SURVIVING REGIONAL RESTRUCTURE:

The networks and technology sustaining rural Australia

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A thesis submitted for the degree of Doctor of Philosophy of The Australian National University. In its entirety it is the work of Patrick Charles Cox.

Declaration

I hereby certify that the work contained in this thesis is my own work and that I have cited in the references all works and sources consulted in the writing thereof.

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Abstract

This thesis explores contemporary strategies that attempt to ameliorate the social and the economic decline of communities in rural regions of Australia. The implementation of information and communications technology in regional community projects funded by the Commonwealth Government is the focus of the study. The study's theoretical perspective is a synthesis of sociological, science and technology studies that attempts to overcome the problems inherent in an interdisciplinary approach to social analysis. Structuration theory assists in this process by overcoming the problems of structure and agency while linking the social shaping of information and communication technologies to the construction of a rural / urban dichotomy and a digital divide. A review of the social dimensions of rural regions examines the social stratification of rural communities, including issues of rural ideology and the effects of globalisation and neoliberalism. The concept of social capital and its measurement of regional community capacity for development are questioned. An exploration of these complex issues is achieved through the case study of a pilot regional project to develop a technology centre. Supported by the income of a call centre, the community technology centre sought to provide regional development and sources for off-farm income. The case study reveals the vital role of women in the project and in sustaining the region with evidence of their empowerment by digital technologies. Also exposed are many factors that get in the way of communities trying to use ICT to develop the region. The recursive nature of the social practices in the region tends to reproduce reliance on government grants and other economic assistance rather than produce longer term, sustainable alternatives for community development. The region therefore continues to remain vulnerable to the processes of social and economic restructuring occurring under neoconservative policies. Opening the region to national competition and an unfettered global marketplace through the implementation of information and communications technology, not only risks accelerating the region's socioeconomic decline it may also prevent the community from promoting its own development.

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Preface

The author's previous career in the computer and telecommunications industry spanned over two decades working with a range of mainframe, minicomputer and microcomputer networks. For much of this time the author, as a member of the Australian Computer Society and the Australian Institute of Management, was employed directly by local government authorities or by consultant companies that specialised in local government administrative software. While working with rural shire councils the author lived in rural regional communities and later, as a consultant, visited and worked with a wide range of client organisations and institutions in dispersed regional locations from Far North Queensland to Tasmania and from Alice Springs to Hamilton Island. Many of these organisations installed 'turnkey' system packages of computer hardware, operating systems and software applications. The application software programs were invariably developed and maintained at central metropolitan sites with extensive parameters turned on or off by programme switches to address the heterogeneous needs of large customer bases. The installation of 'turnkey' systems made it possible for client organisations to achieve significant reductions in the cost of general clerical and specialised management, analyst, programming and operational staff. Therefore, the primary considerations for implementing computers and telecommunications consistently included the reduction of administration overheads, particularly in the cost of labour, ensuring efficient data processing and security while providing management with effective systems for decision support. There is a common perception that information and communication technology is the panacea for wider contemporary regional social and economic problems. A view that remains insensitive to the role of social structure and agency and which the author questions from his lived experiences and tertiary studies.

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CHAPTER 1: INTRODUCTION

Much contemporary thought about Western society and its future is characterised by a focus on the omnipresent nature of electronic information and communication technologies. In part, this thinking is governed by perceptions of a worldwide impact of an information technology revolution and its social, political and economic implications. The convergence of a multitude of disparate technologies into a single conceptual entity of information and communication technology is generally reified as a networked or information society based on a knowledge economy in a new information age. The thesis is based on an interdisciplinary approach of science and technology studies (STS) informing a sociological study of a community project that utilises computer and telecommunications technologies to support regional development. The community project was proposed as a pilot model for community development in Commonwealth Government strategies to sustain rural regions of Australia. The research problem that underlies this thesis is can any community promote its own development? If so, what might get in the way of communities trying to apply computer and telecommunication technologies to develop their region?

The ideas behind the construction of the thesis topic came from three main sources. First, the view that information and communications technology enables the efficient collection, storage, manipulation and reporting of data and has the potential to overcome the communication problems of time and space in regional Australia. This view is from the perspective of someone with lived experiences of the computer industry in remote and rural regions working with local government administrations and major local enterprises. The second source is Nicholas Maxwell's cry for a revolution transforming

social sciences by recognising that the acquisition of knowledge is insufficient without first promoting wisdom of what is of value in life (Maxwell 1984). He argues that the *philosophes* of the Enlightenment made a fundamental error in developing social sciences based on the natural sciences in their belief that scientific progress would show how to achieve social progress towards an enlightened world. In taking such an approach, Maxwell agrees with sociologists like Giddens, who in his *New Rules of Sociological Method*, argues that the social sciences must adopt different methods of inquiry to those of the natural sciences (Giddens 1976; Giddens 1993a). 'In studying aspects of the human world ... we study ourselves, that which we in part create, [which is] something not encountered within the natural sciences ...' (Maxwell 1984 p.39). In brief, Maxwell calls for a radical change in both the intellectual aim and methodology of academic inquiry, reasoning that the great advances made in science and technology over the last century have not been reflected in the welfare of human beings. Maxwell's prescription is to change the current priority of inquiry from an enhancement of knowledge to provide a more fundamental focus on enhancing personal and social wisdom. He proposes that problems of knowledge and technology should become intellectually subordinate and secondary to helping humanity strive to realise what is desirable and of value in everyday living.

Maxwell argues that by closely following the philosophy of knowledge, social scientists have been unable to resolve the personal and social problems – the problems of action encountered in life (Maxwell 1984). The unintended and undesirable consequences of this failure have betrayed reason and humanity where potentially beneficial technologies have been used and continue to be used to the detriment of humankind (Maxwell 1984 pp.47-52). One example is of scientists working in nuclear physics that developed the knowledge that was later used to produce the atomic bomb.

Suggesting that scientists, social as well as natural, do not have much control over how their work is used, or indeed over what work they will be funded to carry out. The general lack of cooperative rationality in the world has created undesirable consequences from scientific and technological research changing, if not corrupting, the aims and priorities of research. In that:

> Instead of the aims and priorities of research being intelligently chosen so as to help relieve human suffering, [or] help promote human welfare, on the contrary, in all likelihood, the aims and priorities of research will come to reflect merely the special interests of the scientific/academic community itself, and the interests of those who have sufficient wealth and power to fund and guide research.
>
> (Maxwell 1984 pp.53-4)

Maxwell and others find social inquiry problematic, when the object of the inquiry is we ourselves and pursued in accordance with the philosophy of knowledge as a social 'science' (Giddens 1984; Maxwell 1984). According to Maxwell, the denuding of value from people, society and culture in order to be objective and scientific obstructs 'our capacity to see value in life' (Maxwell 1984 p.60). Maxwell argues that in attempts to be rational, 'the philosophy of knowledge excludes all consideration of feelings, desires, aims, values, personal experience and imagination' (Maxwell 1984 p.63). On the other hand, Maxwell's philosophy of wisdom requires that social inquiry, in order to be rational, must give primacy 'to the intellectual tasks of articulating our problems of living, proposing and criticising possible solutions, possible and actual human *actions'* (emphasis in the original, Maxwell 1984 p.65). By adopting the standpoint of a philosophy of wisdom, Maxwell is not attempting to create an ideal utopia. Rather, he is advocating a piecemeal approach to rational problem solving by being ready and able to modify our aims and methods should they be revealed as not realizable or desirable, in an aim-oriented rational action (Maxwell 1984 pp.92-121).

The third idea contributing to the research topic was the possible benefits of forging closer links between the concepts and methods of mainstream sociology with other relevant disciplines of the social sciences, particularly that of science and technology studies (STS). The notion of developing new relationships between the social sciences follows Maxwell's intellectual aim of rational inquiry to improve academic enterprise by developing the wisdom to know what is of value in our lives (Maxwell 1984). The tendency of many sociologists to *black-box* technology by their reticence to explore its social content, points to the need to examine the actual workings of science and technology for inclusion in social enquiry and analysis (Latour 1987). The construction of a cohesive analytical framework may then contribute to new ways of exploring and understanding the new structures and agencies emerging in contemporary society (Latour 2000). In the social sciences it has long been recognised, particularly by scholars in STS, that technology 'is a vitally important aspect of the human condition' (MacKenzie and Wajcman 1999 p.3). From among the 'pandemonium of competing methodologies' found in the formative years of STS, emanates its strength (Bowden 1995 p.4). For Bowden, the benefits of utilising STS lies in its ability to provide an inclusive, analytical approach to overcome the omissions and limitations of existing social science disciplines involved in the explanation of interrelating social and technological research data (Bowden 1995). Bowden also recognises that the use of a wide range of relevant social science disciplines creates difficulties in how the links between disparate disciplines may be forged. He suggests that there are three methods in which social disciplines may be linked, in either multidisciplinary, transdisciplinary or interdisciplinary ways (Bowden 1995). The multidisciplinary concept is normally associated with a topic-focused approach that is little more than several disciplinary perspectives

attempting to staple together disparate cultures and discourses in a seamless web. In analysing the problems of regional living, the disciplinary factionalism that riddles a multidisciplinary approach 'seriously undermines efforts to influence policy' (Bowden 1995 p.73). On the other hand, the transdisciplinary approach focuses on analytical issues that argue for certain methodological practices to be used. For example, issues such as the problems of reflexivity require a social study *in* science rather than a social study *of* science. 'Interdisciplinary approaches, in contrast, involve a coherently integrated package of analytic resources, frequently including concepts other than those used by existing disciplines' (Bowden 1995 p.68). In this study, an interdisciplinary approach will be adopted in seeking to benefit social sciences in general and the disciplines of sociology, science and technology studies in particular through an attempt to understand the many aspects of everyday life in regional Australia.

One of the major roles of STS has been to provide a forum for lay people to discuss complex technical issues and to question, or at times challenge, the 'authority of experts and their claims' (Hess 1997 p.1). These activities caused the mid-1990s wave of criticisms of STS that have become known as the so-called 'science wars' (Hess 1997). Indeed it has been argued that:

> [T]he conventional ideologies and myths that STS scholars challenge are the very myths that justify and legitimate current practices in the scientific, educational, legal, and many other institutions. To displace them would thus be to tamper with the legitimation of powerful vested interests, not only in science but also in society at large.
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> (Edge 1995 pp. 19-20).

While some of the intellectual criticisms of STS come from within social science disciplines, many more come from outside, particularly from technicians and others with vested industrial interests. These criticisms attempted to dismiss an entire field of study and a huge volume of theory

and research that continues in various forms to this day. In response, there have been several attempts to defend the interdisciplinary perspective of STS by making explicit the potential for conflict and justifying it as a site for debate of complex science and technology issues in an increasingly technologically dependent society (Hess 1997; Nelkin 1995). Some have found that sociological studies of technology provide an important interdisciplinary resource for strategies, policy and reform while gaining new insights from the work of classical sociological theorists (Hess 1997; Restivo 1995). On the other hand, others argue that the profound insights provided by the theoretical traditions of Marx, Durkheim and Weber were forged in the nineteenth century in a world completely transformed during the twentieth century (Cassell 1993). Giddens observes that while many of the classical concepts and theories no longer apply to aspects of contemporary society, they remain as the basis for contemporary sociological thought, although subject to 'manifest distortions and neglect' (Cassell 1993 p.3).

