pleased that we are doing something."
> (interview with author, 8/4/97).

The University of Teesside has thus become a key player in the development of connection process and local response to the space of flows. The role of higher education in regional development has always been important but recently has received much more attention and as we are seeing, in ICTs development the role of a University is often significant. To this end, CIRA appears to have acted as a catalyst for bringing together the types of political and technological entrepreneurs that Graham (1996) refers to. However, the executive role of CIRA is weak and in addition the political fragmentation of Teesside has meant that more than one group has pursued the ideal of progress through technology simultaneously with CIRA. Not only TI, not only CIRA, but as the next section shows, the role of the TVJSU appears to have increased in prominence, particularly their involvement and leadership of the Tees Valley Informatics Partnership.

7.3.4 And then there was one: the role of the TVJSU

In the minutes of the Inaugural Meeting of the Tees Valley Informatics Partnership, held at Middlesbrough Football Club on July 14th 1998, it is stated that "CIRA and the University of Teesside are now handing the co-ordination of the partnership over to the JSU" (Available On-line at http://www.tvip.teesvalley-jsu.gov.uk/ no page number). The TVJSU, an organisation which as we have seen emerged following the break-up of Cleveland County Council began, for the first time, to exercise some control over ICTs in Teesside. The idea of a Tees Valley Informatics Partnership, something that mirrored that of CDIP, was taking shape and this began to be articulated across the sub-region (see Figure 7.2).

Reaching this point has been a long drawn out process on Teesside. Both of the TVJSU officers involved in informatics work, and interviewed here, felt that the abolition of CCC left something of a hiatus in Teesside. They also believed that it had exposed the five districts (including Darlington) to the vagaries of the global economy (interview held on 30/5/97). While they (the districts on Teesside) had each competed against each other for resources the mechanisms were in place for them to come together when necessary under the banner of many CCC initiatives. Now they sought to pursue their own particular interests without reference to each

other, and this, it was argued, weakened the strategic approach for the sub-region as a whole (interview with TVJSU Officer, 30/5/97). Even so, the Director of TVJSU was very much future focused and saw TVJSU as holding a key strategic role in the development of the local economy, arguing that "our role is to try and produce strategy on the way forward, on what sort of [ICTs] projects could bring others on board" (interview with TVJSU Officer, 30/5/97).

Figure 7.2 Extract from the minutes of the inaugural meeting of the Tees Valley Informatics Partnership

The future of the Tees Valley Informatics Partnership
John Lowther, Director of the Joint Strategy Unit, gave a presentation about the next step. CIRA and the University of Teesside are now handing the co-ordination of the partnership over to the JSU. At present funding proposals are in place to establish a TVIP office to based at the JSU. With the support of relevant partners, it is hoped an interim ERDF bid will enable the JSU to employ a person to provide administration and co-ordination for the partnership. A larger bid for a two year period will ensure 2 staff can be employed on behalf of the partnership to develop the strategy and support the sector groups in the future. It is anticipated that a person will be in post by September/October 1998. Their role will be as described in the strategy document (page 25).

Launch of the Strategy and Partnership
The Official launch of the strategy and partnership is being organised by CIRA at the University of Teesside. The launch will take place in the afternoon of FRIDAY 18TH SEPTEMBER at the University of Teesside. A Senior Government Minister will be the keynote speaker. Members of the partnership are invited to demonstrate their work and have a stand at the event and should contact June Ions at CIRA (Tel 01642 342710) should they wish to have a space at the event. A video-conferencing speech from Brussels can be arranged should any of the private sector organisations wish to provide technical facilities and co-ordination - again please contact CIRA.

Official invitations will be sent out to all members on the TVIP database over the next few weeks. If you need to confirm your details are on the database please contact the CIRA office.

(source: TVJSU web pages, dated July 14th 1998. Available On-line at http://www.tvip.teesvalley-jsu.gov.uk/ no page number given).

By the middle of 1997 then, TVJSU were beginning to think of themselves as a conduit for ICTs, building on their capability of bringing together the five local authorities to act in a coordinated manner. They began to regard themselves as an

important organisation in the development of ICTs governance on Teesside, despite the fact that other groups such as CIRA were already leading on initiatives, or as TI had tried, to make some attempt at bringing together a local partnership to push forward the informatics ideal. The TVJSU were more than aware of groups such as TI and CIRA, but they were convinced that it they who would play an important enabling role in the future shaping of Teesside informatics, as one officer argued.

> "Nothing could be worse than to set something up which already exists at the moment ... we are trying to use CIRA, there is a basis for that. They are after all, supposedly doing a strategy wide plan for Teesside ... CIRA tends to be rather community based, which is fine, but I'm more interested in the economic development implications [of ICTs]" (interview with author, 30/5/97).

The reasoning behind this statement is an implicit critique of why a group such as CIRA should be leading on ICTs on behalf of Teesside as a whole. More explicitly, there was a scepticism that such a group could plan out a strategy for all the component parts of local economic development. This, it was felt, was the TVJSU patch. So, given the difficulty facing the five authority's from going unitary, in terms of finding resources and attempting to establish their own identity within the region, it is little wonder that TVJSU saw their role as acting in some coordinating manner. They argued how, potentially, the competition for resources would deepen division in Teesside if no one body was able to bring the disparate interests together. Clearly, there are divergent interests which exist within the local government collective on Teesside, although as was shown in earlier extensive work, it was Middlesbrough Borough Council who had signified an preceding interest in ICTs for economic development (see chapter 3). What has followed is the Middlesbrough local authority showing greater interest and participation in TI, CIRA and the TVJSU than any of the other local authority's in Teesside.

While the role of the Tees Valley Informatics Partnership brings with it a capability to coordinate the interests of others, only very recently has any effort been made to consider this from a local authority perspective. Previous work uncovered how Darlington did not feel ICTs was a strategic priority (interview with local economic development officer, 22/2/95). Hartlepool did not believe that there was sufficient

demand in the area of ICTs for a dedicated resource (interview with local economic development officer, 10/7/95). Redcar and Cleveland were preoccupied with the problems experienced in traditional industries. Representatives from this council felt aggrieved that their economic decline was not being acknowledged by central government, and often did not receive the attention needed from CCC when they were in existence (interview with local economic development officer, 14/8/95). Stockton-on-Tees were then in receipt of major government investment through the Teesside Urban Development Corporation and had a successful City Challenge bid. They could also point to the Belasis Business Park that fell within their boundaries, boasting of a "Premier Technology Park" in which businesses could access technologies and workspace managed by ICI and English Partnerships. The Stockton view in 1995 was that there was a lack of leadership in the area of ICTs in Teesside (interview with business development officer and City Challenge officer, 25/7/95).

The emergence of the Tees Valley Informatics Partnership, with the TVJSU taking a lead role, has occurred within a context of equivocal direction for ICTs integration into the local economy. One reason for this has been the state of political fluidity that exists in Teesside, in part due to the winding up of CCC, and this has resulted in more than one group feeling responsible for the development of the ICTs domain. Unitary status was imposed, in a topographic manner, on Teesside and had the effect of initial local governance retrenchment. So much so, that in their overview of the Teesside economy the TVJSU reflect on how they should be the organisation to plan for the future of the sub-region, and how it is their responsibility to make some form of assessment on the strategic implications of ICTs on Teesside, albeit placed within a larger framework of social and economic development.

7.4 Summary: lots of good intention on Teesside

Work in Teesside on ICTs has been in progress since at least 1995. Overall, the efforts in Teesside have been diverse enough for a continued commitment to the technology in the belief that there something beneficial for local economic development. However, there has also been duplication of effort in Teesside. First,

it was TI who pursued this area, simultaneously CIRA began to working on new projects in a local community setting and at present, the TVJSU see themselves as the body to act on behalf of Teesside. At some point each of these organisations have attempted to lead on the governance of ICTs, and the shaping of a strategic response to the logics of the space of flows. In Teesside at times it has appeared that there are too many organisations each competing to lead in this field, a case of too many cooks spoiling the broth.

In the final chapter of this work the four cases are compared and the most salient points to be made are contrasted and drawn together. The work in Teesside has shown how issues of trust, knowledge transfer and learning between potential ICTs partners within Teesside has lacked the clear and legitimate framework seen in places such as Sunderland and Durham. This does not equate with a simple analysis of success and failure. We should not presume that because Sunderland has a clear strategy and partnership and Teesside does not that one locality is better at ICTs governance than the other. This is precisely the teleological perspective that needs to be avoided. Rather, in each of the case studies presented here, we can see, by mapping out the points of connection, how there is a consistency taking form in the way local economies are being juxtapositioned in light of the informational mode of development. Very importantly, we can also see that the partnership ideal is presently offering local players the only route forward in their attempts to develop an ICTs agenda which can resist and shape the dominant logics of the space of flows at the level of place.

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[1] As with chapters 4, 5 and 6, these figures need to be treated with some caution relying as they do on inconsistent definitions of industry sector. They should be seen as indicative of a broader trend of structural employment shifts.

[2] Middlesbrough won City Challenge funding in 1991, Hartlepool won funding in 1992 along with Stockton. Both Stockton (1991) and Middlesbrough (1992) had City Challenge bids rejected. Redcar and Cleveland (then as Langbaurgh) failed to win any City Challenge funds much to the disillusionment of the local planners (interview with author, 14/8/95).

[3] Comcast Teesside (now known as TNL after a 1998 take-over reflecting the dynamics of the media sector) have fast become an important business in Teesside. They provide a variety of services which include residential television, residential telephony, a residential music channel, business telephony

services such as leased lines and customised networks for companies based on ISDN technology. The company has a major input into the Teesside economy and to date (early 1999) investment in hardware and software stands in the region of around £250 million. Presently they employ about 350 people in Teesside, so simply on their own their economic significance has grown from nothing some six years ago. It is interesting to note that CIRA, Teesside Informatics, the Tees Valley Joint Strategy Unit and Middlesbrough Metropolitan Borough Council have all at some point, sought to capture the support of Comcast Teesside in developing a strategic orientation to ICTs and technologically led economic development.

[4] Trimdon Digital Village is a WWW site to which CIRA have made an important contribution. Trimdon is a small village in County Durham and is the home of the present Prime Minister of the UK. Tony Blair has been a keen supporter of the project from its early days when he was the Leader of the Opposition. For more on this see http://www.daelnet.co.uk/trimdon/index.htm.

[5] The six communities who are to be cited in the tender for funding include North Ormesby, Owton Rossmere, St Hildas, South Bank, Dormanstown and Grangetown.

[6] Teesside Forging Ahead was an education initiative aimed at testing the feasibility of putting schools in Teesside on-line with a range of multimedia software and hardware. The aim was to create a partnership of sponsors, including the TEC, local authority's, GO-NE, DfEE, Ni, BT, ICI, British Steel, Comcast, the BBC (North East) and others in the voluntary sector.

[7] Onyx are a Middlesbrough based ISP, a small technology based firm who are involved with CDOL and Ni. They have a history which is connected to MARI, the consultancy group involved in the Wansbeck Business Centre. It appears that there is an ecology of local independent consultants and technology advisors who have become very much involved in the ICTs development in the North East, through initiatives such as the European R&TD programmes and European Structural Funding.

Chapter 8

Shaping the space of flows: local economies and information and communication technologies

8.1 Introduction

In this final chapter, the aim is to provide a synthesis of the commonalties and differences from the evidence of the four cases, and from the extensive work. The whole focus of this work has been concerned with a new phenomenon which seems to be particularly suited to the final decade of the twentieth century: information and communication technologies. At the centre of this has been the dominant logics of informationalism which are presently allowing social scientists from different disciplines to gauge what is happening and to offer here, an explanation about why local ICTs partnerships have emerged to shape the space of flows. Yet this work has only touched on the myriad of social relations entwined in the emerging informational era.

These relations include loosely defined notions about cyberspace, utilitarian dreams of unbounded leisure alongside passive and socially cohesive communities who are supported by global electronic networks and communications. Alternatively, there are those equally disturbing dystopian nightmares of a future based on anomie because of the very same electronic architecture. Such a polemic has reached fashionable proportions, although the work here has been carefully steered away from these ideas for good reason, avoiding arguments for or against 'cyborg' culture founded on blurred boundaries of what is human and what is technological. As others have noted this is an imagined arena where

> "people interact continuously with simulated environments based on artificial intelligence, massive arrays of micro-computerised power, and virtual reality technologies which literally immerse people in multi-sensory worlds constructed by hardware and software ... [as h]umans and machines become fused in ways that make the old separations between technology and society, the real and the simulated, meaningless."
> (Graham and Marvin, 1996, p 107)

Likewise, this work has avoided common notions of 'superhighways' and 'impacts' of technologies and has placed technology and place in an academic language that

does not see the two as distinct but created by social, cultural, political and economic processes evident in contemporary life. The thesis has been about shaping the space of flows and central to this have been those political processes involved as local economies and ICTs combine.

While there are still many unanswered questions concerning this phenomenon the emphasis here on the logics of connection and on the space of flows has paved the way for two key research themes. First, points of connection in local economies have been mapped out which have indicated their associated political processes. This has allowed for an analysis of the discursive nature of connection in each case study. Second, by looking in more detail at the processes involved in local ICTs partnerships, such as CDIP and STWG, an initial explanation has been provided concerning the way political mechanisms are being established to shape the space of flows at the level of place. This has brought into the investigation issues that would otherwise remain uncovered, such as how ICTs become grassrooted at the level of place and the contestation that hides underneath the development of ICTs partnerships and projects. To restate an important point from this part of the study, the space of flows is a contested space.

8.2 Revisiting the key research themes

At this stage of the thesis it is worthwhile reiterating one or two points about case study selection. Each case has focused on a different environment and different geographic context. Sunderland is a place with city-wide initiatives, Wansbeck is a semi-urban location in a rural county, the Durham case has been about county level development and in Teesside the divergence amongst governance groups is a reflection of the dismantling of Cleveland County Council. These are qualitative differences and in some instances have been a causal factor in the make up of the local response to ICTs. In each case there is evidence of how place is bound up with the pervasive nature of ICTs reinforcing the points made by Castells (1989; 1996) concerning the dialectic between the space of flows and the space of places. None of the cases are closed off from other parts of the region because, as an area of study, local economies "cut across many structures and causal groups in a 'chaotic' fashion" (Sayer, 1992, p 250). They were chosen on the basis of earlier extensive

work (chapter 3) which provided an ideal typology of local economies and ICTs in the North East of England. This taxonomy began to indicate a number of common points of connection as ICTs have increasingly been regarded as a tool to support the restructuring and development of local economies.

The internal validity of case selection was made explicit from the outset of this work. The research was designed to support a logical flow of argument that incorporates such extensive patterns, and then to investigate separately the intensive processes at work in each chosen locality. The methods employed, and the data that has been collated, is appropriate, therefore, to 'measure' the characteristics of ICTs in local economies. At the very least the cases indicate some form of typicality of connection to the informational mode of development and how the space of flows is shaped at the level of place. Yet within their own context, each will be unique, determined by the mediated responses of local actors to a multitude of social relations, structures and processes. The knowledge to be gained from studying this phenomenon supports the development of new theory, which is more generally applicable in the field of social science, on ICTs in local economies (Sayer, 1992).