Many scientists working in disciplines outside the social sciences predominantly make use of the latest findings in their field that appear in the most recent publications and library acquisitions, which means that earlier contributions and often superseded theories tend to be obscured if not obliterated (Merton and Sztompka 1996). Scientists rarely question the theoretical framework or paradigm in which they work in any given normal period (Kuhn 1962). However, while many sociologists are inclined to adopt similar orientation and follow many of the practices of the natural sciences, they remain reluctant to abandon the classical works of sociology altogether. Nevertheless, there are some social scientists like George Ritzer that argue at 'some point in the future, the social world will be so different that even Marx, Weber, and Durkheim will prove to be of little relevance in thinking about it' (Ritzer 2000 p.3). When that time comes,

according to Kuhn, the anomalies that appear will cause a lack of confidence in the existing paradigm, producing a crisis from which a new paradigm would emerge and a social scientific revolution would have then occurred (Kuhn 1962). However, in the social sciences a new theoretical framework does not necessarily disprove previous theories, which may still have many adherents. In such cases, if there is no single, agreed measure of comparison between the two paradigms there is incommensurability and a dialogue ensues between the two oppositional views (Hess et al. 1999; Kuhn 1962). While some might argue that such a dialogue may only obscure understanding under meaningless debate it may also enhance social knowledge and provide a greater understanding of the oppositional issues and points of view, which may enable translatability across theories. This re-examination of the past might also mean that older findings that were lost may be rediscovered and presented as new discoveries. While the time for the corpus of classical sociological work to have little bearing on the social world of the twenty-first century has not yet arrived, attempts to extend or build on these classical theories continue in the work of contemporary social thinkers. In STS for example, conflict theory is grounded in the theories of Marx, Weber and Durkheim (Restivo 1995). Indeed, many of today's social concepts might be seen as attempts to form coherent theories built on classic sociological works to explain contemporary social dimensions and connections.

The background of the thesis

The background of this study begins with federal government proposals to apparently ameliorate some of the endemic socioeconomic problems in regional Australia. Historically, remote or rural townships have always been particularly vulnerable to economic downturns and any long-term

decline in local employment opportunities. Indeed, rural decline in working-age populations, rising unemployment and poverty can be found throughout the western world and its common occurrence in Australia has rarely aroused cohesive government action until recently (Alston 1998). In Australia, the general demographic trend over the twentieth century has been for a decline in the population of inland rural areas. At the beginning of the twentieth century, 54% of the population lived in rural and remote areas, 37% living in what are now the eight state and territory capital cities while 9% 'inhabited large coastal towns' (Kenyon 2001 p.3). At the turn of the twenty-first century 70% of Australians were living in cities, with 63% in the state and territory capitals and 16% in coastal provincial cities, while only 21% of the population inhabit inland rural Australia (Salt 2000; cited in Kenyon 2001). For many Australian small inland towns and rural communities-of-place, this relative decline in population results from complex factors, which include a lack of employment and educational opportunities that accompany the loss of services and the gradual degradation of local infrastructures.

Disparities between the level of services available in rural and urban regions of Australia have been widening almost unchecked over the past decade with the centralisation of private and government services to larger urban centres (ACSWC 2000). Arguably, this was made possible by the strategic application of electronic banking and other information and communications technologies, which have radically reconstructed labour and financial markets in urban regions and global cities. However, the impact of this reconstruction on rural regions has had much deeper and wider consequences in decreasing levels of local services and business activities while increasing levels of unemployment and subsequent poverty (Forth 2000). This has resulted in a loss of the more mobile members of the community to predominantly new urban and larger metropolitan

centres, particularly the community lifeblood of its youth and young families. In comparing the locations of poverty in Australia in the 1990s with those in the 1970s, it is found that poverty is pushing outward from cities to declining rural towns (Fincher and Wulff 1998). While Fincher and Wulff emphasise the importance of off-farm work to sustain rural industries, in many of the smaller rural towns public and private sector services are being moved to larger urban regional centres (Argent 2000; Kenyon 2001; McKenzie 2000). Various governments have been attempting to counter the detrimental effects of this trend by sponsoring self-help local initiatives, exemplified in the concept of Regional Transactional Centres (Fincher and Wulff 1998). While the demise of rural communities is not a new or unforeseen consequence of changes in the political economy, it has now ostensibly become the paramount concern of governments (House of Representatives, Standing Committee on Primary Industries and Regional Services 2000).

An emerging agenda

Many commentators trace the current emergence of rural issues onto Australia's political agenda to two main factors. The first factor was the growing level of support in rural regions for an emergent conservative far-right ideology and secondly, the defeat of the conservative coalition government in the 1999 Victorian State election through the alienation of its rural voters (Green 2001). The emergence of far-right political parties in Australia, a common trend among many other Western democracies, provides some justification for these simplistic assessments. To be sure, at the Federal level the electoral dominance of the conservative coalition has also helped to put rural regional issues on the political agenda. Even so, rural discontent with social and economic urban based policies has steadily increased over the past two decades and is now emerging through local

government, industry and economic organisations calling for government assistance and funding for better access to computer technologies and telecommunications infrastructures. Pressures on Australian governments have also come from international organisations and multinational corporations to open the previously protected Australian telecommunications market to wider competition. In 1995, a Ministerial Meeting of the Organisation for Economic Co-operation and Development (OECD) Council requested a report detailing recommendations for its member governments in the formulation of policies and the provision of infrastructures to exploit technological advances to facilitate and stimulate electronic commerce (e-commerce) activities for the new global economy. The OECD report, *Towards a global information society*, highlights the risks of creating a two-tier society of information rich and poor and the potential loss of cultural identities in an emerging global information economy driven by technological innovations and convergence (Ypsilanti et al. 1997). The anticipated adverse effects of introducing Global Information Infrastructures – Global Information Society (GII-GIS) in 'economic friction, social costs and adjustment problems' (Ypsilanti et al. 1997 p.11) were to be mitigated by individual governments through social policies, provision of affordable universal access and competitive safeguards.

On February 15, 1997, Australia joined many other nations in signing a global telecommunications pact (Lander 1997). 'The Agreement on Basic Telecommunications Services, negotiated at the World Trade Organisation (WTO) in Geneva, covers about 69 countries and 95 percent of world telecom revenues' (Lubetkin 1997). Until 1997, telecommunication companies found it difficult to compete in many countries because of the restrictions imposed by national governments on the multinational corporations to protect and retain control of their nation's own

telecommunication services (Rifkin 2000 pp.221-2). Under the terms of the Global Telecommunications Agreement, state telecommunication monopolies will be deregulated to enable joint ventures and to provide unfettered connection for global business networks. For example, AT&T and British Telecom formed a jointly owned company to provide 'telephone, Internet, and data services to multinational companies in more than 100 countries' (Mills 1998 cited in Rifkin, 2000 p.222). The Global Telecommunications Agreement came into force on February 5, 1998, with the U.S. Federal Communications Commission (FCC) Chairman, Kennard, stating that 'the U.S. Government will monitor implementation by all WTO member countries' (McCarrick 1998).

The context of the research

The context of the research is formed by Commonwealth Government strategies that seek to deregulate the state monopoly of telecommunications in Australia, thereby encouraging private ownership and the introduction of competition. The Howard Government's conservative party coalition overcame strong protests from the opposition parties and some of its own members from non-metropolitan electorates to achieve the partial privatisation of Australia's national public telecommunication provider, Telstra. In November 1997, 4.289 billion shares or 33.3% of the total equity of Telstra were floated on the stock market and raised $14.3 billion, while the Government still retained control of the nation's telecommunications. According to the Howard Government, this partial sale of Telstra enabled it to retire some of Australia's debt and provide $250 million for a Regional Telecommunications Infrastructure Fund (RTIF) to bridge the gap between the levels of remote, rural and urban telecommunication services (DoCITA 2000). The RTIF was later to become the *Networking the Nation* fund with Telstra's second tranche of

2.133 billion shares floated in October 1999 (DoCITA 2000). This time, the sale of 16.6 % of total equity raised a further $16.02 billion and brought the total private ownership to 49.9%. The *Networking the Nation* fund was purported to be available to assist not-for-profit organisations in the provision of programs to support the telecommunication needs of non-metropolitan regions. Programs that have successfully gained grants include community Telecentres or Telecottages, Community Technology Centres and Regional Transaction Centres as well as the more controversial grants to create Internet Cafes (Young 2000).

The breakdown of the funds distribution from the sales of Telstra shares (see Appendix A: Five-year allocation of funds) can be seen to overwhelmingly favour some states. In particular, Tasmania and Queensland benefited from the partial sale of Telstra, the home states of Senator Harradine (Tasmania) and the late Senator Colston (Queensland). The Howard Government needed to secure the votes of both of these Independent Senators to pass the bill for the sale of Telstra. The allocation of funds raised accusations from the Opposition parties of pork barrelling and of selling public assets to buy votes (ABC 1999). In addition, the failure to publish audit reports on the performances of the RTIF or *Networking the Nation* fund, which were supposedly due in June 2001, attracted several criticisms of the fund's administration (Young 2000). This omission appears to support the Opposition claims of the Government's buying of votes and a political ideology of privatisation rather than a primary concern for the well being of regional Australia.

While Telstra is no longer Australia's sole telecommunications carrier, at the time of writing it retains its statutory responsibilities and community service obligations, particularly in remote and rural areas where it has secured grants from *Networking the Nation* fund to test its Asymmetric

Digital Subscriber Line (ADSL). Telstra's wide-band technology of ADSL uses existing telephone cables and is a viable alternative to the more expensive-to-install broadband technology using fibre-optic cables. In reality, fibre-optic cable-networks are not universally available even in metropolitan regions or global cities. However, many of the older telephone exchanges, much of the telecommunication wiring in some high-rise buildings and standard computer modems are incompatible with the technology of ADSL and will require some modification or replacement at additional cost to end-users. According to the figures coming from Telstra and reported to Senator Lundy, 4300 of the 5200 exchanges Australia-wide, predominantly in rural regions, are not planned to be upgraded to become ADSL-enabled (Anon 2002). Therefore significant obstacles to the wide spread adoption of broadband technology remain at this time.

From a base of three carrier licences in 1996, the federal government, despite being a major shareholder in Telstra, has now issued 47 additional licences to bring the total number of carriers competing for Australian telecommunication services to 50. The privatisation of Telstra to effectively deregulate and introduce competition into Australia's telecommunication industry has evoked several studies and reports on the continued performance and delivery of telecommunication services under universal service obligations. Many of these critiques are exemplified in Webster's study of the privatisation of Telstra, *Holes in the Safety Net* (Webster 2000a). For example, Webster found that in the structural reforms of Telstra that preceded its moves towards full privatisation, regulatory compliance improved services in urban areas while rural services experienced further decline. Webster argues that while legislation sets down the guaranteed maximum time periods for connections and repairs to ensure that Telstra continues to provide an acceptable level of service to all customers, these maximum times have been ensconced in the

Customer Service Guarantee (CSG) date. Subsequently, work management processes have focused on completing the work by the CSG date, rather than attempting to achieve a rapid service delivery. Where the CSG date has been passed, as frequently happens in the regionally restructured Telstra, the focus moves to 'cost minimisation rather than service delivery' (Webster 2000a p.55). Dominating the new carriers are overseas-based multinational corporations or their subsidiary companies, as are many of those involved in the outsourcing partnerships and joint ventures between government and private enterprise in information technology and telecommunication projects. For example, the UK-based Cable & Wireless acquired majority ownership of Optus Communications in 1998, leaving Telstra as the only one of the nation's telecommunication carriers with majority Australian equity (Eason 2001).

Opening Australian telecommunication markets

In 1997, following the Howard Government's removal of import restrictions on telecommunication equipment, Australia's dormant call centre market was opened to major U.S. call centre equipment and software companies and by 1999 the number of call centres in Australia had exploded (Kjellerup 1999). From a base of 800 call centres employing some 10,000 people in 1997, the industry has grown to over 5,000 centres employing nearly 100,000 in 1999 and continues to grow in most urban regions of Australia. There are reports that estimate businesses in the U.S. will outsource over 500,000 call centre seats to the Asia-Pacific region over the next five years. It is suggested that Australia will receive the lion's share of this work because it is seen as a stable social and economic country with the second lowest cost for each call centre seat after New Zealand (Foreshew 2002). The 'seat' terminology is used in customer service management to refer to the number of workstations providing a

maximum staffing capacity of a call centre. An overwhelming majority of around 60% of the industry's Customer Service Representatives (CSR) or Tele Sales Representatives (TSR) are women employed on a flexible, part-time or casual basis, which means their working hours depend on the workloads and skill mix required at the time. In many of the private commercial centres, the seats seldom have the opportunity to get cold from its previous occupant during a twenty-four hour, seven days a week operation and hence are referred to as 'hot-seats'.

There are many critiques of call centres operating a so-called galley-slave environment of a machine controlled pacing of work and many are regarded as toxic workplaces with an annual staff turnover of between 30% and 100% (Kjellerup 1997-2004; Robertson 2002; URCOT 2000). While the majority of call centres have been established in Australia's high population metropolitan and urban areas, federal, state and territory governments have increasingly seen the application of computer and telecommunication technologies in call centre systems as the solution for unemployment in the regions. Likewise, the introduction of community teleservices or telecottage centres is another attempt to utilise information and communication technologies to provide local employment with a variable success rate. The main objectives in the implementation of community teleservice centres are to serve the unique needs of its community through provision of computer-based training, Internet access and various secretarial or financial services. The Australian experience of telecentres in rural development appears in a study of the federal government's bottom-up approach to community development (Share 1997). While the aim of the telecentres program is to provide rural community development and stimulate small business, the paper found that they provided few opportunities for employment in information technology and telecommunications. It can be assumed that the office administration

and information service facilities they offer are at risk from a 3-year cycle of microcomputer obsolescence and the continuing trend for an increasing use of microcomputers with Internet access in the home and within small businesses and farming enterprises (Crandall 1998).

Regional summits

Another major federal government initiative to address rural concerns were the Regional Australia Summits, beginning with the one held in Canberra on 26-29 October 1999 with an interim report published on the 14 April 2000 (see DOTARS 2001). Among the many strategies that were discussed at the Regional Australia Summit, two common themes emerged. First, an agreement between delegates that each community was faced with unique problems and opportunities, which required a close and direct community involvement in any development of their region. Delegates agreed that the imposition of one-size-fits-all solutions were to be avoided. Secondly, there was consensus that information and communication technologies should play major roles in regional developments to provide access to national and international markets and the global economy. The Summit called for governments to provide incentives and funding for the necessary infrastructures and community projects while forging partnerships between government departments and instrumentalities, multinational corporations and small to medium enterprises.

Concepts for regional development

The global extent of regional decline has meant that Australian governments have been able to source advisers from international, European and North American organisations and institutions. These groups have been invited to present a range of concepts for regional

development and to relate their experiences in community projects to Australian community and government organisations. For example, Michael Woolcock of the World Bank (Woolcock 2000) extended the OECD's presentation to the Regional Summit on the need to enhance social cohesion, cooperation and trust in communities for the development of informational technology and telecommunication enterprises through the facilitation of local electronic and social networks (Hugonnier 1999). Hugonnier found that the new regional policy paradigm faced four challenges: the creation of jobs at the local level; making the most of globalisation; facilitating a genuinely sustainable development and finding new paths of governance. He believes that these challenges for regional policy have changed the normal top down processes of development to an endogenous development policy with a bottom-up approach. For Hugonnier, the creation of jobs relies on the creation of new businesses, which can be helped by regional authorities enhancing current levels of community engagement, improving the institutional framework for the creation of enterprises and in facilitating local networks. A model for rural development was presented to the Summit of how public, private and philanthropic communities prepare for a more viable rural economy in Nebraska, U.S. (Allen 1999). Indeed, following the Summit there have been many presentations to government departments and community groups advocating the use of information and communication technologies for community developments. Christopher Hoy from Nebraska Community Information Technology (Hoy 1995; Hoy 2000) proposed a community technology planning strategy to help provide jobs, improve education, increase quality medical care and create more efficient local government. However, many of these initiatives were to be funded by industry and business Foundations and the creation of Community Chests from legacies. Both options are frequently utilised in the USA to fund community developments. Claire Shearman from the European Association of

Community Networking proposed the need for community networking to create a stronger voice in national and global policy issues relating to digital technology (Shearman 1999). She warned of the dangers of being seen but not heard on such issues in the tendency to develop 'voices from the tower' in the Information Society. Others proposed building collaborative community networks to overcome the so-called 'Digital Divide' (Borgstrom 1999; Peschiera 1999). More recently, Dr Florine P. Raitano, Executive Director of the Colorado Rural Development Council, provided some examples of the deployment of information technology in Colorado's Rural Frontier to a regional communications forum (Raitano 2001). One relevant example was the provision of state wide high-speed broadband networks connected by more affordable 'bean-pole' technology to local community networks (Raitano 2001). However, the impact of Australian distances and low population densities on the viability of private sector telecommunications carriers rarely appear in the consideration of these advocates of community information and communication technology projects. In a competitive environment of economic restructuring and the privatisation of public infrastructures, return on investment from the number of customers for each kilometre of electricity or communication line is of vital consideration for supplier viability in the level of maintenance and upgrade of services. More importantly, Australia lacks the Community Chests and Foundations that have been instrumental in providing the funding for many of the community projects in the U.S. At this time, the overwhelming majority of Australian regional projects using ICT continue to rely on Federal or State and Territory government grants.

Few of the proposed community informational technology concepts escape criticism that Australia is not the U.S. or the counter argument that many of the concepts are adaptable to Australian conditions. These same or similar arguments are heard from participants developing communities in rural

regions, academics in fields of rural economics and sociology, and public servants in Australia's three levels of government. A study of the challenges facing Australian rural regional communities-of-place in moves towards achieving the vision of access to markets in a global economy require analyses against this backdrop of global, national, state and regional activities. At both regional and community levels, within complex networks of institutions, organisations and social structures, actors with vested local interests are engaging state, national and global strategies in the application of information technology and telecommunications (Kenyon 2001). Therefore, a combination of macro and micro-level sociology is essential and complementary for any analysis that attempts to provide a complete understanding of the problems likely to arise. At the same time, the regional and community levels remain the main focus of this study, exploring social structures and examining the interactions within and between networks in communities, institutions and organisations that are involved in community informational and communications technology projects. The assumption behind this study is that there is such a complex interrelatedness between technology and society that the implementation of new technology or technological changes are not simply passively received or accommodated in social life. Indeed, it is debateable that 'humankind's common disposition is to react and accommodate [technological] change, not to try and reverse or redirect it' (May 2002 p.24). Rather, technology is advanced or inhibited by the structural characteristics of the particular society at the specific time of its introduction (Das and Kolack 1989). In the ongoing restructure of rural regions, community ICT projects are now emerging as a method of survival, if not the panacea for socioeconomic ills. Therefore, while contributing to a broader question of whether a community can promote its own development given the global nature of ICT and the prerogative of a nationwide telecommunications network, the research question is:

What might get in the way of communities trying to use information and communication technology to develop their region?

The structure of the thesis

To answer the research question, the structure of the thesis requires a review of relevant literature. This review begins in chapter 2 with a brief discussion of the ontology and epistemology inherent in the problem before progressing to a review of how the combining of sociology and technology studies might be mutually beneficial to social inquiry. From the ongoing structure / agency debate emerges the concept of a duality of structure, the knowledgeability of human agents and the recursive nature of social practices. These essential features of structuration theory lead to a review of the shaping of technology and contribute to answering the research question. The review explores technological determinism, technological change, gender and political studies of technology. A section on networks and information technology begins with the polar perceptions of computer technology and the divergence of confidence in technological systems. Many definitions of a society or economy influenced by information and communication technologies are discussed and several critiques reviewed. Complex issues of labour and technology in the workplace, arguments on the displacement of people by machines and the intractability of unemployment are some of the issues explored. The gender division of labour and the opportunities for women leads to discussions of working online and issues of call-centre work. The geography of telecommunication networks focuses on the availability of access to telecommunication facilities. Informational capitalism, globalisation and the economy are explored through studies of the networked or online society.

A review of the social dimensions of Australian rural regions in chapter 3 begins with definitions of the terms *rural*, *regional* and *community* so essential to understanding rural and regional community studies. Reviews of the many community studies of regional Australia from the nineteen seventies provide the range of theories on which to base field studies and analyses. Issues of gender in rural regions, rural ideologies, the impacts of globalisation and effects of neoliberalism arise in many contemporary studies of regional Australia and therefore, require some examination. Social capital is a contentious concept that has emerged in recent years and its definition, application and measurement are discussed. There are a number of arguments suggesting that social capital is elitist in assessing causes for its low levels and in its prescription for a healthy community. On the other hand, there are arguments that recognise the benefits of social capital while finding problems in its measurement and definition. As a heuristic device however, it may help explain the motivations and practices of those from the higher social strata that perceive technology as the means to solve most of the social, economic and political problems of regional Australia.

The research methodology detailed in chapter 4 begins by describing the research strategies behind the development of the methodology and research design. In the arguments that follow on from chapters 2 and 3, an abductive strategy was chosen to abstract typical motives, actions and structures for the exploration, description and understanding of a case study. A single case study approach was argued on the grounds that the selected study is of a pilot strategy for rural and regional community development through the application of information and communication technology. It was therefore unique in many ways although there were similarities to be found with other development projects, just as it was

argued at the Regional Summit that the situation of each rural community is unique although there are commonalities across other communities. Therefore, a comparative study was made more difficult by the possible number of variables it was not theoretically impossible. There are discussions on the collection of qualitative data complemented by quantitative data and methods of data verification. The researcher's attributes are reviewed along with ethical guidelines, principles and activities required for Australian social research. It is therefore argued that any acknowledged or unconscious bias by the researcher will be clearly revealed.

The field study is presented in chapter 5, starting with the social and economic history describing the rural social hierarchy, which leads to the collection of contemporary data from the region and the community. The community framework is described through the perceptions of its inhabitants and defines the complex networks and social nodes at which relationships intersect. The important contributions women bring to the region are examined through first hand accounts that provide points for later discussions on the creation of regional business enterprises. A brief history of the creation of the technology centre initiative is constructed from documentation, informants' accounts and government information. The challenges facing the Call Centre Division, the changes in its fortunes leading to its potential demise is constructed from the people and networks involved. The achievements of the Industry Development Division in the region, the networks it has forged and its future potential is gathered from the community and wider networks to bring together relevant experiences of rural and regional Australia. Analyses of the data gathered from the field studies through the operationalization of theories examined in the literature reviews appear in chapter 6. The stratification of rural regional communities and the actions of the 'Movers and Shakers' provide the

context for an examination of the social capital extant in the region's networks and an analysis of rural employment of informational technology. Finally, the conclusion of the thesis in chapter 7 draws together the background and key arguments in answering the research question and, following Maxwell's philosophy, attempts to elaborate on the possible future and recommendations for the socioeconomic sustainability of the Bemeringal region of Australia.

Conclusion

Contemporary social thought is conditioned by the potential of information and communications technology to produce a network society in a new information age based on a knowledge economy. A philosophical argument suggests that despite the substantial advances in social and technological knowledge since the Age of Enlightenment, inequality and appalling human problems continue. To resolve these problems of day-to-day action encountered in life, an intellectual revolution is advocated for academic inquiry in moving from a philosophy of knowledge towards a philosophy of wisdom by giving priority to social needs to find the aims of scientific and technological developments (Maxwell 1984).