The research was initially broken down into two component parts. The first has been about the *logics of connection*; that is the underpinning rationale to why and how local economies connect to the informational mode of development. One of the main objectives in this part of the investigation was to try to unravel how the idea of an informational mode of development helps to explain the ICTs phenomenon that is taking place in local economies, and as part of this to look for a logics of connection. The second component has been about *shaping the space of flows*. A key issue here has been to consider the local governance of the space of flows and this has focused on the partnerships that have emerged to govern the connection process. These components form the basis of the two key research themes in this work, set out in chapter two as follows.

1. Can we identify connection to the informational mode of development at the level of the local economy?
2. Is the local governance of ICTs capable of shaping the space of flows?

This approach contrasts sharply with the simplistic conclusions often made about the way ICTs represent a fundamental change in society or those policy initiatives that equate new technologies with numbers of jobs created. Yet it is consistent with the view of Castells (1989) when he stresses that the informational mode of development is not merely a product of new technologies. It is also an approach which challenges the idea of ICTs being an automatic response to the demands of new political and economic structures. These research issues sit at the apex of this study reinforced by two fundamental developments in contemporary western societies. First, there is a technological aspect to this whereby

> "the strategic role played by high technology in economic development draws the state to concentrate on providing the required infrastructure, downplaying its role in redistributional policies."
> (Castells, 1989, p 30).

Little evidence has been presented here to argue that the local state is displacing policies of social welfare with economic objectives based on ICTs. Such an argument would be crass and would take attention away from how the provision of an ICTs infrastructure in a strategic way supports the restructuring of capitalism. The points of connection outlined in each of the cases reflect how way local economies are being developed to support this process. Second, there is the organisational aspect of change and particularly that concerning the levels of flexibility within informationalism, whereby places exhibit new forms of relationship involving the public sector and partnerships with private organisations (Borja and Castells, 1997; Castells, 1989). This blurring, of the distinction between the public and private spheres, is an essential part of recent efforts made to shape the space of flows.

8.2.1 The logics of connection: a review of the research questions

The logics of connection refers to the way local economies are connecting to the informational mode of development. The mode of development is about the techniques (of development) which can enable economic growth (Castells, 1989). The informational mode of development coincides with processes of economic restructuring that are increasingly dependent on unleashing "the technological and organisational potential of informationalism" (ibid., p 29). It was suggested in chapter 2 that the logics of connection can be deconstructed further into two parts.

First, exactly just what it is that is being connected as local economies come to terms with the shift to (and new potential of) the informational mode of development. This is concerned with the basic components of the local economy and those which are most appropriate for connection. While funding for particular projects are obviously important, concentrating on this factor tends towards a description of local activity (Gibbs, and Tanner, 1997) and misses the relevance of connection. More important is how connection becomes a salient part of the local economy and how the connection process becomes embedded in the trajectory of the local economy. Embedding ICTs is only achieved through complex relationships between actors in the local economy, but the outcomes of these lead to a much more meaningful consequence of ICTs than the simple aggregate of uncoordinated effects of various projects.

Second, there is the discursive nature of connection. The discourse of ICTs in local economies works towards demarcating ICTs initiatives within a locality and involves processes of strategic selectivity as particular ICTs projects are pursued at the expense of other initiatives, be they ICTs related or not. This is because of the way ICTs development supports the many image recasting and place marketing processes to be found in all local economies, through the display of a number of new signs and symbols about place, progress and technology. This Foucauldian notion has been used to pick up on the way connection has been represented to a variety of stakeholders involved in local ICTs, and also beyond such a grouping to a wider regional, national and international audience.

The following four research questions were set out to investigate the logics of connection.

- What points of connection can be identified between local economies and the informational mode of development?
- How established are points of connection in the local economy – in terms of their embedded nature?
- How do ICTs projects become a legitimate (if not hegemonic) part of economic development?

- How are ICTs strategies demarcated from other economic spaces (i.e. regional and national development), particularly in the sense of their discursive formation and visions of the future?

8.2.2 Shaping the space of flows: a review of the research questions

One of the key areas of this part of the research was to analyse and compare the control local actors exert over external and internal features of connection and therefore, how they try to shape the space of flows. The concept of the space of flows is about the interactions between actors whose behaviour, strategy and policy shape the way informationalism takes hold in society. ICTs in the local economy are interwoven with what Jessop (1997) calls the supra local economic environment – or the globalised economy – and the extra economic environment such as the local education system, local health and welfare, and the local community.[1] In this "complex web of causality" (ibid., p 60), clearly, not all elements of connection will be under the control of local actors. One response is through a discursive process of connection and in each of the cases studied the formation of such a discourse has required a political machinery for its constitution.

Most important here is the role of actors who make a conscious effort not only to shape local connection to the informational mode of development, but also to shape outcomes from the processes of connection. This is an iterative action. Its manifestation are the local partnerships and coalitions that have emerged to manage the connection process, including organisations such as Ni, the Wansbeck Initiative, CDIP, Sunderland Telematics Working Group and CIRA. The whole shift towards partnership status builds on Harvey's (1989b) idea of entrepreneurial governance but also on the notion of business elite and, to a lesser extent, a new wave of corporatism (Peck and Tickell, 1995; Shaw, 1993).

The research questions for this area were as follows.

- How is the space of flows mediated (controlled and shaped) at the level of place?
- How do ICTs partnerships achieve credibility?
- What role is played by the political and technological entrepreneurs in shaping the space of flows?

The local governance of the space of flows has emerged as a crucial concept during this work. It is here, through the interaction of ICTs and processes of social change, that the relationship between time and space, and the form, function and meaning of the local economy, is shaped.

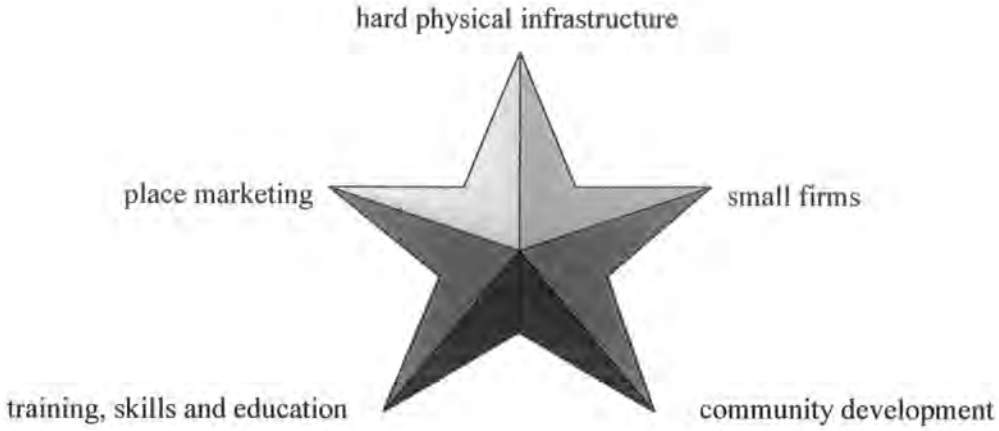
8.3 The logics of connection: the evidence from the four cases

The points at which local economies interface with the informational mode of development, the levels of ICTs embeddedness and the discourse of ICTs create a logic of connection. From the evidence of the four cases we can see that points of connection have a generalised shape, that embedding ICTs in local economies is qualitatively different from having broad levels of ongoing ICTs activity, and that the discursive nature of ICTs not only reinforce embeddedness, but also means that ICTs are a contested space in the local economy.

8.3.1 Points of connection

In each of the four cases there is a consistency about the points of connection. It follows the same logic as many other types of local economic initiative, from prestige projects, to boosterism and local labour skills upgrading (cf. Boyle, 1997; Eisenschitz and Gough, 1993; Hambleton and Thomas, 1995). In so doing, the process of connection lays the foundation to "shape both the spatial and temporal horizons to which economic and political decisions are oriented" (Jessop, 1997, p65). Connection is sought through hard ICTs infrastructure build, by encouraging small firms to use the technology, by initiating community based projects, through the provision of training and education initiatives and by place marketing aimed at new inward investors. To a lesser extent, sometimes the notion of citizenship is wound up in the process of connection and often this a product of the local authority having an influential role in ICTs initiatives. Although each of these points of connection appeared to some extent in Sunderland, Wansbeck, Durham and Teesside, the weight attached to them differed.

Figure 8.1 The points of connection between the local economy and the informational mode of development



In Sunderland there were three explicit areas cited for connection (see section 4.2.3). The Intelligent City acts as a bridge, bringing together notions of citizenship and community development, and is aimed towards empowerment, new employment opportunities and a developing dialogue between local people and governance agencies. Yet in their computopian path Sunderland still have much to do to turn many of the items on their 'wish list' into viable projects, such as their desire to set up Electronic Village Halls. The other 'intelligent' aspects of Sunderland connection (the Intelligent Housing Estate and the Intelligent Democracy Project) at present hold more symbolic power than physical presence.

The second point of connection in Sunderland was the focus on Education and Training. Here, the main objectives were about awareness raising but also support for a city-wide base of ICTs labour skills presumed to be attractive to new inward investors. Key delivery agents include schools, further education colleges where the work interfaces with the NCN, and of course higher education qualifications from the University. Call centre training is important but limited at this point to the developments at Doxford, but increasingly justified by the location of a number of information processing centres such as the recent arrival of Barclaycall, the telephone banking company.

Business is the third point of connection in Sunderland. The idea is to develop the city's economy so it has a distinctive association with 'telematics' and this is linked

to the aim to see Sunderland as the leading edge ICTs city in the region. This complements the move away from a traditional economic base, of coal and ship building, and towards a set of manufacturing principles established by Nissan, and the control of the latter over local suppliers through lean manufacturing and Just-In-Time production methods. ICTs can have a distinctive role in this type of production method and this is the reasoning behind a number of local initiatives aimed at increasing ICTs awareness among local Wearside companies. Larger firms are being encouraged to tap into an information processing industry base drawing on skilled labour, while smaller firms are benefiting from University based consultancy on how to use the technology.

A key business exemplar in Sunderland is the development at Doxford International Business Park (section 4.3.2.1). Doxford is being developed as the clearest route to connection and offers Sunderland much in terms of ICTs capacity. The City of Sunderland Teleport is located on Doxford and rests on an electronic infrastructure common to all contemporary business site development, having ISDN capability, and additionally, there are plans for satellite communications to be situated on the site. In its own right, the Doxford Teleport captures many of the points of connection like infrastructure, training, citizenship (teledemocracy) and new ICTs business start up. The weight of connection in Sunderland tends towards tangible development at Doxford supported by much more idealised objectives that may have to wait for implementation.

Wansbeck connection has a degree of consistency with that at Sunderland. Points of connection include the Wansbeck Business Park, the Wansbeck Business Centre and Citycard initiative. Connection in Wansbeck has become embedded into the restructuring of the local economy and attempts have been made to develop a suite of initiatives with a technological emphasis (see section 5.2.3). The Wansbeck Telematics Initiative is an important part of the Business Park and includes a Teleservices Centre, a Research and Development Centre and a Training Centre. The Teleservices Centre is aimed at building a Wansbeck ICTs capacity for business support, and looks to involve both small and larger firms in possible supply chain development and facilities management for ICTs. The Research and Development Centre exists to underpin the development of a local mass of businesses that are

technologically competent, and which can support the diversification of the economic base of the area. The third arm of the Wansbeck Telematics Initiative, the Training Centre, is targeted at providing the skills needed to support the local economy, specifically in the field of ICTs skilled technicians.

While the Citycard tends towards electronic public information dispersal it is notable that plans for this project have a bias towards local economic development. The interface between the Citycard and the local economy is through the provision of on-line information, primarily to support new inward investment, company start-up, community development, training and employment opportunities and place marketing (section 5.3.2.2). The Citycard fits perfectly onto the generic points of connection suggested in Figure 8.1 but overall, the most important connection points in Wansbeck are again illustrated through the tangible presence of the Business Park, although on a much smaller scale than the Doxford site.

The county-wide initiatives coordinated in County Durham again show a similar set of local points of connection to the informational mode of development. The four main areas are focused on infrastructure, business, place marketing and a community focus through education. Infrastructure build proved to be something of a learning experience for those involved in CDOL with the result being that the emphasis on physical development lessened as the programme of ICTs initiatives unfolded. Nevertheless, through the work of Derwentside District Council we can see a concerted effort and achievement in building hard infrastructure, although this physical infrastructure is more problematic across the rural space of Durham than in a confined urban or semi-urban space of Wansbeck and Sunderland. The difficulties of establishing a physical focal point for Durham ICTs has resulted in a slight shift towards education, training and lifelong learning, but recently CDOL have become marginally involved in space bound initiatives such as 'incubator' managed workspace which associates University of Durham science and engineering graduates with new business start up on the University Science Park – an obvious but slow moving attempt to replicate the technopole phenomenon.

A striking feature in Durham is the TEC-led CDOL development focused on small firms as a recipient of ICTs. Projects such as PAGE show a commitment to a

particular aspect of connection, one that has the small businesses of the county (or at least those 'touched' by the CDOL experience) acting as a metaphor for the type of small firm sector idealised through connection (section 6.3.1.2). The Durham Colleges Network, the Business Link Network, the Virtual Reality Project, the ELECT initiative, the Cyberskills Workshop, the Pentagon Project and so on (Table 6.3) illustrate the key points of connection for small firms on a county-wide basis. To a lesser degree, but still significant, Derwentside District Council has led the way on community ICTs through projects such as the Stanley Infonet and the Durham RuralNet (section 6.3.1.1). Interestingly enough, these projects have also focused on developing the electronic architecture which, it is believed, is deficient in many rural parts of the County.

Points of connection on Teesside are much more difficult to discern. Two distinct points of connection are the cable laying responsibilities of Comcast and the community ICTs work of CIRA, yet these differ markedly from the three previous cases. One is led by the private sector, an organisation which is part of a multinational telecommunications company but has a strong local presence; in contrast the other has a social dimension involving a public sector organisation. Recent infrastructure build by Comcast has seen some £250 million invested in Teesside and they will be looking to achieve a return on this investment as the new century dawns. IT business support is mainly the prerogative of Business Link and Teesside TEC, while education and training in technology is delivered through CIRA, the local further education colleges and TEC, with the University of Teesside initiating various research and development projects involving virtual reality and electronic commerce (see Table 7.2). The work of CIRA shows one embedded aspect of ICTs development in Teesside centred around community development, community empowerment and tackling ideas about social exclusion from the informational mode of development (section 7.2.2.1). Connection on Teesside dispels somewhat the argument made elsewhere that ICTs follow funding patterns, as Teesside has pulled in some 20% of the region's total SRB funding, amounting to around £75 million. However, at the same time it reinforces the argument that connection should not be measured simply by number of projects alone.