The background of this study begins with the Commonwealth Government's strategies to ameliorate the endemic socioeconomic problems and discontent that are found in many Australian regions and present issues of concern for all Australian governments. Government policies for the centralisation and rationalisation of services in regional towns have exacerbated endemic social and economic disadvantages, particularly for those in remote and rural regions brought about by the tyranny of distance and low population density. Far right politics became the rallying point for social discontent primarily, but not exclusively, in

rural regions. The Liberal and National Parties conservative coalition became concerned at the erosion of support in their traditional electorates and a focus on regional Australia began to emerge. The Regional Summit was called to set the agenda for Australia's regional development and provide a regional focus for Commonwealth Departments in an all-of-government approach. Meanwhile, pressures from international organisations and multinational corporations on the Commonwealth Government to open Australia's protected telecommunications market to international competition began to take effect in 1997. As a member of the OECD, Australia was obliged to follow the organisation's guidelines in the introduction of global infrastructures for a global information economy. Australia later joined with other nations in signing the WTO agreement on Telecommunications Services and began the deregulation of the national telecommunications industry through moves for the sale of Telstra, which had long been the aim of the Liberal Party. The first two sales of Telstra shares enabled the federal government to create the Regional Telecommunications Infrastructure Fund and the *Networking the Nation* fund. It was the creation of these funds, along with the removal of import restrictions on telecommunication equipment that created the trend for using information technology and telecommunications to ameliorate regional unemployment that forms the background for this study.

The global extent of regional decline in western economies provides potential solutions to the problems in Australia with examples from North American and European experiences. While the majority of seminars and papers presented at the Regional Summit came from organisations outside of Australia, the common themes were that community projects implementing information and communication technologies would provide the employment opportunities necessary to sustain rural and regional communities in the global economy. For these projects to succeed it was

argued that the communities must posses or have the capacity to build the necessary social structures, interactions with high levels of social capital and agents with sufficient levels of human capital. The conclusions of the Summit were that the imposition of one-size-fits-all solutions was to be avoided and that information and communication technologies should play major roles in regional community developments. The research question must therefore ask what might inhibit the implementation of information and communication technology in contemporary rural regions of Australia? The literature to be reviewed in chapters two and three must therefore include material on networks of information and communication technology and the social dimensions of Australian rural regions, which includes the concept of social capital. But the literature reviews must first begin with the connections between sociology and other constituent social sciences, particularly that of science technology and society (STS). It is widely recognised among the many colleges of STS that technology forms an indissoluble part of human society and that social inquiry may be advanced by the construction of a cohesive analytical framework in an interdisciplinary approach. Such an approach incorporates the profound insights provided by the theoretical traditions of classical social theorists in sociology with contemporary science and technology studies. The challenges that are to be faced in a study questioning the conventional views of society and technology, structure and agency require the construction of robust analytical tools from the disciplines of social sciences. That process begins with the connection of sociology and technology studies introducing the literature reviews of the following two chapters.

CHAPTER 2: TECHNOLOGY IN SOCIETY

Introduction

The Commonwealth Government's proposed strategy is to halt and reverse the socioeconomic decline of rural and regional Australia by opening the regions to an electronic marketplace. This is to be achieved through the funding of community developments that utilise information technology and telecommunication networks. Much of the research generated by both overseas and Australian development organisations and institutions have emphasised the need for regional communities to possess or have the capacity to build the necessary social structures, educational and organisational characteristics to be able to plan and implement technological changes for sustainable development. The issues for inquiry identified in the previous chapter are, very broadly, information and communication technology, communities in rural regions and the level of social capital in those regions. These issues point to the need to review literature on technology, particularly that of computer and telecommunications technology, and the complex relationships with society in rural regions. First though, a brief review of science and technology studies that have recognised the 'uptake and use of the new technologies depend crucially on local social context' (Woolgar 2002a p. 14). In this thesis, the research problem is implicit in the wider question of whether a community can promote its own development and the research question of what might inhibit the implementation of information and communication technology in Australia's rural regions.

The chapter opens with a brief discussion of the ontology and epistemology inherent in the problem and then progresses to a review of the duality of structure in a process of structuration that links to the social construction

and shaping of technology. A review of the wider fields of science and technology studies, including gender and political issues within technology in general, leads to discussions of computers, telecommunications, and networks. Debates encompass the various perceptions of information and communication technologies, the polarity of pessimistic and optimistic views, the levels of confidence in technology and the concept of an information society. A review on the application of information and communication technology in the workplace looks at the gradual decrease in specialist skills required of users. This enables discussions on issues of women's employment, introduces concepts of deskilling, online work and network enterprises linking computers, electronic commerce and global communications.

Connecting sociology and technology studies

In debates connecting sociology and technology studies with other disciplines in the social sciences, care should be taken to explicate the different meanings of terms (Hess 1997). For example, whereas social scientists may perceive the word *positivism* as referring to the thoughts of Comte on the unity of sciences, it might also be used as a pejorative term referring to someone with simplistic and uncritical views of science. However, in science and technology studies the term *positivism* is normally associated with the philosophical positions that emerged in the sphere of the Vienna Circle with the key concept of the verifiability principle. In the positivist philosophy of science the verifiable principle emphasises that while 'some statements could be verified by logic or by definition, the more important means of verification was experience' (Hess 1997 p.9). However, some scholars argue that the traditional positivist model is an inadequate foundation for sociology as a science. For example, there are those that postulate sociology has been unsuccessful in contributing to the

amelioration of significant social problems by assuming it can study social phenomena in the same way as physics and chemistry, discovering regularities and formulating generalities about them (Warner and England 1995). In response to such arguments, there are suggestions that Warner and England's work seems to reform rather than reject positivism, creating instead an ethical positivism (Bell 1995). There are some who believe that it is not the role of sociology to solve social problems, which are ultimately political and are therefore the role of political scientists to examine and politicians to engage. Others suggest that the link between technology and sociology is dialectic in that society constructs technology just as technology constructs society (Bell 1995). Indeed, Bell gives Warner and England great credit for trying to wake us from our technological somnambulism and he welcomes their contribution to renewing sociology's focus on human agency in recognising that technology forms a part of social structure and is a dialectical source of guiding and improving agency.

Bell's argument raises the problems of a structure - agency dichotomy in social analysis. Human agency focuses on the micro level of human interactions rather than the macro structures of society as a whole. Agency implies freedom of choice and movement as opposed to structure, which is constraining and static (Haralambos 2000 pp.16-19). When sociologists talk of human agency they highlight the capability of humans to change their circumstances and creatively respond to social constraints, whereas structure is seen as the way social context influences behaviour (Layder 1993 p. 210.) Together, structure and agency reveal that people create and at the same time are influenced by their society. The problems arise in the degree of emphasis placed on either agency or structure that provide an inadequate view of social phenomena (Haralambos 2000 p.19.) Giddens

attempts to end this dualism by merging the influences of structure and agency.

A structuration process

An attempt to transcend the problems of social structure, individual agency and social reproduction has long been proposed in the duality of structure, a key concept in the theory of structuration (Bryant and Jary 1991; Giddens 1976; Giddens 1979; Giddens 1981; Giddens 1984; Giddens 1991; Giddens 1999). The problem occurs in the dual analytical perspectives of objective social relationships and subjective social interpretations. 'Theories that focus on the structures that determine social outcomes (e.g., Parsonian functionalism; Althusserian Marxism) fail to consider the individual as active, knowledgeable, and reflexively contemplative' (cited in Dear 1994 p.5; Giddens 1979 p.54). On the other hand, Giddens' process of structuration relates to the duality of structure in the '*fundamentally recursive character of social life, and expresses the mutual dependence of structure and agency*' (emphasis in original Cassell 1993 p.122). The re-conceptualisation of structure in Giddens' structuration process attempts to overcome the three cardinal weaknesses in the current use of the term (Sewell 1992). These weaknesses are first that structural arguments tend to be socially determinist and lose the efficacy of agency. Secondly structure implies stability, which tends to obstruct notions of change. The third weakness is that 'the term structure is used in apparently contradictory senses in different social scientific discourses, particularly in sociology and anthropology' (Sewell 1992 p.3).

For Giddens, structure is not a fixed entity but rather a recursive process comprising a duality of rules and resources (Giddens 1984; Giddens 1991; Giddens 1999). To be sure, agency and structure are analytically inseparable given that structure is at the same time both the outcome and

medium of human agency (Fielding 1988). In other words, structure is recognised as both the medium and outcome of the practices of social systems and as both enabling and constraining (Cassell 1993 p.122). In spite of wide agreement, Giddens' theory of structuration has attracted a torrent of criticism (e.g. Bryant and Jary, 1991). Nevertheless, Sewell finds the duality of structure 'particularly congenial' and consistent with the theoretical strategies of other social sciences (Sewell 1992). Sewell's interpretation of the structuration theory argues that Giddens' rules have a virtual existence rather than being actual entities and should therefore be seen as cultural schemas or procedures (Sewell 1992). On the other hand, Sewell interprets Giddens' resources as having an actual or concrete existence in 'anything that can serve as a source of power in social interactions' (Sewell 1992 p.9). He reformulates Giddens' two classifications of authoritative and allocative resources into the classifications of human and non-human resources. On the other hand, while Borg adopts Sewell's definition of resources, he reduces the concept of rules to the techniques applied in the reproduction of social practices (Borg 1999).

Borg utilises Sewell's critique and reformulation of Giddens' theory of structuration in a case study of how chauffeurs in the years between 1903 and 1912, attempted to enhance their social power through the use of the new automotive technology (Borg 1999). According to Borg, when the wealthy of American society acquired the new transport technology of automobiles the rules or cultural schemas governing the employment of coachmen were generalised and transposed from the situation of coach, coachman, grooms and stable in which they were first learnt to the new situation of automobile, chauffeur-mechanic and garage. This occurs as a *durée*, a continuous process of action and cognition from lived experience and day-to-day life in which both structure and agency play a role (Giddens

1984). Borg's analysis shows how the owners and other stakeholders in the automotive industry were able to draw on their access to additional resources to form new structures in the employment of chauffeur-drivers and the outsourcing of repairs and maintenance to garage mechanics. Sewell argues that while structural change is not automatic it is made possible by the relationships at the centre of the concept of structure, which he describes as follows:

> Structures ... are sets of mutually sustaining schemas and resources that empower and constrain social action and that tend to be reproduced by that social action. But their reproduction is never automatic. Structures are at risk, at least to some extent, in all of the social encounters they shape – because structures are multiple and intersecting, because schemas are transposable, and because resources are polysemic and accumulate unpredictably.
>
> (Sewell 1992 p.19)

Therefore it is argued that the duality of structure from the theory of structuration is congruent with the social constructivism found in many science and technology studies.

Social constructivism

While the term 'social constructivism' refers more broadly to social studies of knowledge, it can be distinguished from the 'heterogeneous constructivism' normally associated with actor-network theory (Hess 1997). Despite many attempts to bring the discourses of sociology and technology studies closer together in a social constructivism, the gap appears to have widened over the last decade (Rammert 1997). Rammert attempts to increase mutual recognition and encourage closer cooperation when he recognises that the success of social constructivism has motivated a large number of case studies on the construction of technical artefacts and systems. He therefore proposes new rules of sociological method inspired

by those of Giddens based on constructivism and Durkheim's aims of sociological rules (Giddens 1972; Giddens 1976; Morrison 1995). Rammert's method is a constructivist explanation of technology on the local level through the deconstruction of local projects, the development of techno-structures as a recursive process and the result of micro-political negotiations between local actors and the macro-social networking of collective actors (Rammert 1997). Therefore the social constructivism of technology shares many of the key insights of Giddens' structuration theory (Borg 1999).

The development of science and technology studies

The development of contemporary science and technology studies is generally considered to begin with the work of researchers in Edinburgh including David Bloor, Barry Barnes, David Edge and Donald MacKenzie, that emerged as the framework for Bloor's 'strong program' in the sociology of scientific knowledge (SSK) (Bloor 1976; Hess 1997; MacKenzie 1996). Bloor's four basic tenets of his strong program were causality, impartiality, symmetry and reflexivity, each drawing criticism from one or more of the social sciences. The sociology of scientific knowledge focuses on the content of science and provides insights for the emergent feminist, anthropological and cultural studies of science and technology (Bowden 1995; Hess 1997; Restivo 1995). With the sociological focus on science and technology turning more towards technology, the emergence of critical and controversy studies and contemporary developments in feminist studies began to challenge value-neutrality and displace the sociology of scientific knowledge with the more theoretically supportive perspective of science and technology studies (Hess 1997).

Actor-network theory

Actor-network theory is largely the product of the Paris school of Science and Technology Studies of Callon, Latour and colleagues at the Ecole de Mines. Actor-network theory is unlike many other theoretical perspectives of society that focus on the idea of a stable social structure. Rather, actor-network theory claims that social structure is a precarious outcome of technical and social interaction. In actor-network theory, sociotechnical interactions remain open-ended and unpredictable in heterogeneous networks of human and non-human actors (Bijker 1995; MacKenzie and Wajcman 1999). The development of such sociotechnical networks is analysed as the efforts of actors to move other actors to different positions in a linked series of translations that change the meaning of the actors as well. Actor-network theory is now found to be problematic in many areas (Hess 1997). Indeed, in a recent paper, Bruno Latour has attempted to bury the concept of actor-network theory by driving four nails into its coffin (Latour 1999). These nails are the words: actor, network, theory and the hyphen. Latour argues that the word *network* no longer expresses its original meaning, which was to symbolise a series of transformations that were unable to be expressed by traditional terms of social theory. Instead, with the advances in telecommunications, Latour believes *network* now more commonly means the transportation of information without changing it and an immediate access to wider information sources. The hyphen coupling the words *actor* and *network* prompts visions of the agency and structure debate rather than its original purpose of bypassing that debate to see the terms as two faces of the same phenomenon. As Latour points out, it was never a theory but more a behavioural ontology. Finally, the meaning of the word *actor* was never formally defined, although the term *actant* instead of *actor* is sometimes used to combine human beings with non-human entities that have the ability to act and influence human action.

Callon and Latour believe their analyses 'should not privilege human beings by making them, *a priori*, the only active agents' (MacKenzie 1996 p. 15). Indeed, Callon argues that the absence of a satisfactory theory of the human actor, when combined with the role of non-humans, 'is precisely one of the strengths of Actor-Network Theory' (Callon 1999 p.181). According to Callon, the combination provides an understanding of the economic markets as networks because it 'is precisely because human action is not only human but also unfolds, is delegated and is formatted in networks with multiple configurations, that the diversity of the action and of actors is possible' (Callon 1999 p.194). He concludes that Actor Network Theory is not a theory and was never intended to be a theory. And it is from that aspect that the concept gains its strength and adaptability.

Social construction of technology

The concept of the social construction of technology emerged over the final quarter of the twentieth century with science and technology studies attempting to incorporate theories from multiple social science disciplines to gain a better understanding of emerging sociological, economic and technological issues. While hardly a new concept, the social construction of technology appears to be largely overlooked by many contemporary social analysts. The idea that technology was socially constructed emerged from the Bath school of Harry Collins, when Pinch and Bijker extended Collin's empirical program of relativism (EPOR) and introduced the notions of closure, interpretive flexibility and social groups, into their conception of a social construction of technology (SCOT) (Pinch and Bijker 1984). SCOT attracted criticism for mainly focusing on the design stage and for failing to adequately account for social structures and power relations. However, many of the more recent SCOT studies encompass the users of technology and consideration of the social power of actors in their

analysis, thus moving close to Giddens' structuration theory (Borg 1999). In the meantime, network concepts have expanded to include models of techno-economic networks (TEN) (Callon 1991) and socio-technical networks (STN) (Elzen et al. 1996), which provide valuable insights into the heterogeneous processes of social and technical change. However STN, in contrast to an actor-network or techno-economic network approach, does not see technology as an actor because human and non-human actors are recognised as having different characteristics. In addition, while acknowledging the 'interpretive flexibility' of the artefact and agreeing with Callon's concept of anything passing between actors as 'intermediaries', techno-economic networks are characterised by their stable patterns of interaction. In techno-economic networks actors are constrained by incoming intermediaries, limited by the expectations and corrective actions of others in networks that place indirect limits on an actor's 'acting space'. This constraining influence tends to 'perpetuate existing patterns of interaction', thereby providing a certain degree of social resilience (Elzen et al. 1996 pp.104-5). What are the relationships that exist between humans and technologies with these patterns of interaction?

How humankind relates to technology

There have been attempts to define how humankind relates to technology. While the term 'technology' is derived from the Greek word for art, *Techne*, for some scholars art and technology in many ways remain closely connected:

> Technology, like art, is a soaring exercise of the human imagination. Art is the aesthetic ordering of experience to express meanings in symbolic terms, and the reordering of nature – the qualities of space and time – in new perceptual and material form. Art is an end in itself: its values are intrinsic. Technology is the instrumental ordering of human experience within a logic of efficient means, and the direction of nature to use its powers for material gain'
>
> (Bell 1980 p.20)

Bell argues that as a form of art, technology bridges culture and social structure while transforming the way we humans live our lives in radical but subtle ways (Bell 1980). Certainly, while technology might first be valued for its technical attributes, with competition and market saturation technology is increasingly distinguished by its art form, whether a sports car, a mobile phone or a personal computer. Conversely, others take issue with the commonly held notion that '... technology is consequential for the way we organise our lives' (Grint and Woolgar 1997 p.6). Grint and Woolgar argue that technology does not posses an inherent property or characteristic that causes it to impact on the way that we live. Instead, they avow a myriad of human and technology relations must be considered in achieving an understanding of technology's consequences for society. For them, technologies are neutral inventions that are organised expressions of a particular culture's productive structures, which advance 'a model of technology based on the realization of technical potential through the operation of conducive structures and circumstances' (Grint and Woolgar 1997 p.7). In other words, the interpretation of technical potential and adoption of a particular technology are dependent on the social structures and the economic, social and political agencies active at that time. Indeed:

> [T]echnology and structure can become so deeply intertwined that together they acquire an inertial quality – one that does not disallow improvement or refinement within limits but that does, over time, ensnare participants in a circular logic of cause and effect.
>
> (Thomas 1994, p.206)

The technology of the city is one example of urban sprawl as a result of the introduction of cars and road networks (Dutton et al. 1999).

Socio-historical studies of technology

Socio-historical studies of technology have provided a valuable understanding of how developments in technological innovation have come about through social structures and agents' interactions. A socio-historical technology study of the Netherlands' Deltaplan project, which followed the disastrous inundation of the Dutch coastal region of Zeeland in February 1953, looks at the effects of technology innovation (Bijker 1995). Bijker points out that were it not for the various engineering technologies employed in coastal defences of the Netherlands, the country would not exist. In his studies he posits three classes of models for technological development. The first of his classes encompass the materialistic models of relative autonomy, in which material innovation and mechanisation explains the need for technological development. The evolution and rationalisation of technological knowledge drive the cognitive models of his second classification and, finally, a class of social models originating in social practices related to technology. For Bijker, each provides successively better models to analyse the development of technology in relation to society (Bijker 1995). According to Bijker, it is this last class, and therefore the most advanced model, which focuses on the social shaping of technology (MacKenzie and Wajcman 1985; MacKenzie and Wajcman 1999). How then do members of society perceive the relationship between technology and society? Is it technology that determines the existence of a country or does social agency determine the technological means to achieve desired social ends?

Technological determinism

The two ideas that construct the thesis of technological determinism are autonomous technological development and social development determined by technology (Bijker 1995; MacKenzie 1999b; Williams 1999). MacKenzie's essay criticises the belief that changes in technology bring with it social changes when he cites historian Lynn White's account of the stirrup bringing about a feudal society in Western Europe (White 1962). However, White points out that while the stirrup opened the door to social change, entering into the expensive reorganisation of society to provide the necessary infrastructure to sustain the fighting machine of horse and mounted warrior was a matter of choice. Such decisions are made on economic or military grounds rather than to address the needs of a particular technology. Indeed, some scholars of science and technology would prefer to see White's account as a *parable* of technological determination of social changes rather than an example (MacKenzie and Wajcman 1985; MacKenzie and Wajcman 1999). MacKenzie argues that the simplistic appeal of technological determinism remains in people's complex experiences of change, particularly of the social effects of the innovations of information and communication technologies. The second idea contributing to the concept of technological determinism is the concept of technological autonomy (Winner 1977). While originally reflecting the fear of technology being out of control, it now conceives that technology has its own dynamic and that technological progress can therefore be taken for granted (Williams 1999). Williams argues that many policy-makers and members of the public adopt this view. According to Williams, these people fail to recognise the social factors and negotiations affecting the construction of technological change and the development and application of technology. Indeed, the importance of social factors and

negotiations continue to be ignored or minimised by sociologist such as Castells who writes that the rise of the network society:

> Cannot be understood without the interaction between these two relatively autonomous trends: development of new information technologies, and the old society's attempt to retool itself by using the power of technology to serve the technology of power.
>
> (Castells 1996 p. 52).

While recognising that the term *technological determinism* is a combination of two ideas, Bijker believes the two ideas should be kept separate, with technological determinism remaining a theory of society and autonomous technological development as a theory of technology (Bijker 1995 p.238). On the other hand, others consider technological determinism a myth (Grint and Woolgar 1997). They argue that while it can be detected in the more populist publications, it is difficult to find an academic who will admit to the derogatory label of technological determinist. While this may be true in academic circles, in the non-academic world technological determinism remains central to understanding the technical-society relationship, particularly in the determinist views of technological change (MacKenzie and Wajcman 1999).

There are those that express the view that many who support a form of technological determinism do so from the widely held belief that the Industrial Revolution occurred as a direct consequence of the technological development of steam power and improved production methods (Wheale 1984). Wheale argues that *a priori* assumptions held by such individuals 'tend to predetermine not only their descriptions and explanations of social change, but also their *prescriptions* for society' (Wheale 1984 pp.47-8). He suggests that these approaches to social analysis are normative or value-laden and ideological. Citing the Lysenkoist movement in failed attempts

to apply genetic modification in Soviet Russia and the racist experiments of Nazi Germany, Wheale introduces the concept of political determinism. He argues that the conventional perspective of technology as a politically neutral force is derived from the philosophy of scientism that finds any scientifically based technology to be apolitical and therefore encourages its unconditional acceptance (Wheale 1984). Critical theorists contest the political neutrality of information and communication technology in the current epoch of capitalism, elaborating on its 'pronounced significance in relation to the stability and health of the economic system' (the works of Schiller cited in Webster 1995 p.75). According to Webster, there are three key elements of argument employed by Schiller that begin first with the claim that information and communication innovations are decisively influenced by the market pressures to make a profit, which includes the commodification of information. Second, the degree of access to information and telecommunication infrastructure is determined by location in the social hierarchy. Third, that society is undergoing momentous changes in the information and telecommunications areas from corporate capitalism, dominated by corporate capitalist institutions, which will ensure that any development is in private rather than public interests (Webster 1995). Does the information society therefore reflect global capitalist informational imperatives, rather than the social needs of community development?