8.3.2 Levels of ICTs embeddedness

Although in each of the cases there is a consistency between points of connection the weight attached to the connection processes differ. Wansbeck and Sunderland demonstrate a physical presence, Durham pay most attention to small firm development and in Teesside, while many projects exist, the only area were ICTs have become a coordinated and embedded part of local economic development is through the work of CIRA. Levels of embeddedness refer to the importance of ICTs in the local economy and is founded on the belief that ICTs are an important part of a new industrial space created through the informational mode of development (Castells, 1996).

In Wansbeck, the demise of the coalfield is wound up with a drive to overcome perceived peripherality, something which is felt with a degree of indignation by those included in the Wansbeck Initiative circle; in Sunderland there is the recent past and dependency on too few industries, something that dragged the city into a spiral of decline as the UK government pulled back from providing specific industries with direct support. There is also a belief in Sunderland that a new city is being created, rising like a pheonix from the ashes and moving away from the end of a Fordist era. This is based on a new set of business principles led by Nissan, endorsed by the City of Sunderland Partnership and replicated (as much as they can be) within the City of Sunderland local authority.

For County Durham the uniqueness felt by local actors is related to the rural setting in which they operate. Paradoxically, it is also the thought that the small firm sector is not what it should be, and moreover, the belief that Durham is 'ahead of the game' through its relatively early introduction of an ICTs strategy. In Teesside it is not possible to determine a collective uniqueness despite the recent work of TVJSU. Here the decline of the two major industries – steel and chemicals – has left an important legacy. Their presence may well be limiting the development of other forms of economic space, including ICTs development, but until very recently, there has been a lack of partnership structure to push forward ICTs development.

The strategic development of points of connection give a holistic logic for ICTs in local economic development. Such a logic, as Graham (1996) has suggested, is an

embedding process which tends to 'lock in' particular objectives for ICTs. When this lock in occurs it has an effect of closing off other routes which may equally be as beneficial to the local economy. In Wansbeck lock in has occurred most notably through the Business Centre as the efforts to pursue economic development mean "all the eggs are placed in one basket" (interview with Wansbeck local activist, 10/12/96). In Sunderland, the embedded nature of connection is over dependent on Doxford and raises the question about one type of development pursued at the expense of others. The work of SCFS Ltd. in Sunderland (section 4.3.2.2) receives much less support from the City of Sunderland Partnership than Doxford does, but could offer an equally important role in embedding ICTs. Across County Durham embedding is reliant on the work of CDOL who have focused on small firms, and in the local Derwentside community efforts, were the local authority have tied development in with the expansion of a physical ICTs infrastructure of wires and cables. In Teesside, the lack of a partnership push has limited the extent to which ICTs has become embedded in the local economy, albeit with the exceptions of limited areas pursued by CIRA (see section 7.2.2.1).

Far from embedding leading to a world of seamless connection, the ICTs strategies we have seen in the four cases are about attempts to localise benefits from the technology. They support and become part of the competition between places, even at the level of simplistic and rudimentary competition whereby Sunderland competes with Teesside, or Durham with Northumberland, for funding from Europe or UK government. As well as being sites of contestation, points of connection are also contradictory. They can open up more benefits for global participants, as they gain greater access into the North East market place or intensify the influence of powerful absent others, both of which can bring new jobs and local wealth, while at the same time, they can act to close off other forms of local economic and community development.

Graham (1996, p 63) suggests the more ICTs projects become embedded the more they develop inertia and "become structural constraints, confining the political and technological room for manoeuvre of policy in the future." The evidence here suggests that it is the funding mechanisms which produce apathy and indifference and that when ICTs projects are led by the competition for funding, inertia is indeed

one possible outcome. In Teesside it is not so much inertia that has manifest but a set of chaotic political mechanisms that prevent ICTs becoming more than a sum of funded projects. Points of connection and lock in – whether good or bad – can only be secured through the commitment of local actors to the ICTs cause. The drive by local actors to embed informational initiatives is a clear attempt to set the local economy on a particular trajectory and to create new economic space. A crucial aspect to this is the development of an ICTs partnership which itself becomes important to the processes involved in embedding the technology.

8.3.3 The discourse of ICTs: the processes of legitimisation

It is how different actors in the local economy coalesce around ICTs that results in ICTs projects becoming a legitimate part of economic development. The four cases show the different ways that a common commitment to ICTs is achieved, and how a discursive formation is constituted as the technology is interpreted in different ways by often incompatible groups. This, in turn, continually reconstitutes the discourse of ICTs and supports the process of legitimisation by producing a new logic for finding appropriate players – partners in the strategy making process – and funding. So for instance, the argument goes that localities can be better marketed through the use of multimedia technologies and WWW pages, communities can be empowered by receiving on-line real time information in the struggle against social and economic exclusion, small firms can act like big firms by gaining access to global markets, and locational decision making can be positively influenced by the presence of a state-of-the-art electronic infrastructure and an ICTs-literate local labour force. It is the perceived potential of ICTs that draws together different groups as they each see the technology in the context of their own problems, and importantly, see an answer to those problems through a common commitment to work together.

This process of legitimising is strongly related to the way in which ICTs in local economies become a set of accepted and relevant concepts and projects represented through an ICTs strategy. It is paradoxical that, on the one hand, ICTs strategies offer something new, while at the same time there is a chance that their uniqueness dissolves and melts into air because their aims, objectives, symbolic character and path to the future are replicated widely. In the eyes of those who have not built up such a strategy, ICTs are reduced to a marketing initiative or to a set of glossy

brochures. Alternatively, for those who have committed resources in this way ICTs strategies come to represent a new vision of place. There is a fine line between these two positions but the evidence here suggests that the stronger this vision is, the more legitimate are ICTs points of connection. The more legitimate the ICTs points of connection are, the more other routes to pursue economic regeneration and development are closed off. There are clear choices to be made with respect to ICTs development, that contrast with support of traditional industries, or for community or resident association initiatives, or for large scale manufacturing or for labour intensive public sector services, and so on. The stronger the discourse of ICTs is, the easier it is for local partnerships to open up many varied and orthodox avenues for ICTs application and development. While the entrepreneurial character of the partnership ensures the search for new types of development and keeps at arms length the inertia Graham (1996) refers to.

The discursive nature of ICTs is construed in many different ways. One important point to draw from this is how the discourse of ICTs can transcend distinct class positions. In Sunderland the local authority is an important player in the construction of this discourse because their involvement in ICTs is, as Bellamy and Taylor (1998, p 117) would argue, an important part in the management of 'consumer democracy' (to resist a situation of 'information haves and have nots') supported by the City Council's claim to be accountable in a representative democracy (see section 4.3.2). Sunderland businesses accept this, and regard ICTs initiatives favourably because of the physical presence of a hard and soft ICTs infrastructure that provide them with direct benefits. The discursive effects are furthered through the interpretation of those in local educational institutions who are given a key provider role in the field of ICTs and see their interests being perpetrated in a complementary way to both business and local citizenship. For local Sunderland communities, some of whom have continuously been subject to the vagaries of a system that results in inequality, hardship and unemployment, they too become part of the locally constituted ICTs knowledge base. They access local decision making machinery (the Partnership and the Telematics Working Group) and influence policy. Local community groups and the voluntary sector are able to develop their own discourse within the broader discursive formation, through initiatives such as the Computer Recycling Project run by the SCFS Ltd. and the knowledge they hold about community matters.

Wansbeck, with strong traditional ties to labour mainly through the NUM, also has its own set of legitimising processes. Through these, labour is a part of the framework established by the Wansbeck Initiative and involved in the fight to secure new inward investment. So too does business, but whereas for capital the Initiative can become "an anchor to bring on board new company's and new ideas" (interview with MD at Alcan, 17/6/96) for labour the partnership underpinning the Initiative has already breached issues of accountability and has impinged on the role of local democracy (interview with trade union representative on the Initiative, 22/7/96, see section 5.3.2). In Wansbeck, but also in Sunderland and Durham, business interests are "selectively modifying a largely pre-given agenda, then, by virtue of their presence, legitimising this to the outside world" (Peck and Tickell, 1995, p 72). In all cases, the idea that the technology is politically neutral is important as it helps bring very diverse groups together.

The vision for the future in Wansbeck is about the imagined transition of an area. The representatives on the Initiative become integrated through this imaginary future of how an old industrial area can be transformed into a new high tech locality built on land previously run as a state-supported deep coal mine. The strong focus on change which the Initiative represents reduces the problems of the old industrial setting of Ashington to the heritage of a reinvented Wansbeck. The communities of Wansbeck will some day benefit from this because there will be a steady form of employment. While business benefits because of immediate access to flourishing local markets and recognition that Wansbeck fits into the dynamics of a global economy. The state benefits by reinforcing its role as facilitators of compromise and by being the ultimate owners of such a 'blue print' balance. In this 'win – win' situation even if ICTs development is part of a fashion or bandwagon, attention can be shifted towards other global trends such as sustainable development, renewable energy and Local Agenda 21. The discourse of ICTs in Wansbeck has not only legitimised initiatives such as the Business Centre and Business Park, but has shaped a new method for overcoming the peripherality of their location.

For County Durham legitimisation has not followed the same route as in the much more confined spaces of Wansbeck and Sunderland. The discourse of ICTs in this

case show how problematic it is to present business claims as universal claims (Peck and Tickell, 1995) and to balance issues of accountability with business development. The work of CDIP and CDOL has been led by the local TEC with a number of local authorities involved, but the levels of 'democratic accountability' in the Durham partnership is much less apparent than in either Sunderland or Wansbeck. The remit of the Training and Enterprise Council in the county means that by default enterprise and education are the main features of the work. The small business sector is visibly supported and small firm pressure groups such as the Durham Small Business Club and the North East Chambers of Commerce have good access to the partnership to articulate their views on Durham ICTs development.

There is also evidence to show how competing discourses are incorporated. In County Durham as the legitimisation processes have unfolded, local councillors and community activists from Derwentside have made their views on ICTs development known at the district level through the Stanley Infonet. Business is directly involved in supporting the local Derwentside initiatives through a local cable company involved in the RuralNet initiative. This is one reason why CDOL have integrated a key technological entrepreneur from Derwentside into their Executive Board. Whereas in the case of Teesside, the legitimisation process is clearly being contested at this very moment and the evidence laid out in chapter 7 shows a number of competing discourses around the issue of ICTs. The Tees Valley Joint Strategy Unit, CIRA, Teesside Informatics, and Middlesbrough Borough Council have all been involved in attempts to constitute a new knowledge of technology for the benefit of the Teesside population. This is a clear indication of how ICTs has become not only a negotiated space within partnerships, but a contested space between partnerships.

8.3.4 ICTs – a contested space

While the political entrepreneurs behind connection are able to articulate their vision for the future, competing voices struggle to be heard. There are questions raised as to the relevance of ICTs for economic development and concerns over what other forms of development are displaced. Arguments are made that state-of-the-art ICTs on a business park are irrelevant (see chapter 5). While for some the best that can be offered is the dynamism of the economy in twenty years time, jam tomorrow, when the ICTs pay off will manifest (interview with a local authority councillor, 14/11/96).

The legitimacy of the new economic space is contested, in one case some local activists were

> "not aware of the Wansbeck Initiative achieving anything substantial [and ask] what has it brought to the Wansbeck area? Nothing new ... Ashington is deprived, there are second class citizens in Ashington" (interview with member of the Wansbeck Initiative, 10/12/96).

This is what Jessop (1997) refers to as the ethico-political rationalisation which constitutes particular economic development projects. As some projects are pursued over others alternatives that question why places should compete in, and embrace, the globalised economy raise pertinent points about the mechanisms needed to embed economic development within a locality. Yet the key point is that through the partnership process "[p]articular forms of economic and political system privilege some strategies over others ... some interests over others, some spatial scales of action over others" (Jessop, 1997, p 63). This is entirely compatible with the evidence presented here about ICTs.

Visions of the future are about harnessing the benefits flowing from advances in ICTs to create a more robust, diverse, prosperous and self-sustaining economy (County Durham Informatics Partnership, 1997). These are visions that paint a picture of the future by using metaphors such as the 'intelligent city' and 'cyberskills' and relate to issues that are of concern to the many local stakeholders in their day to day affairs of providing public information, accessing markets in distant places, and supplying new opportunities for learning and gaining employment (City of Sunderland Partnership, 1996). Some argue development is too subjective, noting how "costings are plucked out of the air" (interview with member of the STWG member, 16/6/97), while others see the technology as a neutral artefact, for instance by providing the voluntary and community groups with a legitimate presence in the field of economic development (interview with STWG member, 30/6/97). Even more contentious, some see their own field being encroached by new entrants into the technology domain, thereby reinforcing ICTs as "a highly political arena rather than a technological one" (interview with STWG member, 16/6/97). Thus, while the connection process displaces other forms of economic activity, it is also contested within the ICTs scope of operation itself.

However, contestation is witnessed most markedly in the region through the dynamics that lie between Ni and a number of other groups involved in ICTs at a much more local level (see section 3.3.2). Ni have struggled to acquire the legitimacy which partnerships such as CDIP, STWG and the Wansbeck Initiative have achieved. Ni are troubled with the replication of initiatives at a local level where they have little control, yet at the same time, this unelected body are implicitly concerned that they do not have the authority to bring a number of diverse local ICTs groups under one umbrella. For Ni the hope lies in a realignment of cooperation and knowledge transfer between localities in the search for new methods of development, supported by a new political emphasis on regional development through the Regional Development Agency, One North East.

As ICTs are incorporated into North East localities the logics of connection can be seen firstly at those points were the local economy interfaces with the informational mode of development. These points, common across all places, become embedded through political processes of strategy making, something that differs across local economies. This difference provides a uniqueness of connection, carefully articulated by developing a strategic capacity, or legitimacy, around ICTs, and underpinned by a discursive formation with associated visions of the future and symbols of new potential for place. As this is constituted it can close off other forms of economic development and brings into the local economy ICTs as a contested space. Finally, the competing agendas and ideas that model the way connection takes place have to be negotiated and local ICTs partnerships enable this through the political mechanisms that shape the space of flows.

8.4 Shaping the space of flows: the role of ICTs partnerships

Shaping the space of flows is more than the local governance of connection. It is here where local actors play out the strains and stresses, the contradictions and dialectics, of the emergent spatial logic – the space of flows – as connection takes place. If, as Castells (1996) argues, the

> "dominant tendency is toward a horizon of networked, ahistorical space of flows, aimed at imposing its logic over scattered, segmented places, increasingly unrelated to each other"

(ibid. p 428).

then how are local places to respond? Or more specifically, how are the key actors in local places to respond? The simple answer, which reflects recent trends in the nature of local governance, is through ICTs partnerships.