Technological progress and human values

While many social scientists have successfully argued that technology does not on its own change society, some suggest that new technologies and changes in technology play profound roles in human values and progress (Das and Kolack 1989; Hill 1989). Although the question of values remains central to Science and Technology Studies, the understanding of

values has moved beyond the Merton's concept of norms (Hess 1997). Weber believes that human beings always act in relation to the ends that they value and it is this orientation to values that sets the social sciences apart from the exact sciences, which act in reference to the laws of nature and therefore to facts (Cassell 1993; Morrison 1995). Case studies on the integration of new technology into different societies exemplify the interactive dynamics of the relationships between a society's structure, values and technological development as well as demonstrating how the initiation of technological change may lead to unanticipated consequences (Das and Kolack 1989). In the early twentieth century, 'values' became part of the accepted vocabulary and was used by many writers without reference to its origin or novelty. Before Nietzsche, people used the word 'virtue' in much the same context as 'value', although with deeper connotations of morality and authority (Himmelfarb 1995). While 'values' are not necessarily 'virtues', they are 'a belief that something is good, desirable and worth striving for' (Haralambos et al. 2000 p.13). These distinctions become important when we look at how the central beliefs and purposes of individuals, groups, institutions and the wider society in the past have influenced the notions of 'progress', then and now.

The idea of progress first began as an ethical ideal that humanity was gradually moving towards and was extended by 18th Century *ideologues* such as Turgot and his disciple, the Marquis de Condorcet. It was Condorcet who contributed to the linear view of progress by avowing that the Arabs saved mankind by taking over the torch of science from the Greeks (Kumar 1978). For Condorcet, it is the increase of knowledge among the masses that is responsible for social progress, and he saw the human mind as the one creative element capable of determining the fate of humankind (Schapiro 1963). For both the French and the British *philosophes*, there was a conviction that human progress was advancing at

a steady pace. They believed that the scientific method they devised would ensure future scientific progress and would be used for the benefit of humanity. Condorcet formulated 'the notion that progress was a natural law, based on the nature of man, and that this natural law can be discovered only through the study of history' (Schapiro 1963 p. 265). What he did not recognise was the selective nature of humanity's recall and interpretation of history. This selectivity is evident in interpretation of the work of the Scottish *philosophe*, Adam Smith. Smith's demonstrations of the unintended positive social consequences of the market tended to be distorted in the twentieth century by those who 'regard the pursuit of self-interest as intrinsically good and [government intervention] as intrinsically evil' (Muller 1993 p. 203).

Any definition of human progress is not restricted to the construction of material products or technical artefacts to satisfy human want and needs. Rather human progress includes less tangible and highly valued goals such as, 'security, independence, freedom, productivity, communication, health, pleasure, autonomy, control, longevity, community, justice, variety, creativity, and on, and on' (Hill 1989 p.34). However, the concept of technological progress is itself problematic, in that what may appear to be progress by some people is seen to be regressive by others (Adorno 1978; Goldman 1989; Habermas 1971; Hill 1989; Horkheimer 1978; Maxwell 1998; Noble 1993). For example, following a trip to Britain in the early 19th Century, an international trader from Boston named Lowell became fascinated by power-driven machinery and envisaged that progress lay in the introduction of power driven textile mills into the agrarian society of East Chelmsford in Massachusetts. The town was later renamed Lowell and became 'America's first planned industrial city' (Das and Kolack 1989 p.113). Lowell and his Boston associates 'believed that the conditions of the new world and the values of the republican society would make

possible a new utopian form of industrialization' (Das and Kolack 1989 p.145). On the other hand, they failed to recognise or engage the values of young, unmarried farming women who were the first mill workers, with the capitalist values of factory labour in the isolating noise and controlled working environment of mass-production. The working conditions of the textile mills in Lowell replicated those of the English city of Manchester, which the rural women found intolerable and incompatible with their rural values (Das and Kolack 1989). Thus Lowell was forced to recruit poor and desperate immigrants who would accept the working conditions in his mills. This influx of mostly Irish immigrants changed the social structure and agency in the town and ultimately altered the community's values to accept the industrial conditions of the day. Might this also occur in current rural communities with the introduction of call-centres and other socially isolating ICT applications?

In many ways, the socio-historical study supports the arguments of contemporary scholars of technology who question the introduction of the new information and communication technologies. It is commonly argued that some applications of information and telecommunications technology threaten personal privacy, reproducing capitalist imperatives in the workplace through the elements of scientific management that survive in the deskilling of labour and control of the working pace. While supposedly simplifying and providing low cost financial transactions, it is perceived as technological progress and is judged according to whether it supports or attacks peoples' fundamental social values (Hill 1989). However, social values are not immutable and it is argued that:

> Technological change tends to change both the nature of underlying values and the intensity with which we adhere to them. That is, ... *new technology changes how we value the outcomes themselves.*
>
> (Original emphasis Hill 1989 p.34)

In attempting to discover why values arising from technological changes are not opposed in the beginning when it would be much easier to do so, Hill concludes that in contemporary society technological change is subtle and continuous, which makes it difficult to perceive as a threat to established values. Furthermore:

> [T]he continual value accommodation that occurs means that by the time the impacts of the change have been recognised, we have not only accepted it, we have embraced it.
>
> (Hill 1989 p.35)

While Hill is writing about social interactions in the U.S. from 1965 to 1980, the ambivalent relationship with technology would equally apply in Australia, where many doubts are expressed about the social costs and benefits of new technology. He sees a general perception of the need to bring technology under control implied in the notions of environmentalism, consumerism, small-is-beautiful, and technological unemployment. On the other hand, technical achievements in the race to put a human on the moon led to a belief in the power of technology to solve a host of social problems (Hill 1989). At the same time, it led many people to question the value of the program while there remained so many other problems in the world. The shift in attitudes towards technology in the U.S. provides many contemporary examples of high-technology industries becoming vehicles for the individual realisation of goals towards material and financial accumulation. The economic dominance of social values and the individualisation of society with stronger ties between business and government that threaten the tradition role of government as watchdog overseeing business excesses, are reflected in the emergence of a new politics of technology. Indeed, shortly after Hill's paper was drafted, the U.S. election of November 1986 resulted in control of both Houses of

Congress by the same party, enhancing agreement for President Reagan's second term neoconservative agenda and a further reduction in government involvement social programs or business activities. (Hill 1989).

Utopia by technological progress

The common perceptions of the U.S. as a utopia brought about by technological progress are questioned by at least one among technology's contemporary critics (Segal 1994). Segal argues that faith in American technology's ability to solve problems and improve society was reawakened by the use of computerised weapon systems, allegedly so effective in the first Gulf War. The complex, fundamental problem he seeks to highlight is the relationship or lack thereof, between technological progress and social progress. For Segal, the concept of 'high tech' incorporates computers and communications with other post-World War II technologies of robotics, space travel and genetic engineering. According to Segal, commonly accepted notions of high tech are usually 'contrasted with traditional dirty, large-scale manufacturing and power facilities through its greater cleanliness and efficiency and its smaller size as well as through its allegedly "paperless" communications system' (Segal 1994 p.176). High-tech thus accords with notions of a post-industrial society, the end of smokestack technology and a large industrial working class while, at the same time, providing visions of cleaner and less oppressive labour. While high tech is a relative term applicable to the technologies of the industrial revolution, it appears 'eager to proclaim itself the supreme technological revolution while enjoying an unprecedented ability to articulate and spread its message, thanks to the very communications and transportation systems it exalts' (Segal 1994 p.177). Segal examines the ways in which high tech promotes its products and its ideology through prophecies, advertising, theme parks and the technological literacy crusade.

He alleges that in the past, technological futurologists were more interested in social change than today's allegiance to big corporations and prophecy for profit. Segal finds high tech prophets' lack of moral critique of the present or deep-seated concern for tomorrow most troubling. He sees only crass opportunism in their revision of predictions to meet the needs of the marketplace and in praising the creation of wealth as humankind's greatest achievement. The problematic of the polarised perception of information and communication technology is captured in Segal's conclusion:

> The ideological and other ends being served by unjustified technological optimism may turn out to be every bit as questionable as those being served by technological pessimism in other quarters. However successful its individual technologies, then, high tech is lacking the very historical consciousness that would in turn temper its optimism and thereby, most ironically of all, perhaps strengthen its appeal.

(Segal 1994 p.211)

Gender studies of technology

There has been a considerable volume of work on gender studies and feminist critiques of science and technology over the last two decades. Wajcman argues that new technologies were introduced primarily to replace unionised male workers with less costly female workers in those industries that did not already employ predominantly female staff (Wajcman 1994). She argues that men's affinity with technology is a social process that stereotypically defines the male gender and is reflected in a technical workplace culture in which men's intimate relationship with computers results in a world from which women are profoundly alienated (Wajcman 1994, p.12.) While extending her thesis into domestic and contraceptive technologies, she concludes that technologies are developed in a social context and therefore embody the social relationships existing in the society in which they were developed. Similar studies explore the

issues of women's exclusion in science and their subordination by male designed technologies of reproductive control (Webster 1991). Much of the research on technology has been gender-blind in failing to acknowledge the important contributions of feminist perspectives (Williams and Edge 1996). The subordination of women in technology is exemplified in an ecological feminist critique of men's domination over nature, the identifying of women with nature and thus man's domination over women (King 1983). A study of women's technical innovations in non-western societies highlights the general characteristics of the contributions women have made to technical innovations in our own (Appleton 1993). The above are examples just some of the many works on men's domination of technology and on the question of whether technology is inherently patriarchal. However, central to the conception of gender studies of technology is the social shaping of technology (MacKenzie and Wajcman 1985; MacKenzie and Wajcman 1999; Wajcman 1991; Wajcman 1995).

Some accounts of gender in science (and technology) question the existence of borders between feminism, gender, women theories and meta-scientific disciplines (Keller 1995). Conversely, a study paper on compositors reveals that there is far more to male power than the simple notion of patriarchy (Cockburn 1999). Cockburn's paper encompasses class, gender and power relationships, the socio-political and physical dimensions often omitted from socialist-feminism and economic or material ideologies. Her study of technological changes in the printing industry, from hand typesetting to electronic photocomposition reveals and challenges the construction of sex-gender relations in the workplace with the family-patriarchal connection. By identifying the gendered character of technology women are able to overcome feelings of technical inferiority and realise that women's 'disqualification is the result not of [their] own inadequacy, nor of chance, but of power-play' (Cockburn 1999 pp.194-5).

This conclusion is supported by others that the ' tradition of associating technology and science – allegedly the twin arenas of reason and logic – with men goes back at least as far as the Enlightenment' (Grint and Woolgar 1995 p.55). Indeed, since men's domination of technology can be seen as stemming from the Age of the Enlightenment and, as Grint and Woolgar argue, all technologies are carriers of their designer's intentions, it follows that many technologies at least begin as masculine. Whether they remain depends on the predominant gender of the users and the level of adaptation that occurs. While technology is a form of knowledge, it also refers to human activities and artefacts and is therefore considered to be a product of capitalist social relations (Wajcman 1991). However, rather than debate the issues of gender across a vast field of disparate technologies, greater benefit will be obtained by mainly focusing on the specific forms of technology applicable to this thesis in a later section on computers and telecommunications.

Politics and technology

To understand the complex relationships between politics and technology it must be recognised that the social *is* political with relationships ranging from the political and social *characteristics* of technology to the inherent political and social *natures* of technology. In asking whether artefacts have politics, Winner introduced the theory of social determinism of technology as an antidote to naive technological determinism (Winner 1985). He finds, however, that this corrective is itself problematic and, instead, looks at ways in which artefacts can contain political characteristics. His examples include Robert Moses' low overpasses to exclude public transport in the form of buses and therefore the more undesirable social strata from Jones Beach on Long Island. However, Winner's examples were not restricted to the architectures of social control in the design of

bridges, Parisian boulevards and American campus plazas, which may arguably be considered as the original social capital. They were extended to the application of technology for the control of labour in McCormick's use of new pneumatic moulding machines to destroy the National Union of Iron Molders. For Winner it is obvious that technologies '... can be used in ways that enhance the power, authority and privilege of some over others' (Winner 1985 p.32). Moreover, he concludes the choices that implement structural technologies tend to become fixed in the technical system and socioeconomic habits and 'establish a framework for public order that will endure for many generations' (Winner 1985 p.32).

In arguing that some technologies are inherently political, such as nuclear technologies, Winner identifies how technology shapes political practice. He suggests that the adoption of such a technological system dictates the creation and maintenance of a specific social environment as a practical necessity with the introduction of special rules, regulations and organisations (Winner 1985). In addition, others suggest that Winner's argument that technologies are inherently political forces us to consider the ways in which technology can aid and abet political interests (Street 1992). Street argues that the effects of technology can be measured in people's dependence upon technology and, since dependence rarely allows for equal shares, reveals an *inequality* with those controlling the technology on which others depend, thereby enabling the exercise of power over those users. Thus, according to Street, the effects of technology are a direct consequence of the way technology has been applied. The detrimental effects and unintended consequences are not always distributed within the same political system in which the technology is used and from where the problems originated. While Street's examples include acid rain in Europe caused by Britain's power stations and the fallout from the explosion at the Chernobyl nuclear reactor reaching to Northern Europe, in a wider context

might they just as easily be transposed to the unintended consequences of other technologies? For example, global warming and the inundation of island states may be the detrimental effects and unintended consequences of burning fossil fuels in more advanced economies, whereas the unintended consequences of global networks of information technology and telecommunications might be the socio-economic demise of regional communities. Where global warming might affect local climatic conditions forcing changes in social practices in an effort to survive, might global computer networks and electronic commerce similarly affect local economic conditions and social practices? If so, would people perceive the potential problems and resist the full application of ICT?

An overriding feature of modern Western society is an increasing reliance on all forms of technology, which has been perceived to create an increasing number of political problems and controversies (Pippin 1994). These problems include a greater concentration of a new type of social power in fewer hands, a de-skilling of the labour force, a narrowing of public debate, and an increase in the extent of administrative power. An increased role for new technologies in sophisticated systems parallels an increase in complaints that society is being modified to meet the needs of technical efficiency (Pippin 1994 p.94-95). However, there have been more radical critiques emerging from those who perceive the relentless rationalisation of technological strategies to solve social problems as an ideology. According to Habermas, Weber's instrumental rationality defines a form of capitalist economic activity, bourgeois private law, and bureaucratic authority (Habermas 1971 p.81). Rationalisation is a central theme in Weber's work and 'depends on strategies of social action and adjustment to the means and ends of action in the attainment of goals' (Morrison 1995 pp.344-5). Indeed, Marcuse argues that Weber's rationalisation is itself a 'specific form of unacknowledged political

domination' extending to the areas of society subject to the criteria of rational decision (Habermas 1971 p.82). Such rationality, when applied to making choices among strategies, applying appropriate technologies and establishing systems, effectively removes consideration of social interests 'from the scope of reflection and rational reconstruction' (Habermas 1971 p.82). Marcuse concludes that the very concept of technical reason is perhaps ideological. 'Not only the application of technology but technology itself is domination (of nature and men [*sic*]) - methodical, scientific, calculated, calculating control' (Habermas 1971 p.82). In a critique of Habermas and Marcuse, Feenberg presents a resolution for the major problems he finds in their theses, which he summarises in one sentence, 'Technology is a medium in which instrumental action-coordination replaces communicative understanding through interest-biased designs' (Feenberg 1996 p.15). In more accessible language, technology is generally designed to gain some sort of advantage for those who have confidence in the particular technology and seek to influence its development to achieve their own interests.

Divergence in the level of confidence in technology depends to a large extent on the social distance from the technology in question (MacKenzie 1999a). In *The Certainty Trough,* (see Appendix B: The Certainty Trough) MacKenzie attempts to define the pattern that he first found while studying the high-precision guidance systems of American inter-continental ballistic weapons. According to MacKenzie, the same pattern has been found in subsequent studies of the development of information and communication technologies and separate research into computer modelling of the global climate. The graph shows those closest to the technology, the insiders involved in design and analyses, are towards the left along the horizontal line and high on the scale of uncertainty. Moving to the right are those committed to the technology, such as the managers and marketers of the

technology. They have a much lower sense of uncertainty and therefore a much higher faith in the technology. Next, are those uncommitted to the particular technology with a rising level of uncertainty and, finally, there are those hostile to the technology. They may work for a competitor, use a different technology or perceive the technology adversely in some way. The two points MacKenzie is attempting to make are first, that decision-makers and managers should be aware that their position as an advocate of a particular technology might engender a high degree of commitment to the technological approach employed. While that position may prohibit intimate knowledge of the technology, it may well tend to generate over-confidence and unproblematic acceptance of the technology. Such a position has already led to several technological disasters, expensive in both lives and money. The second point is that when insider uncertainty surfaces in public, we should treat it as a normal consequence of technical development rather than a pathological state of affairs (Collins and Pinch 1993). However, in the context of this study there another point worthy of consideration. And that point is whether the over-confidence of politicians influences the judgement and actions of those public servants with a more intimate knowledge of the technology. It is conceivable that the more knowledgeable public servants in endeavouring to save their employment position and avoid intimidation, will simply accede to the demands of ministers, no matter what the possible consequences they may have envisaged occurring as a result of that decision some time in the future. Indeed, they may have little or no choice in such decisions given their family commitments and need to secure an income.

Social visions of information technology

Visions of the world as transformed by ICT emerge in contemporary terms such as virtual society, information society, network society and so on

(Woolgar 2002a). Descriptions such as these are used 'to conjure a future consequence upon the effects of electronic technologies' (Woolgar 2002a p.3). Words such as information, digital, electronic, network and so on, are applied as epithets to existing activities and social institutions to create 'epithetized phenomena', such as teleservices, e-commerce, digital banking and virtual community (Woolgar 2000; cited in Woolgar 2002a). Indeed, there is a raft of social studies of ICT that now follow a familiar and pervasive rationale. A rationale that believes the burgeoning growth of new electronic information and communication technologies are 'set to modify the nature and experience of interpersonal relations and communications across a vast range of human activities' (Woolgar 2002a p.1). While such a rationale appeals to a diverse audience, Woolgar finds three distinct characteristics in the underlying assumptions of this rationale. Perhaps the most striking characteristic is its sweeping grandiloquence and the tendency to 'synopsis, summarizing description and totalizing depiction' (Woolgar 2002a p.6). He questions for whom these technologies are making a significant difference to the way they live their lives and in what ways is this happening. The second characteristic is the assumption that 'the experience of these new technologies is unproblematically related to general overarching macro-level trends' (Woolgar 2002 pp.6-7). However, it is difficult to see how these technologies are used and experienced in every day practice when focusing at the macro-level of analysis. The final feature of the above rationale is the confidence expressed in the declaration of effects and outcomes in ' the development, adoption and use of new technology' (Woolgar 2002a p.7). Such long-term predictions of the impact of ICTs and exaggerated depictions of the capacities of cyber-technologies are encompassed in the neologism 'cyberbole' (Woolgar 2002a p.9).

One of the first tasks to be undertaken when discussing information and communications technologies is to attempt to explain the polarity of

pessimistic and optimistic perceptions such technologies engender. There have been attempts to resist the preconceptions and assumptions that dominate the relations between producers and users of technology by an analytic scepticism (Woolgar 1999). However, analytic scepticism is conceptual rather than methodological. While analytic scepticism encourages interdisciplinary cooperation between the social sciences and practitioners of computing and communication, it does so from a studied distance in respect to the claims of both producers and users. Another important factor in the study of information and communication technologies in society is that if the research problem is defined in terms of technology, it is difficult to avoid a resolution that does not exemplify a reliance on technology. Such a position is embodied in Joseph Weizenbaum's description of the computer as 'a solution in search of problems' (Roszak 1986 p.51). In some cases, a devotion to the use of technology becomes an obsession when it is seen as a natural rather than a social process in a technological fetishism (Garnham 1999). However, by avoiding questions about the 'impact of technology' information and communication technologies can be seen as part of either the problem or the solution.

An information society

The concept of an information society began to appear in the accounts of contemporary western society in the early 1960's and is therefore hardly a recent addition to social theory (Ducatel et al. 2000; May 2002). Unlike today, when each new electronic technology or technological innovation purports to herald drastic social changes, the seeds of the computer revolution were sown in the secrecy of war. Indeed 'the world's first electronic digital computer, Colossus, was built in 1943 at Britain's secret wartime code-breaking centre, Bletchley Park in Hertfordshire' (Forester

1987 p.17). The second computer revolution was announced in *Fortune* magazine in November 1975 and by 1978 'the silicon chip became big news' (Bylinsky 1980 p.3). The microcomputer and the microelectronics industries thus emerged to become new and global phenomena, providing many economies with new industries and becoming one of the largest export industries for the U.S. (Goldsworthy 1992). Many scholars agree that the idea of an information society originated in the U.S. with the identification, categorisation and measurement of the economic significance of 'knowledge industries' separately from all other industrial and social economic activities (cited in Ducatel et al. 2000; Machlup 1962; May 2002). There are many critical publications on the roots and theories of the information society (Heap 1995; Lyon 1995; Webster 1995). Some question hopeful accounts of a new social framework based on telecommunications that *may* change the processes of economic and social exchanges, the commodification of knowledge and the character of work and occupations (Bell 1974). Others question Bell's harmonious information society, envisioning instead new social frictions and power alignments in a divided and contradictory information society (Lyon 1995). Lyon chooses to see the information society as problematic rather than a futuristic forecast or an ideology. Lyon perceives the supposed changes originating well before information technology and concludes changes will be more of degree than kind given the continuities of chronic inequalities and growth of state power.

The idea of an information society is questioned by contesting five definitions of such a society and the criteria that identify each definition (Webster 1995). First, the most common definition emphasises the spectacular technological innovations in processing, storage and transmission. However, Webster finds at least two objections to technological definitions of the 'Information Society'. When reading of the

profound and portentous changes new microelectronic technology is contributing to the home, production processes and the rise of a new civilisation, it is self-evident for Webster that a new society must be distinguished by such information technology (Webster 1995). Moreover, when probing further into the pervasiveness of information technology Webster claims an astonishing vagueness in the measurement of the extent of the diffusion of such technology and questions at what point on the scale of the adoption of informational technology is society judged to have entered an information society. The second definition Webster questions is the economics of information, more often recognised in the concept of an information economy. While Webster finds the 'quantification of the economic significance is an impressive achievement', he believes that hidden behind the statistical tables are dubious interpretations and value judgements in the construction of categories (Webster 1995 p.12). He also argues that the aggregation of data inevitably homogenises very disparate economic activities. Webster finds similar problems with the measure of occupational change in defining an information society, which would appear appropriate. However, the difficulty for Webster is in the methodology used in defining particular categories of informational work, manual work and other work. The statistical outcome of precise percentages of information workers hides the processes of taxonomical allocation. A quantitative homogenisation of the hierarchies, which distinguishes information workers as users of technology, technical specialists and managers, would lump all of these radically different information specialists together. Webster's final two definitions of spatial and cultural dimensions emphasise the existence of informational *networks*. These definitions rely on perceptions of quality, quantity and roles of information and in questioning the interpretation of information itself. Some reject the concept of an information society, questioning whether the inclusion of advertising and marketing activities should be considered as

disinformation rather than information (e.g. Perelman 1998). Perelman, an economist, argues somewhat facetiously that the design of much advertising is 'to delude and to confuse people in order to get an edge on their competitors without serving consumer's needs in any way' (Perelman 1998 p.17).