8.4.1 Mediating the space of flows at the level of place

The main mechanism to mediate the space of flows at the level of place are the local partnerships which form around ICTs. In Sunderland this has been the prerogative of the Sunderland Telematics Working Group under the auspices of the City of Sunderland Partnership; in Wansbeck it is the partnership that has formed under the auspices of the Wansbeck Initiative which holds this role; in Durham it is County Durham Informatics Partnership with specific responsibilities afforded to County Durham On-Line; while in Teesside the most recent group is under the direction of the TVJSU but there are others, such as CIRA, involved.

The processes of legitimisation and strategic selectivity described above, are very much part of the partnerships sphere of influence. The partnership is a political mechanism that tries to establish some form of institutional control so, at the level of place, the space of flows can be controlled to reach some functionality, preferably directed towards economic development. It is not unusual to see efforts to mediate the space of flows that are aimed at inducing a new informational culture based on the entrepreneurial behaviour of local businesses.

> "When new services do come on-line, companies in County Durham will be positioned to take them on quickly, so really the whole thing is about creating a different sort of culture where people are more adaptable and open to change; where they feel comfortable and are able to spot if there are benefits..."
> (interview with CDOL member, 17/12/96).

In other instances, mediation by the partnership can enhance the global – local nexus through "global business and language" which permits place to be simultaneously global and local (interview with member of the STWG, 30/6/97), or by providing the basic ingredients for the industries of tomorrow, to reduce geographical isolation (interview with member of the Wansbeck Initiative, 22/7/96).

The mediation of the space of flows is an initial step in the defence of place. ICTs partnerships attempt to resist the new dominant logic on behalf of their own location, as over time, the space of flows imposes a new structural and physical form over place. The space of flows is, simultaneously, present in local economies and removed from local economies. However, there is nothing predetermined in this dialectic. Important aspects of social consciousness and behaviour are settled through the interaction of actors in key private organisations and public institutions, creating a dialogue based on a strategy for dealing with informationalism. Without this initial first step, places such as Teesside will find it increasingly difficult to use ICTs to benefit their place. Mediation is designed to resist what Castells (1997b) terms a shift from exploitation to irrelevance, or worse still, that communities or neighbourhoods may fall into a black hole of informational capitalism (Castells, 1998a, pp 161 – 165). In fact, the more solid the partnership is, and the more they can point to a legitimised set of connection points and rigorous discourse of ICTs, then the more confident they will feel in taking future steps to configure this dominant logic. This, therefore, is a mediation of both structure and agency that sits right at the very centre of the dynamics of ICTs partnerships.

8.4.2 The dynamics of ICTs partnerships: their form and purpose

Overall, ICTs partnerships are not principally different from other forms of partnership.[2] Those such as the TVJSU (section7.3.4) see themselves as a catalyst for partnership development which would precede ICTs in economic development. The STWG regard themselves as a continuation of a partnership approach that has already achieved city-wide legitimacy for local economic restructuring (section 4.3.1), and in Wansbeck, the Initiative captures both economic development and informationalism in the same movement (section 5.3.2). In Durham, CDIP are a loose based coalition of many interested parties (section 6.3.2) but have, to their benefit, a sharper edge in CDOL – a body constituted to 'get things done' (see section 6.3.3). It is common to find local ICTs partnerships resting on informal agreement and involving people who come together to in the strategy making process.

Table 8.1. The scope of ICTs partnerships in the North East

Partnership (date)	Coverage	Key Partners	Strategic Focus
Northern Informatics: a quango led group operational since 1994	The North East region	Involvement is wide ranging but includes: Local authorities Chambers of Commerce Regional TUC Region's universities Representatives from local groups such as CDOL and STWG	Economic development is the main focus through business initiatives, mainly the SME sector but currently, the medium size firm sector is attracting attention. Ni is looking to upgrade the informatics capability of the region.
Sunderland Telematics Working Group: led under the auspices of the City of Sunderland Partnership and operational since 1996	The City of Sunderland	Local authority (officer led with key member support) University TEC Sunderland CVS Community groups Some local business pressure groups	Economic development and city wide regeneration through telematics and marketing of the Doxford Business Park as a Teleport.
The Wansbeck Initiative: led by the local authority and operational since 1994	The district of Wansbeck	Local authority (member and officer led) County Council English Partnerships Local businesses Local trade unions Local F.E College TEC and Business Link GO-NE	Economic development through new inward investment and managed sites, particularly the Business Park and Business Centre.
County Durham Informatics Partnership: led by the local TEC and operational since 1995 but importantly has County Durham On-Line acting as the formal executive body	County Durham	TEC led County Council Some local district councils take part University (the Business School) NE Chambers of Commerce Local F.E Colleges Business pressure groups Local school representatives Local IT consultants	Economic development through upgrading of local skills base, local small firm sector and local primary, secondary and tertiary education provision.

Table 8.1 continued. The scope of ICTs partnerships in the North East

Partnership (date)	Coverage	Key Partners	Strategic Focus
CIRA: a group led from within the local University of Teesside, operational since 1996	Specific communities (villages) in County Durham and Teesside	University and on the Advisory Board local press, local authorities, Teesside Tomorrow, the voluntary sector, local TEC, RDC, GO-NE, Tees Health Authority, representatives from Ni and from CDOL, local technology suppliers	Communities, and in particular, training development and new skills initiatives.
Teesside Informatics: led by the local TEC and became operational in 1995 but now defunct	Teesside	Local TEC Local authority Local F.E College	Education initiatives.
Tees Valley Joint Strategy Unit: falls under the auspices of the local authorities in Teesside, have been operational since 1996 but their ICTs work initiated in 1998	Teesside	Including: TVJSU Teesside TEC Chambers of Commerce CADCAM Centre University of Teesside Middlesbrough Borough Council Stockton Business Centre	A wide variety of initiatives being collated as part of the strategy making process and partnership initiative. Includes education, business and public sector development.
Middlesbrough Borough Council: the Framework for Innovation, Technology and Communications group operational during 1997/98	Middlesbrough in the first instance	Local authority Commercial trainers Local F.E College University local cable company Business Link GONE	Raising the capacity for innovation in the Middlesbrough economy.

The scope of North East ICTs partnerships is set out in Table 8.1. As this shows, key partners are drawn from the local authority, from local business support agencies (the TEC and Business Link for instance), from the local voluntary sector or community groups, from the spectrum of local education institutions and from local business pressure groups, or on occasion, local businesses themselves. As Jessop (1997) argues, an important scoping feature of partnerships is the time and spatial character of their strategic direction. By default, all are place-bound and connected to a specific geography, but their strategic aim is to develop new spheres of competence out of old organisational structures (Borja and Castells, 1997). In his review of the North East partnership approach, Shaw has argued that

> "economic decline has long generated alliances between local politicians, capital and labour in defence of the local economy ... such alliances have traditionally been based on tripartite representation ... [t]he area has, since the 1930s, provided an almost classical illustration of corporatist political structures dominated by the labour movement, local/regional capital and representatives of regional governmental agencies."
> (Shaw, 1993, p 252).

A model similar to this is clearly evident in Wansbeck as trade unionists and local employers, such as Alcan and Synpac Chemicals, have joined the Wansbeck Initiative. The Initiative is a political mechanism that has supported local attempts to lobby for Assisted Area Status and to generally set the conditions for the partnerships success. In contrast, in Sunderland the main business interests sit on the City of Sunderland Partnership rather than on the STWG, indicating something of a hierarchical structure to the city-wide agenda. While in Durham we can see how small business pressure groups have been invited to take part in CDIP.

Shaw's views are useful in noting the continued role of local authorities in the region's economic restructuring initiatives. The work of the private sector in economic development, he argues, could well prove useful but "public sector involvement is vital" (Shaw, 1993, p 254) to pursue a new vision based on image building, attracting foreign inward investment, stimulating prestige projects and fostering entrepreneurship (ibid. p 256). Yet, in this context, his views on coproratism are fatally flawed. This is because the conditions which underpinned corporatist compromise at its most effective have been radically transformed, away from its post war Keynesian roots, and towards "more elitist and localist business-political forms focusing on issues of social reproduction" (Peck and Tickell, 1995, p 61). In the North East, it is far from clear what role traditional working class organisations play in ICTs partnerships and projects. As Table 8.1 indicates the value attached to a trade union voice on local ICTs partnerships is minimal, and at best, the community and voluntary sector offer a basis for opposition to the 'business-political' agenda. The traditional voice of labour can only be heard on the periphery of local ICTs partnerships, playing only a marginal role as technologically led economic development is prominent in the re-orientation of local governance and

restructuring of local economies, whether in the form of ICTs, industrial districts, flexible specialisation or small firm clusters.[3]

It is important for the partnership to reinforce the business-political agenda by building up an agenda that convinces private industry how the ICTs governance process is credible. The key to this is to develop the trustworthiness that underpins the partnership ideal, something which cannot be reduced to Bailey's (1995, pp. 32-37) ideas on synergy, restructuring, funding, place marketing, land use and infrastructure, although these are obviously important. For example, in Sunderland trust is achieved by the STWG proactively setting out to meet the expectations they have themselves introduced in the Telematics Strategy. More importantly, they need to appear to potential new inward investors as capable of governing the processes of connection in the interests of capital. In this sense, partnerships have to act in a contingent manner to control any negative dynamics that may exist as the compromise established under the auspices of the partnership takes shape.

When this governing process is successful companies feel confident about investing in the locality, as in the cases of Barclaycall in Doxford and Simula in Wansbeck. Bryn Siddaway, the former Leader of Sunderland City Council, when hearing of the news of Barclaycall's investment programme, argued how "this is good news ... these are real good quality jobs with a blue chip company ... providing an excellent place to work on a very good location" adding how "the infrastructure is superb" (BBC Look North, 27/2/98). In turn the bank's position was that

> "we need to have good people, good quality people, well trained; we want to invest in these people, train them, develop them, and to offer a high quality customer service ... and we will pay market rates for that" (Allison Rennison of Barclaycall, ibid.)

Although, this is only part of the process to shape the space of flows, ICTs partnerships need to demonstrate good practice in managing the tensions, contradictions and strains which emerge through the dialectic between the space of flows and the space of places. The STWG have managed this, as the manager of Doxford International argued

> "what we are ending up with here at Doxford is an IT focus for the North East. We have fantastic telephone links and power links here, and that's one of the features which attracts these sort of operations here."
> (BBC Look North, 27/2/98).

To be part of the project that attracts new investment and offers a new technological edge, confirms 'good practice'.

Similar instances can be pointed to in Durham. The credibility of Derwentside District Council increased dramatically as they brought on board a major cable company, Telewest, to support their ICTs drive. One officer explained how a recent decision by an engineering firm to locate in Derwentside illustrated the Council's new found competence:

> "if there was one feature which persuaded, or convinced them [Express Engineering] that the move was the one to take, it was the fact that the fibre optic link was there [between Derwentside and Team Valley, Gateshead] which provided them with the technology which they required. Had that not been there, I don't believe there would have been any chance whatsoever of them coming, despite other advantages available."
> (interview with author, 28/1/97).

Not only did the credibility of Derwentside District Council rise in the eyes of private industry, they also became recognised as an important player by other members in CDIP and CDOL. When the RuralNet scheme was mooted by Derwentside, it was embraced and supported by CDOL precisely because of the benefits it would provide for the whole of County Durham.

In Wansbeck, the first major foreign inward investment for twenty years was a huge credibility boost for the leaders of the Wansbeck Initiative. After a long period whereby they constantly talked up the value of ICTs at every opportunity, the arrival of Simula on the Business Park showed that progress could be made transforming the morphology of the Wansbeck economy. The form of ICTs partnerships is founded on a well established set of principles, which as Shaw (1993) notes, includes a shift towards entrepreneurialism along the lines outlined by Harvey (1989b). The role of business in ICTs partnerships are not, however, part of a tripartite corporatist programme, but more a case of developing a business-political agenda. As such,

they serve a purpose to establish the partnerships as a credible and trustworthy form of governance for economic development.

8.4.3 Key entrepreneurs, the seeds of opposition and grassrooting the space of flows

The dynamics of ICTs partnerships also rely on the role of local political and technological entrepreneurs who, quite often, take on a lead role in the partnership. From the four cases, we can see how the technological entrepreneurship in Sunderland comes from the University and from the City Council, while the political entrepreneurship comes from the leadership of the City Council. In Wansbeck, the political entrepreneurship is very much part of the directorship given by the Chief Executive of the District Council, whereas the technological entrepreneurship comes from the role of ACE. In Durham, the political entrepreneurship is led from the TEC and the technological entrepreneurship resides in CDOL. In Teesside, despite this case being an epitome of fragmented partnerships and coalitions, technological entrepreneurship can be seen in a group like CIRA, and attempts to develop a political entrepreneurship can be seen emerging from the TVJSU. The role of political and technological entrepreneurs should not be overstated but it is an important part of the partnership process. As ICTs is a contested space such actors not only reinforce the form and purpose of the partnership itself, but act as a focus for suppressing alternative views within the partnership.

Political and technological entrepreneurs work towards making ICTs part of the wider institutional context of local economic development. In the study of the Manchester Host Graham (1996, p 152) points out that the project allowed the fusion of political and technological entrepreneurship in a "strong common commitment to the same political agenda – within which the Host project was shaped." In Wansbeck ACE act as the gatekeepers of the ICTs services for the locality. They provide e-mail, WWW pages, Unix facilities, video conferencing and multi-video conferencing, meaning they control the technological opportunities available in Wansbeck. ACE are keen to foster more research and technological development to support for small firms and new inward investors. That they act as a joint venture between a private organisation (MARI) and the public sector helps secure funding for such objectives. They also have previous knowledge and technological expertise, demonstrated through their ability to run the organisational IT services for Wansbeck

District Council. The entrepreneurial capacity of ACE is shown as they position themselves (initially at least) between the local economy and the informational mode of development, meaning any new opportunities that might emerge (through the Citycard project for instance) fall into their range of operation. The view of the Chief Executive of the District Council reinforces this through his political commitment to shape the future of Wansbeck by creating "a framework for swift and effective trade" in a location that is full of technological know-how and up to date skills (interview with Chief Executive of Wansbeck District Council, 21/4/95).

In Durham, the political entrepreneurship to be found in the local TEC has an important role in shaping the space of flows. Symbolically, this was initially driven by the Chief Executive of County Durham TEC, but in practice it has been pushed forward by business development officers and other similar operational personnel. A leading member of CDOL, who is also an officer in the TEC and Chair of CDIP, pointed out how the informational age presented many threats to the Durham small firm sector, but in spite of this, there was an opportunity to start from scratch allowing small remote companies to "appear big, central companies on a world information highway ... for PR, marketing and particularly, exports" (interview with author, 18/2/97). Political entrepreneurs draw out the connection between enterprise and ICTs; in Durham a relationship that is to be supported ably by a level of technological competence and entrepreneurialism to be found within the operations of CDOL. The CDOL venture has developed based on an expertise in securing European funding, dealing with small firms, and understanding the technology. It is here, through the control of many (but not all) of the projects underway in County Durham that efforts are made to fit the enterprise opportunities with the technological capability.

In Sunderland, the technological entrepreneurship is to be found in the provision of a technological *savoir-faire* to couple the opportunities from ICTs to the political entrepreneurship led by the City Council leadership. The person who provides this link has previous knowledge in bringing European funding to Sunderland and is aware of how ICTs can be financed through mechanisms such as the European Structural Funds. There is also a political drive that leads Sunderland along a computopian path and stems from opportunities to shape, and act in innovative ways,

the telematics arena in the city. Simultaneously, the Doxford exemplar has been much more about political entrepreneurship, drawing on an infrastructure which was built through regeneration schemes outside of the ICTs game.

In each case study technological entrepreneurs have networked with other like minded actors, not only within the locale but also through the mechanisms set up by Ni and the NCN. In turn, the political entrepreneurs have interacted with people of a similar persuasion across a range of networks, from Ni, regional associations which support the RDA and former NDC, through the Northern Assembly and in working groups on public funding mechanisms, such as for Objective 2 funds. As a result, in the region there is a complex set of social relations which support ICTs and economic development but which fall outside of the initiatives discussed here. As Graham (1996) has pointed out, it is quite a difficult task to separate the technological and political aspects of ICTs partnerships, but the role of key actors is important in 'policing' who is involved and who is not, and this helps to determine the credibility of the partnership process.

On this basis, the structure we find in ICTs partnerships are a conscious effort by leading actors to determine the composition of the partnership. However, we should not fall into the trap of a voluntarist explanation by thinking clear, rational choices are made in this process to take local economies forward, because while partnerships include representatives from a broad church, at the same time, as Table 8.1 indicates, some groups are excluded. In Sunderland for instance, while the STWG has inherited its parent partnership coalition structure, the cross-class alliance to be found here is based around bringing in from the grassroots voluntary and community representatives. Yet as witnessed earlier (in section 4.3.2.2) incorporating into the STWG strategy the aims and objectives of organisations like the SCFS Ltd. is a much lower priority than the efforts made to incorporate the aims of dominant powers such as Barclaycall on the Doxford site. Even so, the voluntary and community group representatives share the same common commitment to the technological infrastructure as do Barclaycall, with none of the local groups "buggering off and doing their own thing" without concern for the overall Sunderland picture (interview with STWG member, 30/6/97).

In Wansbeck the deliberate exclusion of some representatives, and the inclusion of an expired Trade Council representative have raised issues of control and allegations of handpicking passive actors to participate in the partnership approach (section 5.3.3). This is much more pertinent to Shaw's (1993) argument about the endurance of corporatism because, perhaps, here is a deferential process of building alliances particular to the region. In Durham some dissension was to be found in the fact that the partnership was distorting demand for ICTs based consultancy, this a common critique of the role of the local state (section 6.3.2). However, it is, according to Peck and Tickell (1995), essential that the partnership approach is maintained because under the current political climate it is a necessary condition for winning funding. Thus, leveraging in extra funding has a greater priority than claims of partnerships distorting the market place – although of course this argument is much more complex than this suggests. Moreover, the lack of contentious players within the ICTs partnership holds together its essence – that the partnership is a "loosely articulated set of ideas and capacities" (interview with CDIP member, 17/12/96). For this reason it is difficult to pin down any significant opposition within ICTs partnerships, but at the same time, it reduces the partnership to an act of faith for many of the peripheral players. Careful selection of partners and projects, coupled with the belief that technology is politically neutral, reduces the potential for any opposition. If there are any seeds of opposition to the development of ICTs partnerships it is likely to emerge from the potential of the space of flows to throw up new forms of social movement.

As Castells (1996) argues, the way in which the space of flows has the capability to redefine place is fundamental. This means if ICTs partnerships are capable only of shaping the space of flows on behalf of international capital then places are likely to experience different intensities of informational access and inequality. Additionally, if ICTs partnerships fail to shape the space of flows on behalf of all groups then places will be susceptible to processes of rejection that

> "from the perspective of dominant interests in global, informational capitalism, shift to a position of structural irrelevance ... [as the] territorial confinement of systematically worthless populations, disconnected from networks of valuable functions and people, is indeed a major characteristic of the spatial logic of the network society" (Castells, 1998a, pp. 162 – 164).

This view not only sees social relations becoming disembedded through the intensity of instantaneous communications (Giddens, 1990) but suggests whole communities will fall into a space where ICTs and informationalism have little relevance (Castells, 1998a). The seeds of opposition to the dominant logic of the space of flows will emerge from the growth of networks of solidarity and information exchange through ICTs, which already are challenging the state and providing another arena for the emergence of new social movements. This idea, that the space of flows are currently being 'grassrooted' at an indigenous level, draws on the earlier work of Castells (1978; 1983) when he set out the conditions for conflict and collaborative action, involving a wide range of cross-class alliances in new social movements.

This contribution, important as it is, appears to be missing from the emerging debate on community initiatives, democracy and ICTs. Bellamy and Taylor (1998) for example, point to the rich opportunities for a new democracy that others have identified in the informational age through a more inclusive human connectedness. They also question the belief made by certain commentators that ICTs can help some groups insulate themselves from the power structures of state and global capital. Among others, Horrocks and Webb have previously alluded to ICTs being used to "improve political participation and strengthen democracy" (1994, p 22). On the surface, the evidence provided in each of the case studies does reinforce this idea about how community initiatives and ICTs are increasingly being interwoven. There is something happening here, but we should not assume that this will automatically enhance democracy.

Perhaps, at the very best, this seems a premature argument. Such a view appears to assume an even dispersal of 'potential' from new technologies, associating 'good' with ICTs, reinforcing the views made in chapter 2 concerning how technology is identified with idealist development. This association of ICTs with new community based initiatives is unleashing a wide range of debate among social scientists. It is why Bellamy and Taylor (1998) ask

> "[w]hy should it be the case that the expansion of flexible, diverse, increasingly specialized networks of communications and information services will expand and enrich the functions of the public domain,

> rather than balkanize politics and deepen social cleavages by encouraging the proliferation of a fragmented complex of introverted individuals and ineffectual groups?"
> (ibid. p 110).

However, it is precisely at this point that the work provided by Castells has most salience. Now his argument is not only focused on community initiatives, but also on internationally renown organisations who have been able to campaign and organise through the medium of ICTs, such as the Chapatistas and Sandinistas in Central America. The work of the community based organisations in the four cases, although not holding the same romantic appeal of their international brethren, also fall into this category. SCFS Ltd. for example, are only one of a number of organisations actively seeking to grassroot the shape of the space of flows by means of education, awareness raising and enabling access to ICTs. However, there is a troubling inconsistency in Castells' argument.

His belief is that the space of flows is a contemporary domain for new forms of conflict involving the state technocracy and social movements (Castells, 1998b). While this argument has much more analytical depth than those which simply allude to a greater supply of democracy through ICTs, or those which in turn, critique such a view, surely this whole area requires further empirical support. In the Durham case there is the Stanley Infonet, in Wansbeck there is the Citycard project, in Sunderland there is the work of SCFS Ltd. alongside aims of a new 'teledemocracy' outlined by the STWG, and in Teesside there is the work of CIRA. If anything, the evidence from the four cases presented in this work indicate that projects with a clear community focus are attempts to incorporate local activists into the local business-political agenda. They are, as we have seen, cross-class alliances but they have emerged under the auspices of the local ICTs partnership. As a consequence, in the North East attempts to grassroot the space of flows are not so much a process that provides an alternative to the dominant logic of the space of flows, but are an attempt to be part of the dominant logic.[4] At the very least we must expect to find conflict, complicity and negotiation in and around attempts to grassroot the space of flows, meaning there will be a divergence of outcomes with some communities being enabled and others being further marginalised by ICTs.

8.5 Conclusion: local economies and shaping the space of flows

In his definition of a mode of development Castells describes it as "the technological arrangements through which labor acts upon matter to generate the product, ultimately determining the level of surplus" (1989, p 10). To accept that there has been a fundamental change in the nature of the mode of development, from industrial to informational, provides an underpinning rationale as to why ICTs are currently a focus for public and private agencies. ICTs partnerships are the outcome of the work of public and private groups who have come together to form political mechanisms to control the logics of the informational age. Clearly demarcating points of connection, and then looking to shape the nature of the emergent informational era for the benefit of a locality, is the domain of local (and regional) ICTs partnerships. Whether or not partnerships can shape ICTs in local economies towards technological development and the accumulation of knowledge is a moot point, as these are important features of informationalism. In the near future, further work will be required to evaluate the intervention of ICTs partnerships but measures of success at this time are indeed premature.

In Sunderland, the development of ICTs is primarily geared towards economic development and is not explicitly about the accumulation of knowledge. It is about the creation of new jobs and attracting new types of work into an area previously reliant on traditional industrial work. In Wansbeck, the major development on the Business Park is about new foreign inward investment, such as that provided by Simula, which, to all intents and purposes, overshadows attempts by ACE to raise the profile of research and development, particularly within the small firm population in the district. In Durham, the focus on small firms might suggest a bold move towards technological development and the accumulation of knowledge. Yet this would be to stretch a point. At best it can be argued that CDOL are trying to develop something of "a virtuous circle of interaction between the knowledge sources of technology [through political and technical entrepreneurship] and the application of technology [in small firms] to improve knowledge generation and information processing" in the indigenous economic capacity of the county (Castells, 1996, p 17). In Teesside, there is much less evidence of this taking place, yet the intervention of CIRA is aimed at developing a similar virtuous circle within the capability of local

communities. TVJSU may see their role as upgrading the local economy for a new knowledge based Teesside but they have much to do to see this vision realised.

There is only a limited indication to suggest that local economies in the North East are being strategically shaped towards technological development and knowledge accumulation. In this sense, local ICTs partnerships are faced with a mammoth task simply to come to terms with the informational age, however, in each case, there is evidence that ICTs are becoming caught up in the active construction of place in new ways (Graham, 1998). Although each of the partnerships considered here have failed to transform their respective locality into a dynamic technologically-driven locale, at the very least, there are signs of new economic space emerging, such as the Wansbeck Business Park and the development at Doxford. In the former, the local partnership was instrumental in setting up the site, in the latter the local ICTs partnership has been quick to exploit the development as part of its own agenda. Places are not passively becoming redundant, subjected mercilessly to the new logics of the space of flows, but at the same time, there are choices being made now concerning strategic selection of new projects for development. Such strategic selectivity is bound up in an orthodox rationale associated with ideas of progress rooted in the philosophies of earlier centuries and the Enlightenment project.

This work also confirms the view of Castells (1996) that the dialectic relationship between the space of places and space of flows is never predetermined in its outcome. Nevertheless, the political mechanisms to govern the connection process, and to shape the space of flows, is essential: it holds a central role in the tension between the social control of places and the functional logic of the space of flows. Local ICTs partnerships therefore have a key strategic role as

> "[i]t is only through the reinforcement of this role that localities will be able to put pressure on economic and political organizations to restore the meaning of the local society in the new functional logic. This statement runs counter to the widespread opinion that the role for local governments will diminish in an internationalized economy and within the functional space of flows."
> (Castells, 1989, p 351).

This is not at odds with the idea of government diminishing, but as Borja and Castells (1997) have noted, the governance process now is about developing new

spheres of competence out of old organisational structures. Local accountability and inclusion of all groups on an equal basis has still to be determined in the form and function of ICTs partnerships.

Far from there being an inertia in the North East concerning the logics of connection, there is, imbued in the region, a contestation over which organisation should be the legitimate body to shape the space of flows. In each of the four cases studied here, there are clear attempts to establish a partnership approach, and to instigate strategy, which governs the use of ICTs in the locality. The space of flows as a contested space inevitably means that some projects are pursued at the expense of others, and in turn, this is closely related to the way a discursive formation has arisen around the issue of ICTs. At the same time, by enrolling the support from actors in business, in state institutions and from local communities, a broad church alliance is created that, at this stage of development in each of the cases considered, has not proven to be politically contentious. This is because ICTs presently has the capacity to pull people together, acting in some kind of politically neutral way, precisely because it offers progress for all groups – a universal appeal lying dormant in the technology and brought to life by the political and technological entrepreneurs in the partnership. The logics of connection and the space of flows brings, at the same time, contestation and collaboration.

Partnerships, with their strategies and plans, are building up visions of the future, and signs and symbols of local social and economic sustainability. They are not only creating codes of conduct, through which attempts are made to shape the space of flows, but are drawing together different groups with different agendas who will pull in the same direction for the benefit of place. This is not, as Shaw (1993) would suggest more corporatism, and specifically that of the tripartite post-war corporatist coalition variety, as clearly a key group is missing in many local ICTs partnerships – that of labour. Nor is it, as Peck and Tickell (1995) would indicate, a business-led approach that has displaced attention to social welfare. Even so, the evidence does suggest that some groups will benefit, and some groups will lose out, from the presence and pursuance of ICTs because, as Graham (1997) would argue, for local economies new visions for place are being formed in parallel with an emerging ICTs complexity.

There is no preordained way in which places will respond to the dominant logics of the space of flows. Local economies will develop in various ways and will continue to exist irrespective of ICTs, although we might add how the evidence would suggest that the meaning attached to ICTs is currently entangled in the development of a local economy. For the moment, ICTs and local economies are inseparable and are part of the bigger conceptual picture of technology, place and political process. However, if one accepts the notion of an informational mode of development and the logic of the space of flows, there is a rationalist path to follow, something teleological, which says the informational age is the driving force of all types of new technological initiatives, from which local economies, and places in general, are sure to benefit. It would also suggest that the informational age can be regarded, in this sense, as a metanarrative for the 21st Century. The evidence and argument in this work would dispute such a view and indeed, there is much to think about concerning the construction and meaning of local economies and the interaction of places with all sorts of political, social, economic and cultural trends. ICTs provide the social scientist of today with a fascinating phenomenon for study, while in conclusion, we might say with some irony, that the space of flows is simply an important but historic moment!

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[1] Or what might be referred to as areas of collective consumption and potential sites of new social movements.

[2] Such as the typology presented by Bailey (1995, pp. 29-31) which includes joint ventures, development trusts, joint coalitions, promotional partnerships agency partnerships and strategic partnerships.

[3] Despite Amin and Robins (1990) dismissing the generalisability of these forms of development, brought together as a "new radical mythology" (ibid. p 9), local economic development strategies rarely evolve without some recourse to their 'potential'. Yet there can be little guarantee that the view of the trade unions will be incorporated in this.

[4] Of course, it might also be argued that community groups involved in ICTs partnerships have followed their own logic from the inception of initiatives such as the Community Development Project.

Appendices

Research Appendices

Statistical Appendices

Research Appendices

In chapter 1 it was explained how 31 people were interviewed as part of the extensive work for this thesis. The results from the extensive work was set out in detail in chapter 3. RA Table 1 provides a listing of the organisations contacted for this part of the thesis. The figures in parentheses refer to how many people were interviewed in the organisation, and the name listed is that of the organisation at the time of interview. In all, representatives from 24 organisations were involved in the discussions for this stage of the work.

RA Table 1. Organisations spoken to face-to-face as part of the extensive work

Organisation	**Organisation**	**Organisation**
Derwentside DC (2)	North Tyneside MBC (2)	NiAA
Darlington DC	Sedgefield DC	TEDCO
Easington DC	Sunderland MBC	Teesdale Development Agency
Hartlepool DC	South Tyneside MBC	Durham Dales Centre
Gateshead MBC	Stockton DC (2)	Teesside TEC
Langbaurgh DC	Teesdale DC	BT
Middlesbrough MBC (3)	Wansbeck DC (2)	Telergos
Newcastle MBC	Wear Valley DC (2)	United Artists (NE)

There were also a number of documents provided at these meetings which supported further analysis of the region's attempts to connect (see chapter 3). Typically, these documents came from local authorities and were concerned with economic development strategy or ICTs but on occasion came from other governance agencies, such as the TECs. Information from Northern Informatics was also a good example of the data collected at this point, and as this whole domain began to unfold, increasingly, there was a tendency for information on aims and objectives of ICTs partnerships to be placed on the World Wide Web. These documents were put through a process of content analysis, although they were examined with the caution that such information often suggests it is more authoritative than can actually be justified.

The extensive work also involved an analysis of government data from the Central Statistical Office (now the Office of National Statistics). This information related to regional economic data, biased towards labour market and demographic data,

provided via Nomis available through the Department of Geography, University of Durham. The datasets referred to at this stage included Employee Estimates (EE92), Unemployed Claimants (USW81), Census of Employment (EC92), VAT statistics and the Census of Population (Local Base Statistics).

A regular monitoring of the SRB allocation was maintained as it was announced by the Department of Environment each December, which latterly has changed under the auspices of the Department of Environment, Transport and the Regions. So too, there was a consistent monitoring of Information Society Trends provided by the European Commission, Directorate General XIII which provides a regular watch on international developments in the telecommunications and computer industry and the regulatory effects from government.

This was complemented by an opportunistic collation of literature from different economic development organisations concerned with ICTs, such as, for example, from Techquad in Queensland, Australia, The Telecommunications Deployment Strategy from the Southern California Association of Governments and from the Telecommunications Workers' Union of British Columbia, Canada.

Also in chapter 1 it was explained how a further 65 semi-structured interview were held with people in the four cases studies. RA Table 2 provides a listing of the organisations involved, again, the names cited here refers to the organisation who the individual concerned represented. Some of these agencies, such as Recharge in the Wansbeck case study, have since been dissolved. In total, some 46 organisations were involved in these discussions.

In each case study a wide variety of documentation was collected, such as the Sunderland Telematics Strategy and the County Durham Informatics Strategy documents. This was complemented by economic development information, such as economic plans and strategies, and general information about the organisations involved. The intensive work also drew on data from Nomis, the DoE and DoETR, and from Europe in much the same way as for the extensive work.

RA Table 2. Organisations (actors) interviewed during the intensive work

Sunderland (11)	**Wansbeck (24)**
Akeler Developments City of Sunderland Colleges City of Sunderland TEC/BiC Regional Technology Centre SCFS Ltd. SCOERC/Hendon 2000 Sunderland City Council (3) Sunderland CVS University of Sunderland	Advanced teleCommunications Enterprise Alcan Smelting and Power UK (2) Beattie Hydraulic & Engineers Community Initiatives Centre English Partnerships GO-NE MARI Northumberland County Council (2) NUM Northumberland College NDC Northumberland TEC Office of Northumbria MEP Recharge Wansbeck District Council (8)
Durham (15)	**Teesside (15)**
County Durham Association of Business Clubs County Durham Business Link CDT Enterprises CDOL County Durham TEC Darlington College of Further Education Durham County Council (2) Derwentside College of Further Education Derwentside District Council (3) Durham Small Business Club North East Chambers of Commerce Rural Development Commission	CIRA Comcast Teesside (3) Cleveland Tertiary College Cleveland Open Learning Unit Evening Gazette Middlesbrough Borough Council (3) Teesside TEC Teesside Tomorrow TVJSU (2) University of Teesside

As indicated in chapter 1, the sample of interviews for the extensive work was selected not on the basis of a probabilistic sampling technique, but by negotiating access to appropriate data gate-keepers and information holders. There have been no claims to generalisability in this process. In turn, the evidence from Sunderland, Wansbeck, Durham and Teesside is unique in the sense that each is a case study and it has been important to avoid over-extended inferences from this work.

Statistical Appendices

This section provides a number of tables which refer to chapters 3, 4, 5, 6 and 7. They are provided to support the arguments made in each of those chapters, giving detail were it has not been appropriate to do so in the original text.

Chapter 3

Table SA 3.1 Stock of VAT registered businesses in the North East districts (1997)

District	Stock	%
Darlington	2,080	5
Durham	8,680	21
Hartlepool	1,210	3
Middlesbrough	1,890	4
Northumberland	7,460	18
Redcar and Cleveland	1,850	4
Stockton on Tees	2,805	7
Tyne and Wear	16,070	38
Total	42,045	100

(source: VAT database, Nomis)

Table SA 3.2 Number of workplace units in the North East: employing up to 300 people (1996)

Employment band	Number of units	Number of employees	Average employ/unit
0-10	54,781	156,121	2.85
11-49	10,382	225,427	21.70
50-199	1,673	153,782	91.92
200-299	207	50,538	244.14
Total	67,043	585,868	360.61

(source: Census of Employment, Nomis)

Table SA 3.3 VAT registered businesses in the North East per industrial sector (1997)

VAT sector	Stock	Which map onto census sector(s)
Agriculture; fishing	3,905	Agriculture, hunting and forestry; Fishing
Mining; energy/water	55	Mining and quarrying; Electricity, gas and water supply
Manufacturing	4,205	Manufacturing
Construction	4,425	Construction
Wholesale and retail	12,055	Wholesale, retail trade, repairs, etc.
Hotels and restaurants	3,705	Hotels and restaurants
Transport and communications	2,200	Transport, storage and communication
Finance	175	Financial intermediation
Real Estate	7,145	Real estate, renting, business activities
Public admin; other	3,500	Public admin/defence; social security; Other community, social/personal service
Education; health	670	Education; Health and social work
Column Totals	42,040	

(source: VAT database, Nomis)

Table SA 3.4 Leading sectors by size of workplace unit (1996 – former county boundaries)

	Cleveland	Durham	Northumberland	Tyne and Wear
Employing 0-10				
Workplaces	Wholesale/retail Business services	Wholesale/retail Business services	Wholesale/retail Business services	Wholesale/retail Business services
Employees	Wholesale/retail Business services	Wholesale/retail Hotels/restaurants	Wholesale/retail Business services	Wholesale/retail Business services
Employing 11-49				
Workplaces	Wholesale/retail Manufacturing	Wholesale/retail Manufacturing	Wholesale/retail Health and social work	Wholesale/retail Health and social work
Employees	Wholesale/retail Manufacturing	Wholesale/retail Manufacturing	Wholesale/retail Education	Wholesale/retail Health and social work
Employing 50-199				
Workplaces	Manufacturing Business services	Manufacturing Education	Manufacturing Education	Manufacturing Business services
Employees	Manufacturing Business services	Manufacturing Wholesale/retail	Manufacturing Education	Manufacturing Business services
Employing 200-299				
Workplaces	Manufacturing Wholesale/retail	Manufacturing Business services	Manufacturing Health and social work	Manufacturing Public admin.
Employees	Manufacturing Wholesale/retail	Manufacturing Business services	Manufacturing Health and social work	Manufacturing Public admin.

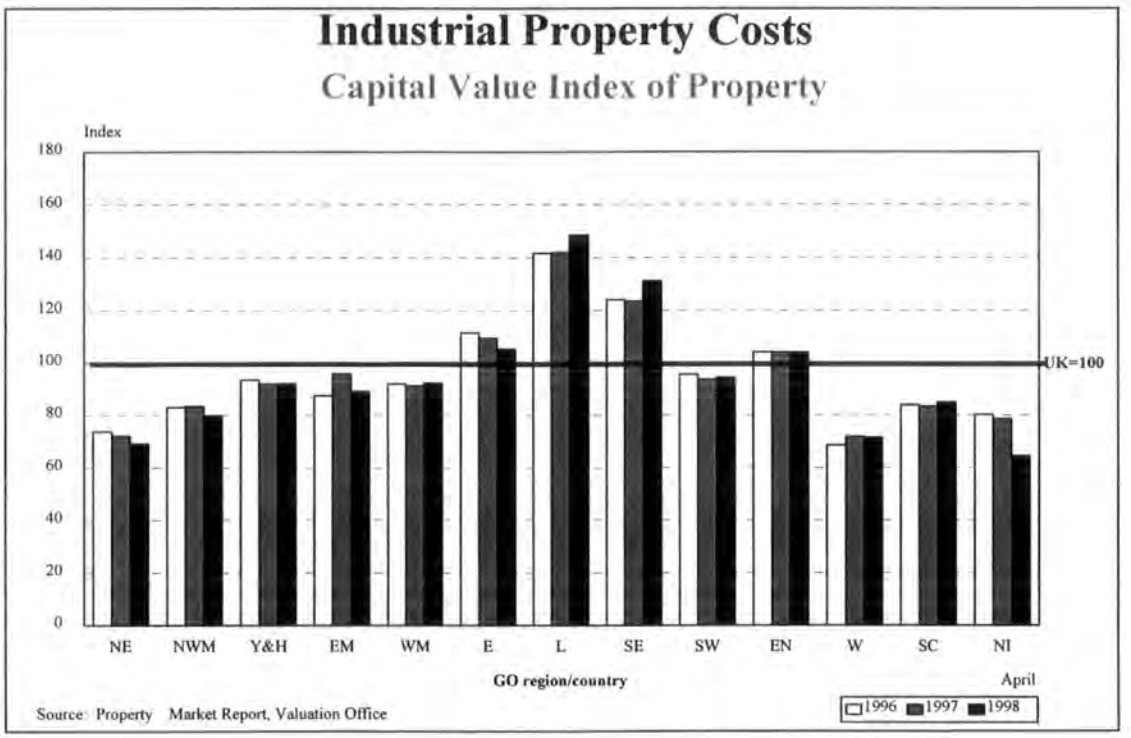
(source: Census of Employment, Nomis).

Table SA 3.5 Employment in the North East region by industrial sector (1998)

Number employed (male and female)	Industry sector
12,152	Agriculture and fishing
9,124	Energy and water
224,067	Manufacturing
68,260	Construction
241,026	Distribution, hotels and restaurants
55,384	Transport and communications
145,128	Banking, finance and insurance,
290,024	Public administration, education
50,644	Other services
1,095,809	Column Totals

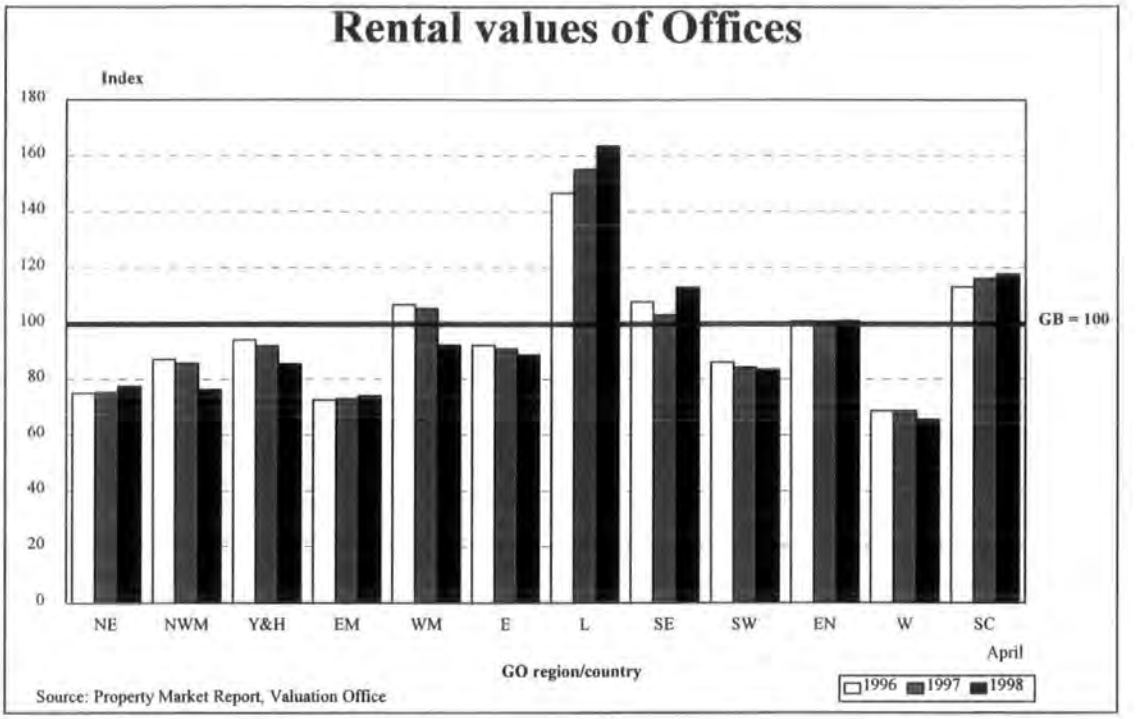
(source: Employee estimates, Nomis).

Figure SA 3.1 Comparative costs of industrial property: UK regions



(source: Department of Trade and Industry, 1998)

Figure SA 3.2 Comparative costs of office space: UK regions



(source: Department of Trade and Industry, 1998)

Table SA 3.6 Economic Activity Rates in the UK, 1997 (% of working population)

Region	**%**
North East	74.1
North West	75.0
North West (GOR)	76.0
Merseyside	*71.3*
Yorkshire & Humberside	76.7
East Midlands	80.5
West Midlands	78.1
Eastern	80.7
London	77.7
South East	82.2
South West	81.5
Wales	74.4
Scotland	77.0
Northern Ireland	71.8
UK	**78.2**

(source: Office for National Statistics, 1998)

Table SA 3.7 Education and Training: 16 and 17 year olds in education and government training and pupils achieving GCSE grades A-C (1995/96)

Region	16 & 17 years in education and training	Pupils and GCSE grades A-C
North East	66.4	20.3
North West	68.0	25.2
North West (GOR)	68.0	26.1
Merseyside	*68.1*	*21.8*
Yorkshire & Humberside	65.2	22.0
East Midlands	67.9	23.0
West Midlands	68.6	22.7
Eastern	72.4	27.0
London	68.4	24.0
South East	71.2	30.8
South West	73.2	29.9
Wales	69.7	na
Scotland	63.4	35.1*
Northern Ireland	na	na
England	69.2	25.5

(source: Office for National Statistics, 1998) * - Scottish equivalent

Table SA 3.8 Comparing regional GDP (1996)

Region	£ million	% of UK GDP	£ per head
North East	23,473	3.7	9,026
North West	67,086	10.7	9,735
Yorkshire & Humberside	48,266	7.7	9,585
East Midlands	41,811	6.6	10,096
West Midlands	53,245	8.5	10,015
Eastern	61,684	9.8	11,655
London	93,450	14.8	13,210
South East	96,821	15.4	12,263
South West	49,109	7.8	10,143
sub Total England	*534,945*	*84.9*	*10,897*
Wales	25,995	4.1	8,899
Scotland	54,430	8.6	10,614
Northern Ireland	14,470	2.3	8,700
UK	**629,840**	**100.0**	**10,711**

(source: Office for National Statistics, 1998)

Table SA 3.9 Travel to work areas and Assisted Areas Status in the North East (1985 - 1991) [1]

TTWA	Assisted Area Status	Jobs Created	Capital Investment £m
Sunderland	Development Area	9,193	950.66
Bishop Auckland	Development Area	3,306	463.97
Newcastle	Development Area	3,036	148.25
South Tyneside	Development Area	1,351	42.80
Stockton	Development Area	947	530.63
Middlesborough	Development Area	722	92.28
Hartlepool	Development Area	719	26.84
Total DAS		19,274	2255.43
Darlington	Intermediate Area	616	19.22
Durham	Intermediate Area	583	31.56
Morpeth and Ashington	Intermediate Area	237	108.63
Total IAS		1,436	159.41
Alnwick and Amble	Not Assisted	160	N/A
Hexham	Not Assisted	14	0.25
Total Non Assisted		174	0.25
TOTAL		**20,884**	**2415.09**

(source: The Wansbeck Initiative, circa 1994a).

[1] The extent to which figures on AAS finance can be relied upon varies. Local and central Government are loathe to issue figures which demonstrate the amount of public sector funding made available to attract foreign and national inward investment. In turn, indicators of jobs created through investment can be prone to exaggeration. Regional Selective Assistance has a strict criteria for provision including an assessment of need, project viability, job creation and regional as well as national beneift.

Table SA 3.10 Expenditure on Regional Preferential Assistance (£m)

Region	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	Total
North East	85.0	63.8	48.3	52.7	38.4	46.4	24.3	358.9
North West	57.5	49.5	36.8	40.3	32.4	24.3	23.2	264.0
Including Merseyside					*15.0*	*13.0*	*9.0*	*37.0*
Yorkshire & Humberside	29.4	18.2	13.7	35.6	23.0	19.7	11.1	150.7
East Midlands	5.5	2.6	1.2	1.9	5.2	7.3	10.5	34.2
West Midlands	18.0	8.7	10.8	14.4	14.7	14.2	25.5	106.3
East					0.7	2.1	1.5	4.3
South East					1.5	5.9	7.0	14.4
South West	9.0	8.3	8.2	9.5	9.4	7.7	7.4	59.5
Wales	133.7	153.9	140.6	118.8	109.2	98.0	132.4	886.6
Scotland	159.2	122.8	104.4	121.2	134.4	117.4	128.2	887.6
sub total	*497.3*	*427.8*	*364.0*	*394.4*	*383.9*	*356.0*	*380.1*	*2803.5*
Northern Ireland	132.1	138.0	105.6	117.6	132.9	131.2	137.1	894.5
Total	**629.4**	**565.8**	**469.6**	**512.0**	**516.8**	**487.2**	**517.2**	**3698.0**

Note: assistance for Northern Ireland is based on different criteria so is not strictly comparable.
(source: Office for National Statistics, 1998)

Table SA 3.11 European Structural Funds to the UK regions - £ million 1997, 1998 and 1999

Region	**Objective 1**			**Objective 2**			**Objective 5b**			**Total**
	1997	1998	1999	1997	1998	1999	1997	1998	1999	
North East				77	80	82	4	4	4	251
North West	96	104	103	93	97	100	4	4	4	605
North West (GOR)				93	97	100	4	4	4	302
Merseyside	*96*	*104*	*103*							*303*
Yorkshire & Humberside				79	82	84	6	6	6	263
East Midlands				22	22	23	8	8	8	91
West Midlands				96	99	102	5	5	5	312
Eastern							7	8	8	23
London				22	22	23				67
South East				4	4	4				12
South West				8	8	8	27	27	28	106
Wales				46	48	49	23	23	23	212
Scotland	37	39	43	95	98	101	18	18	18	467
Northern Ireland	145	157	170							472
Total	**278**	**300**	**316**	**542**	**560**	**576**	**102**	**103**	**104**	**2881**

(source: Office for National Statistics, 1998)

Table SA 3.12 Regional distribution of SRB funds £ million (England only)

Region	1994	1995	1996	1998	Total
North East	80.7	160.3	141.5	20.5	403.5
North West	143.3	133.2	98.5	28.5	403.5
Merseyside	*78*	*87.5*	*43.4*	*24.7*	*233.6*
Yorkshire & Humberside	202.2	152.2	130.6	57.8	542.8
East Midlands	55.9	56.8	29.7	22.3	164.7
West Midlands	156.7	147.1	55.1	49.9	408.8
Eastern	20.7	35.3	18.6	8.7	83.3
London	316.7	230	280	73	899.7
South East	31.8	78.6	76	23.0	209.4
South West	34.1	37.9	23.1	10.4	105.5
Total	**1120.1**	**1118.9**	**896.5**	**318.8**	**3454.3**

(source: DoE, 1994,1996,1997; DoETR, 1998)

Table SA 3.13 Indication of European funds available to UK regions

European Programme	typical target and development
Objective 1	Targeted at regions in the EU whose GDP is usually 75% or less than Community average
Objective 2	Targeted at regions seriously affected by industrial decline
Objective 3	Focused on long-term and youth unemployment and the integration of excluded groups
Objective 4	Aimed at increasing flexibility in the labour market and helping workers cope with industrial change
Objective 5b	Targeted at 'vulnerable' rural areas for economic diversification
Objective 6	Mainly for development of sparsely populated regions, particularly in the Nordic Member States
Community Initiatives	
INTERREG II	Crossborder co-operation, energy networks, co-operation in the area of regional planning.
LEADER II	Rural development in appropriate areas
RECHAR II	Conversion of former coal-mining areas
RESIDER II	Conversion of former steel areas
KONVER	Economic diversification in regions heavily dependent on the defence sector
RETEX	Economic diversification in areas heavily dependent on the textile and clothing industry
SME	Strengthening of the competitiveness of small and medium-sized enterprises
URBAN	Regeneration of crisis-struck areas in medium-sized and large towns
PESCA	Economic diversification in areas heavily dependent on the fisheries sector.

(source: various European Commission documents. Note: shaded areas not available in the North East)

SA 3.14a A summary of major European initiatives aimed at encouraging small firm use of ICTs

Programme	Small firm significance
Espirit	Research and Technological Development programme which develops innovative IT tools for industry with some small firm participation.
Advanced Communications Technologies and Services (ACTS)	A programme to encourage new applications by prototyping and trials of high speed digital communications services. Some small firm involvement as technological specialists or users.
Telematics Applications Programme	Promotes the development of new telematics systems with a restricted participation of small firms other than technological specialists. Potential involvement in terms of training and use of integrated applications
INFO 2000	Aimed at developing the European multimedia content industry with grants available to some small firms involved in this work.
Trans European Telecommunication Networks (TEN-Telecom)	Aimed at supporting the commercial deployment of ICTs. Bids for funding are encouraged to include small firms as part of the collaborative consortia.
EUREKA	Separate from EC programmes aimed at near market R&D. Small firm participation set against this criteria.
G7 Countries	A global marketplace for small firms is one of the eleven projects in this programme. Coordinated by the EC, Japan and USA governments small firms are to be supported by a global information network directed at the sector, assessing small firm requirements for the information age and testing out applications for electronic commerce.
Multilingual Information Society	Aimed at improving language capabilities between small firms to encourage international trade.
RegioLink	To provide small firms with regional online facilities, such as a directory of SME services and trading facilities.
Regional Information Society Initiative (RISI)	A pilot scheme which forms part of the European structural funds ERDF Article 10 aimed at integrating the concept of the information society into regional development policies. Regional and local projects involving small firms through local partnerships and support services.
Inter-Regional Information Society Initiative (IRIS)	Six regions who have established closer links to pilot the RISI with telematics applications for small firms (EDI, electronic tendering, services for retail trade etc.)

(source: various publications of the European Commission).

SA 3.14b An indication of the UK government schemes aimed at encouraging small firm adoption of ICTs

Programme	Small firm significance
Multimedia Demonstrator Awards	A competitive funding mechanism designed to encourage the adoption of existing multimedia technologies in small firms to support their business.
Information Society Creativity Awards	To provide financial support to develop content focused digital applications (such as electronic print, software, music, film and multimedia) for small firms in "creative and content" commercial sectors.
Local Support Centres	A national network of support centres aimed at supporting small firms to try out ICTs and to receive advice which helps in adoption and implementation.
Exporting On-Line	Information provision which includes a free online database trade directory for firms, information on how to develop overseas trade, and a national videoconferencing service.
Industry Sectors On-Line	To support the work of trade associations, professional institutions and research and technology organisations (RTOs) in their work with member companies by encouraging use of online services-, and advice.

(source: Department of Trade and Industry, undated)

Chapter 4

Table S.A 4.1 Leading employers in Sunderland, 1997

Top 10 Major Employers	Employed
City of Sunderland	16,000
Sunderland Health Authority	6,000
Dept. of Social Security	4,000
Nissan	4,000
University of Sunderland	1,600
Dewhirst	1,300
Grove Worldwide Ltd.	1,100
Vaux Group	1,000
Littlewoods Organisation	1,000
Phillips Components	650

(source: City of Sunderland, circa 1997).[2]

Table S.A 4.2 Number of workplaces in Sunderland by size

Employee category	Number of workplaces	Lead sectors
1 to 10	5246	Wholesale, retail etc. (1617) Business activities, real estate etc. (982)
11 to 49	1082	Wholesale, retail etc. (207) Manufacturing (153)
50 to 99	175	Manufacturing (37) Health and social work (29)
100 to 299	106	Manufacturing (34) Public administration (16)
300 +	41	Manufacturing (20)

g(source: Census of Employment, Nomis)

[2] Recent redundancies have resulted in the closure of Grove Worldwide and a reduction of employment in Dewhirst, while Nissan has announced a new round of vacancies.

Table S.A 4.3 Designated expenditure on the Urban Programme in Sunderland (1993 - 1995)

Sector	No. of Projects	Capital 000s	%	Revenue 000s	%	Total	%
1993/94							
Economic	27	1749	75	484	50%	2233	67
Environmental	13	500	21	34	3	534	16
Social	24	91	4	423	43	514	16
Other	3			36	4	36	1
Year Total	*67*	*2340*	*100*	*977*	*100*	*3317*	*100*
1994/95							
Economic	15	477	69	222	37	699	54
Environmental	7	210	30	31	5	241	19
Social	15	6	1	316	52	322	25
Other	3			38	6	38	2
Year Total	*40*	*693*	*100*	*607*	*100*	*1300*	*100*
1993 - 95 Total	**107**	**3033**		**1584**		**4617**	

(source: Council Minutes, April, 1993 and December 1993)

Table S.A 4.3 SRB funding in Sunderland 1995 to 1998 (£ 000s)

Year designated	Project	Year 1 Funding	Total Funding
1995	City of Sunderland Partnership	2076	10917
1996	Work and Learn	500	17300
1997	Pride in Pennywell	280	17900
1998	Releasing the Potential	135	2340
Total		2991	48457

(source: DoE, 1994,1995,1996; DoETR, 1998)

Table S.A 4.5 ERDF/ESF for City of Sunderland sponsored schemes between 1989 - 1993

Activity	European funding (£m)
Infrastructure for industry & training for future needs	£4.52
Developing business skills	£1.03
Internal communications	£0.44
Tourism	£0.53
Marketing and image	£3.33
Total	**£9.85**

(source: Interview with Council Officer, 24/1/95)

Table S.A 4.6 Estimates of CCTV schemes in Sunderland (1996 – 1998)

Budget	**Southwick**	**Pennywell**	**City Centre East**
Capital Programme	£95,000	£25,000	
Strategic Initiatives Budget	£45,000		
CCTV Challenge Fund	£140,000	£75,000	£40,000
Housing Association	£40,000		
SRB			£40,000
Total	£320,000	£100,000	£80,000

(source: Council Minutes, March 1996, November 1996).

Table S.A 4.7 An indicative geography of community enterprise in Sunderland (March 1996)

District	**Number of Enterprises ***
Sunderland City	5 (22.7%)
Hendon	12 (54.5%)
Pennywell	3 (13.6%)
Southwick	1 (4.5%)
Tunstall	1 (4.5%)
Total	**22 (100%)**

(based on Sear and Southern, 1996; Note: limited to community co-operatives and credit unions).

Table S.A 4.8 Uniform Business Rate, Doxford and others (1996 – 1997).

Location	**Office £/m^2**	**Offices £/square ft**
London		
West End	166.8	15.5
City	113.0	10.5
Docklands (not Canary Wharf)	37.7	3.5
Heathrow	72.1	6.7
Reading	71.0	6.6
Birmingham	86.1	8.0
Manchester	82.9	7.7
Glasgow	70.0	6.5
Newcastle	47.4	4.4
Doxford	0.0	0.0

(source: Doxford International Plc, circa 1996)

Table S.A 4.9 Early funding for the Doxford site: Urban Programme and ERDF finance

Year	Description	UP Capital (£)	ERDF (£)
1991/92	Doxford Business Park Phase II	57,887	
1992/93	Doxford Park Industrial Site Landscaping	48	
	Doxford Park Industrial Site Phase II	250	
	Doxford International		76,000
1993/94	Doxford Park Site Development	180,000	
Total		**238,185**	**76,000**

(Source: Council Minutes, September 1992, June, 1993, December 1993)

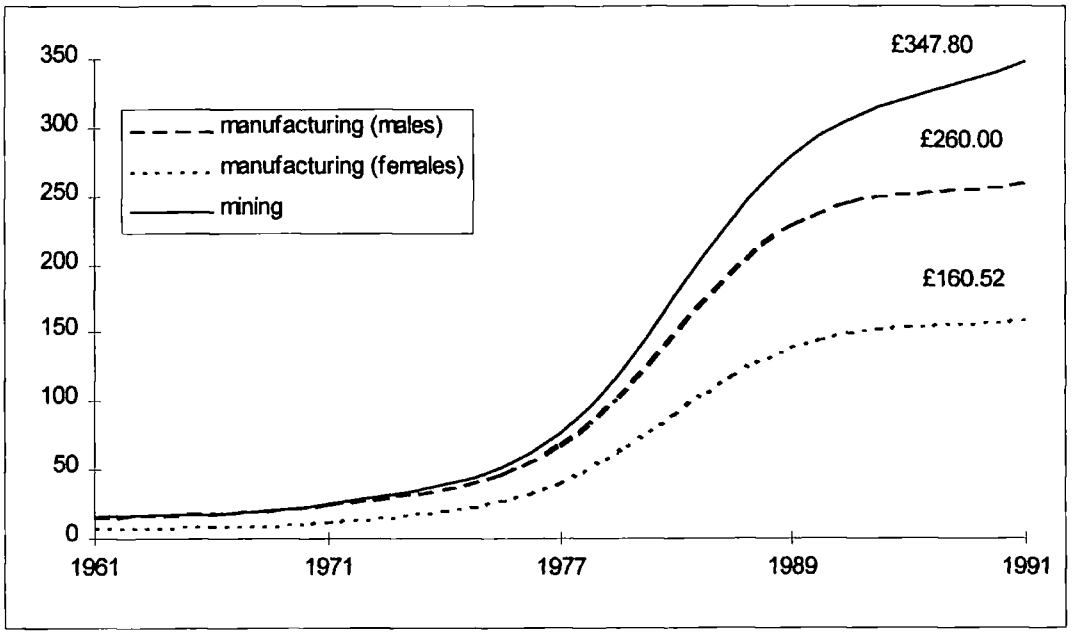
Chapter 5

Table S.A 5.1 Indicators of poverty in Northumberland

	Alnwick	Berwick	Blyth	Castle Morpeth	Tynedale	Wansbeck
Population [1]	28,878	25,564	77,236	48,110	54,789	59,196
% Low Paid [2]	58.1	57.2	54.9	55.1	54.0	56.4
% Below NI Threshold [2]	1.2	1.5	1.4	0.7	0.9	3.1
% Below Community Charge Threshold [2]	2.4	2.9	4.2	1.6	1.7	10.0
% of those with Long-Term Illness [3]	13.1	13.1	13.1	14.6	13.6	17.7
Number of Lone-Parent Households	317	296	1383	422	456	973

Note:
[1] residents present at 1991 Census;
[2] based on the threshold according to the Low Pay Unit;
[3] total persons with long-term illness divided by resident population.
(source: The Wansbeck Initiative, 1994a, Census of Population, Nomis).

Figure S.A 5.1 Differentials in average weekly wages in the UK: manufacturing and mining (1961 - 1991)



(source: The Wansbeck Initiative, circa 1994a)

Table S.A 5.2 The numbers of businesses in Wansbeck – 1993, indicating location quotient, Great Britain benchmark figure and district percentage

Industry	Stock	District %	Benchmark	Location Quotient
Catering	110	14.97	7.61	1.97
Retail	195	26.53	15.01	1.77
Motor trades	45	6.12	4.72	1.3
Transport	40	5.44	4.28	1.27
Construction	125	17.01	14.68	1.16
Production	55	7.48	9.33	0.8
Wholesale	40	5.44	7.71	0.71
Agriculture	40	5.44	9.62	0.57
Other services	55	7.48	16.75	0.45
Finance and related	30	4.08	10.31	0.4
All Industries/Services	735	100.00	100.00	

(source: VAT database, Nomis)

Table S.A 5.3 A comparison of Cramlington and Wansbeck inward investment by country of origin (1971 - 1991)

Wansbeck		Cramlington	
Country of Origin	Number of Investments	Country of Origin	Number of Investments
Canada	1	Switzerland	6
Denmark	1	Denmark	2
Norway	1	Korea	1
USA	2	Norway	1
Taiwan	2	Sweden	1
		USA	14
TOTAL	**7**	**TOTAL**	**26**

(source: The Wansbeck Initiative, circa 1994a).

Table S.A 5.4 The Single Regeneration Budget in Northumberland (1995-to date)

Project Title Round 1 (1995)	**Aim**	**Year 1 Government funding (£ 000s)**	**Total Government Funding (£ 000s)**
Aiming High (Northumberland)	Raising levels of educational attainment in South East Northumberland	60	200
Amble Regeneration	Environmental, access and security improvements to the town centre, harbour area and industrial estate	114	114
Grow Your Own Job in Northumberland	Advice and financial support (loans and grants) to new and diversifying businesses in former coalfield and rural areas	426	1,320
Manufacturing and Prosperity in the Coalfield	Led by Manufacturing Challenge to Improve the manufacturing skill base of South East Northumberland	155	465
Wansbeck Initiative	An integrated Teleservices/Telematics Centre in the Wansbeck Business Centre where the use of leading edge technology will help to generate employment in the coal closure area	555	1,236
Project Title Round 2 (1996)	**Aim**	**Year 1 Government Funding (£ 000s)**	**Total Government Funding (£ 000s)**
The Amble Challenge	measures to restructure the local economy with environmental and infrastructure improvements, contributing to European, MAFF and Rural Development Programmes	38	345 [1]
Renaissance of Blyth	Integrated 5 year strategy, key element of which is the establishment of a centre of excellence for offshore technology and sub-sea activities	450	3,900 [2]
Total Government Funding in Year 1 and for duration (£ 000s)		**1,798**	**7,580**

[1] Total funding estimated to stand at £3.9 million

[2] Total funding estimated to stand at £15.2 million

(source: Department of the Environment, 1994 1996)

Table S.A 5.5 Estimated outputs from the Wansbeck SRB Telematics Initiative

Outputs	**Total**
direct jobs created	44
Indirect jobs created	1,300
EC Framework IV bids submitted	10
EC Framework IV bids secured	5
Number of companies exposed to Advanced Telematics Awareness initiative	
Local	20
Regional	60
National	20
number of companies receiving technical and management assistance	8
numbers of trainees completing training course	90
NVQ Level II achievement	36
NVQ Level III achievement	36
Number of job outputs for trainees	54

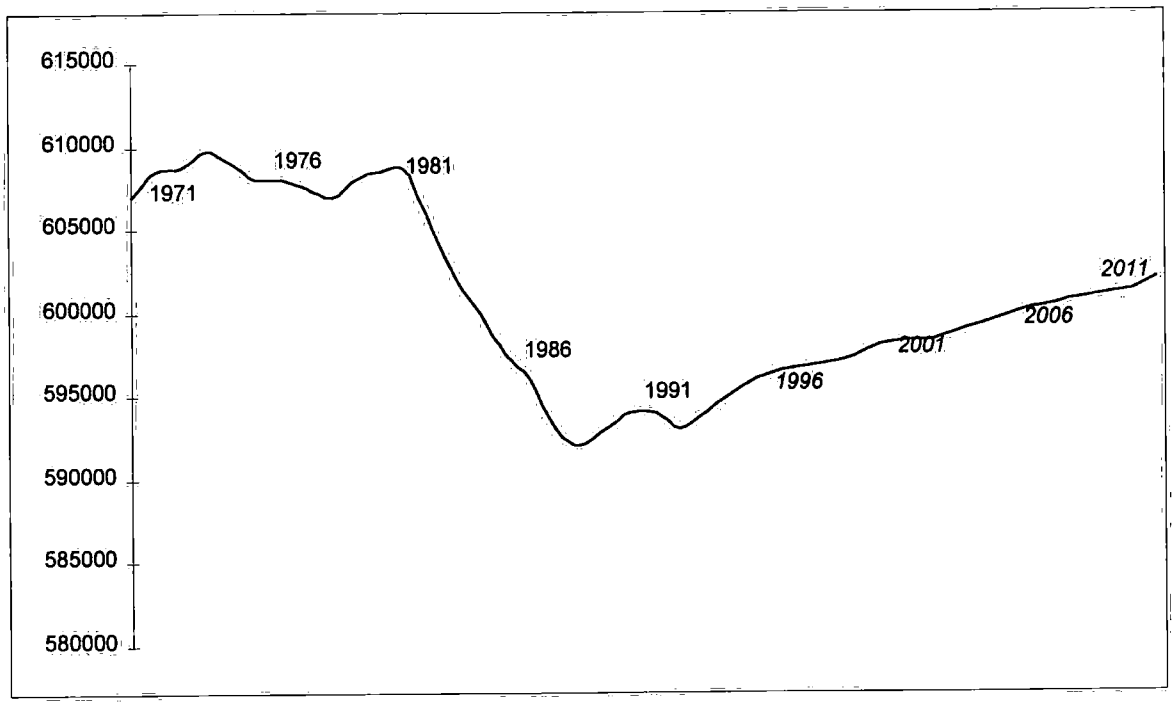
(source: The Wansbeck Initiative, 1996).

Table S.A 5.6 The effects for Wansbeck if they could achieve Development Area Status

An increased demand for industrial estate infrastructure, in turn leading to further inward investment.	New manufacturing jobs which would provide greater levels of job security than those currently available.
A new transport infrastructure, particularly aimed at connecting the A1 to the A189 via Ashington.	The development of the Wansbeck Business Centre.
Improved levels of tourism through reclamation of derelict land.	An increased demand and better provision of high technology training.

(source: Wansbeck District Council, circa 1995b)

S.A Figure 6.1 Trends and projections in the County Durham population (includes Darlington)



(source: Durham County Council, circa 1996)

Table S.A 6.2 An indication of small firm numbers in County Durham by sector and size of workplace (1995)

Sector	% workplace units by numbers employed		
	< 50	50 – 149	149 – 499
Agriculture, hunting and forestry	98.0	2.0	0.0
Fishing	100.0	0.0	0.0
Mining and quarrying	95.8	4.2	0.0
Manufacturing	82.2	13.3	4.5
Electricity, gas and water supply	72.2	22.2	5.6
Construction	95.7	3.6	0.7
Wholesale/retail trade; repair, etc.	97.9	1.7	0.3
Hotels and restaurants	99.2	0.8	0.0
Transport, storage and communication	92.1	7.1	0.8
Financial intermediation	95.7	4.3	0.0
Real estate, renting, business activities	97.6	1.9	0.5
Public admin/defence; social security	82.5	16.4	1.1
Education	85.4	13.9	0.7
Health and social work	93.1	6.2	0.7
Other community, social/personal service	98.5	1.5	0.0
Total numbers of workplaces	10,331	467	80

(source: Census of Employment, Nomis)

Table S.A 6.3 SRB funds for County Durham, 1995 – 1998 (£000s)

	Year 1 CF	Total CF	Scheme Total
1995	3,273	14,034	not provided
1996	425	7,200	36,300
1997	1,585	17,300	58,600
1998	75	155	231
Total	5,358	38,689	95,131

(source: DoE, 1994, 1995, 1996; DoETR, 1998)

S.A Figure 6.2 The Derwentside Infonet

Derwentside Infonet is an exciting and innovative community partnership led by Derwentside District Council which aims to:

- improve communications between organisations in the district through the use of IT;
- raise awareness of IT and its uses;
- provide better access to information;
- enable people to obtain recognised IT qualifications.

The Derwentside Infonet is an ever expanding community network of computers that grew out of the Stanley Infonet - an SRB funded project to connect 15 organisations throughout the Stanley Southern Area and provide them with state-of-art IT equipment, connection to a local network and the Internet, free website development and hosting, technical support and IT training.

The Stanley Southern Area Partnership was successful in securing £370,000 (through SRB funding) over five years to link libraries, social services, voluntary organisations, schools, businesses and community associations. The PCs awarded to the successful applicants of the project are public access points through which the residents of Stanley can gain access to information on Infonet participants, local information generally, the Internet and various software packages. Participating organisations have testified that the equipment is in constant demand.

The project also offers training to at least six members from each organisation - this will mean that more than 450 people will be trained and receive IT qualifications over the five years of the project. The SRB funding enabled the Council to install its own central web server, providing a gateway to the World Wide Web, and a technical post to support the new systems. Acting as the Internet Service Provider for participating organisations means the Council can offer a fast, efficient and reliable Internet service to the community.

The opportunities and potential benefits offered by the project resulted in the expansion of the network to other organisations throughout the Derwentside region - hence the "Derwentside" Infonet. Many organisations have expressed their desire to become part of project and as a result have actively sought to become part of the project through their own fund-raising efforts. Information and support on funding opportunities have also been provided by the Council. A central website has been developed linking information created by Infonet participants with that of other local organisations including the police, Derwentside Council, several businesses, schools and voluntary organisations. This site is rapidly expanding and is expected to grow even faster over the next few months and to develop as a means of delivering services online, in addition to being a valuable source of information.

The Derwentside Infonet is a fledgling community network, but one which has obtained the commitment of the current participants and generated sufficient interest amongst local organisations to show great promise for further development. Indeed, our initial success has already been recognised through the award of additional funding.

(Derwentside District Council, undated).

S.A Figure 6.3 Policy PD 4.6 – Economic Development Strategy for County Durham 1995-2001

A modern telecommunications system will be developed and exploited throughout the County

Modern telecommunications systems have become a pre-requisite to production planning, product development and marketing. Indeed, participation in the global economy is virtually impossible without these systems, and they are now as important as road and rail links. However, not all of the strategic industrial sites and business parks possess advanced telecommunications services, and parts of the County are in poor reception areas. A priority for implementing the Strategy will therefore be to commission a telecommunications audit, and an action plan for major sites and small firms.

The telecommunications revolution has also made it possible to attract the kind of financial services which were hitherto found mainly in metropolitan areas. In addition, tele-working provides opportunities for people to engage in a range of service sector activities from their own homes or from shared facilities ('tele-cottages'). Telecommunications are also significant from the point of view of delivering skills training. A reduction in the need for travelling long distances to work will also accord with the theme of moving towards sustainable development. The adoption of modern telecommunications systems will therefore be fostered, with particular regard to the development of working and learning facilities.

(County Durham Economic Development Partnership, circa 1995, p 34).

Chapter 7

S.A Table 7.1. Change in employment in Teesside (old Cleveland boundaries): metal manufacturing and chemical industry

1971 – 1995	1971	1981	1995	% change
basic metal manufacturing	30,000	17,250	6,950	-76.8
Chemical industries	32,100	21,200	11,500	-64.0
Total	62,100	38,450	18,500	-70.2

(source: Census of Employment, Nomis, figures rounded).

S.A Table 7.2 Teesside SRB Finance 1995 - 1998 (£000s)

	1995		1996		1997		1998		Total	
	Yr1 CF	Total CF	Yr1 CF	Total CF	Yr1 CF	Total CF	Yr1 CF	Total CF	Yr1 CF	Total CF
All Teesside	1325	7855	1595	40995	2054	23600	225	2836	5199	75286
of which										
Hartlepool			450	17700	385	10300			835	28000
Middlesbrough	444	4,747					151	2021	595	6768
Redcar and Cleveland			450	17900					450	17900
Stockton on Tees			370	3695	1070	7300	34	475	1474	11470
Darlington					353	3600			353	3600

(source: DoE, 1994, 1996, 1997; DoETR, 1998)

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