A network society

Recent studies of ICT in society have focused on the deployment of electronically mediated networks disseminating knowledge and information to create a network society (May 2002). Among proponents of a network society is that of Castells (Castells 1996; Castells 1998; Castells 2000). Castells' notion of a network society avoids many of the weaknesses with the concept 'information society' by emphasising the social access to telecommunications (Dutton et al. 1999 p. 469). Castells draws together comments on the information society concerning the transformations of society, the economy and the individual (May 2002). Whereas Castells provides an abbreviated and therefore a somewhat simplified and unproblematic history of the so-called Information Technology Revolution, Dutton provides a more critical history and assessment of the online society. His synthesis of a decade of research from six British University research-centres contributing to the Programme on Information and Communication Technologies (PICT), reveals the social and economic implications of information and communications technology (Dutton et al. 1999). By avoiding some of the rhetorical extremes, the program was able to make significant contributions towards integrating the many disciplines and issues of the social sciences in providing an understanding of the multiple dimensions of the online society.

Castells' work on the macro level genesis, structure and dynamics of a global economy provides links between information and communications technology and 'globalisation' (Castells 1996). He warns of the danger that the 'prophetic hype and ideological manipulation' to be found in most discourses on the information technology revolution may lead to underestimating its fundamental significance (Castells 1996 p.30). The economist Perelman (Perelman 1998) criticises Castells for being seduced by the notion of an information economy and becoming almost rhapsodic in proclaiming the idea of commercial alchemy when he claims 'the network enterprise ... transforms signals into commodities by processing knowledge' (Castells 1996 p.172). Other economists also have problems with the quality of Castells' writing and find his use of data as both selective and inept (Abell and Reyniers 2000). However, from a sociological perspective, criticisms of Castells in using the contemporary rhapsodic rhetoric commonly applied by the information technology and telecommunications media should not be allowed to detract from the remainder of his work. From empirical research Castells identifies the social structure of a network society as emerging from the information age, which he sees as an historical period. A period in which human society operates in a technological paradigm of electronic information and communication technologies rather than an earlier technological paradigm of the Industrial Age (Castells 2000). Castells perceives Max Weber's classic work *The Protestant Ethic and the Spirit of Capitalism* (Weber [1904-5] 1930, ninth impression 1968) as forming the basis for the Spirit of Informationalism, the informational economy and globalisation (Castells 1996 pp.195-200). For Castells, this produces an informational capitalism under which the new technologies and economic competitiveness reconstructs a polarised world of inequality, poverty and a process of social exclusion (Castells 1998).

Information and communications technology at work

Any review of the sociological approach to the application of information and communications technology in the workplace needs to consider the general processes of labour in an Australian contemporary capitalist society. Some academics (Thompson 1983) claim that interest in Marx's contribution to the study of capitalism, work and technology had diminished and that Harry Braverman was responsible for its revival (Braverman 1974; Braverman 1985). In *Labor and Monopoly Capital* Braverman is 'concerned entirely with the development of the processes of production, and of labour processes in general, in a *capitalist* society' (Braverman 1974 p.14). Braverman argues that capitalists and managers of capital, control production through the selective use of technology designed to de-skill the operator by the separation of knowledge from the process and giving management the ability to control the pace of work. While Braverman critiques Durkheim's division of labour, Braverman, unlike Durkheim, is not concerned with the division of labour in society at large, but within the capitalist enterprise of production and 'the marriage of technique with the special needs of capital' (Braverman 1974 p.75; Durkheim [1893] 1984). Braverman's Marxist thesis of the application of machinery designed to give capitalist management greater control of production processes by fragmenting labour power and deskilling workers has been justifiably criticised as simplistic (MacKenzie and Wajcman 1999). Nonetheless, there are real connections between the design of technology and control over labour in the scientific management processes of capitalist production (MacKenzie and Wajcman 1999; Noble 1985; Thompson 1983; Wajcman 1995). The shift in emphasis from a production to a marketing perspective and from controlling the worker to controlling the customer has resulted in the marketing decision to produce technology

that is easy to operate with limited training (Rifkin 2000). A situation in part confirmed by Roszak when he states:

> The fact is, each new generation of computers requires fewer special skills, requiring less "literacy" of users, in much the same way that advances in automotive engineering have made driving a car easier.
>
> (Roszak 1986 p.50).

The exponential growth of information technology in the handling and transmission of information has begun to pose the problems that were forecast in the early 1990s with 'the changing nature of work, changes in the structure of the workforce, privacy, continuing education, leisure activities and perhaps some of the fundamental values of our society' (Goldsworthy 1992 p.62). Goldsworthy argues that the all-pervasive nature of these changes constitutes a revolution rather than a series of innovations. However, it is a claim contested as a myth of the information society and a story about history stemming from a dilution of the meaning of 'revolution' through previous sectoral shifts heralded as revolutions (May 2002). Goldsworthy claims that research in the U.S. clearly shows that high technology industries generate far more new jobs than traditional industries and acknowledges Australia's complete dependence on overseas sources 'for almost all its computer-based requirements', obtained mainly from the U.S., Japan and Britain, (Goldsworthy 1992 p. 63). While Goldsworthy was advocating greater investment in the information technology industry sector in Australia because of its employment-generating characteristics, he has aggregated employment data and homogenised very disparate economic activities. Does an office worker become an information worker just because they now use a microcomputer or is the worker assembling electronic boards for computers working in information technology rather than on a factory production line? Of more relevance to this thesis is the

question of whether call centres should be classified as part of the information technology industry or as customer resource management?

Over the last three decades, high unemployment levels have become the periodic focus of media, government and international organisations. The causes of unemployment have mainly been attributed to forces exhibiting various combinations of economic and technological factors. This is not a new phenomenon and contemporary consensus is that in periods of economic downturn rising unemployment is frequently blamed on the implementation of new technology (Eatwell 1996; Freeman and Soete 1994). At this time, the new technology held primarily responsible is the convergence of information and communication technology, accused of 'replacing people with machines in the name of economy' (Freeman and Soete 1994). Many studies reveal the complexity of the political and socioeconomic processes involved in every stage of the generation, innovation and implementation of new technologies. The results of many choices mostly patterned, consciously or not, by the dominant criteria imposed by the conditions of creation and the perceptions of use, become embedded in technologies (Williams and Edge 1996). However, the social shaping does not end there. If we reject linear models of innovation in favour of more interactive models we are able to see how feedback at the implementation stage is incorporated into the innovation of technology. This focus on implementation feedback is important in analysing the relationship between the supplier and user, particularly in the case of information and communication technology where the iterative process of innovation has significant social, economic and political effects. It has created an adaptability and mobility of application to an extent not experienced since electricity, reinforcing perceptions of its omnipotence for human good

Sexual divisions of computer technology

It has been suggested that the new technology of computers might have developed along three distinct paths of sexual divisions (Wajcman 1991 p.150). It might have developed as a gender-neutral technology or have been appropriated by women for the femininity of its qualities that were particularly suitable to women's work. According to Wajcman, however, research suggests it has already been culturally defined as a pre-eminently male technology by men's predominant control of design, application and technological management (Wajcman 1991). The relations between women and information and communications technologies have been the focus of a growing number of feminist researchers (Frissen 1995; Haddon 1999; Webster 1996; Webster 1999; Webster, 2000; Yeuk-Mui 2001). Many have argued that work for women has historically been concentrated in services areas, particularly in the public service and semiskilled areas peripheral to government, industry and commerce (Webster 2000b). In the information society with an economy dominated by the provision of services, women should be the major beneficiaries. Instead, women continue to be overrepresented in low paid often part-time, temporary or casual positions and remain underrepresented in skilled, knowledge based, full-time and long-term employment (Webster 2000b).

Feminisation of the telephone

Some STS scholars argue that the social uses and implications from the feminisation of the 'plain old telephone' system have been sadly neglected, in spite of the telephone's crucial role in the historical development of the telecommunication industry (Frissen 1995). The telephone system was originally conceived as a public space for private interactions, primarily to aid business. The male domination of telecommunications provides the

"malestream" emphasis on business communication while relegating women's telephone use to a 'secondary and less significant role' (Moyal 1992 p.2). The early telephone system required manual switching to connect subscribers and, while boys were initially employed as telephonists, it was found that they were unsuitable for the job and young women operators replaced them. According to Frissen, young women in the Victorian era, particularly from the middle-classes, were expected to possess the highly esteemed qualities and virtues most suitable for the position of switchboard operators. They were patient, had pleasant voices, and were never rude, always discrete, left work to manage their husband's household when they were married and their labour was cheap (Frissen 1995 p.82). This led to an almost complete feminisation of work primarily based on answering the telephone.

However, a discrepancy emerged between the intentions of the telephone industry and the actual uses of the telephone in everyday life, particularly when the eventual widespread domestication of telephone communications was achieved (Frissen 1995). According to Frissen, the telephone industry's marketing campaigns in North America were initially aimed at men for business purposes and housewives for domestic duties in ordering good and services. When attempts to encourage telephone shopping failed to achieve its socially isolating objectives, women's predominant use of the telephone for social purposes motivated the industry to use sociability as a more successful marketing strategy. This supports the claim that women adapted rather than adopted the telephone (Moyal 1992). Men were assumed to use the telephone for work in the public sphere while women's use tended to remain in the private sphere. The popular image, prevalent even today, is that men keep the length and frequency of their telephone calls as brief as possible, whereas women are seen negatively as always gossiping on the telephone and tying up the line. Indeed, this perception is

confirmed in research of Australian women's use of the domestic telephone for "instrumental" (functional) and "intrinsic" (relational) purposes (Moyal 1992). According to Moyal, Australian women averaged 2-6 instrumental calls a week with each call ending within three minutes. However, the number of intrinsic calls made weekly numbered between 14 and 40. Their duration was 'between five to twenty minutes, and not infrequently thirty to forty five minutes, and on some occasions, more than an hour' (Moyal 1992 p.4). This high usage rate of the telephone supports the claim that women use the telephone for the important function of maintaining close personal links to other women and for 'establishing intimacy at a distance' (Moyal 1992 p.2). The use of the point-to-point media of telephone communication thus reinforces Durkheim's organic solidarity (Borg 1999; DiMaggio 2001b; Morrison 1995). Frissen argues that telephones are not a neutral technology; they do not function outside the social relations and cultural practices of the people using them (Frissen 1995 pp.85-86). While, so-called 'courtesy calls' (calls by telephone sale people) appear to function outside of normal relations and practices, in a consumer and market-oriented society, the practices of telephone sales people can be claimed to have become annoying and an invasion of privacy. However, this is an adaptation of technology to the age-old cultural practice of the door-to-door sales person and therefore is just another one of the unforeseen consequences of a consumer society, like junk mail in the postbox and unsolicited email messages. A practice that is easily legislated against but difficult to enforce. Throughout the western world, women are the dominant users of the telephone, often related to their roles as the family's primary carer, social director and business administrator but also in their functioning as the household's telephone 'operator'. In many Australian households, females are the ones most likely to answer the ringing telephone, take messages or summon the required person. Thus Frissen argues the telephone is socially and culturally shaped while an

active agent in the shaping of social and cultural arrangements (Frissen 1995 p.86).

Feminist studies in the United Kingdom between 1993 and 1994 reveal how the gender divisions of labour have shaped women's employment in Information Technology (Webster 1996). Webster finds a polarisation of women's employment with women being grossly under-represented in professional positions within the computer industry but overwhelmingly represented in poorly paid positions, particularly on the component assembly lines and in the toxic processes of microchip manufacture. Even in countries of economic boom similar imbalances occur. In the Irish electronic industry for example, Webster finds women over-represented in administration, clerical and production worker roles. She argues that:

> Opening up new opportunities for women's access to more interesting and influential ICT-related jobs is, therefore, an important step to ensuring there is greater equity in the distribution of benefits from ICT innovations.
>
> (Webster 1999 p.168)

The potential for information and communication technology related work in the home or local Telecentres have now been made available to women through greater access to computers and telecommunications. Recent research and analyses of the new forms of work opportunities provided by the convergence of information technology and telecommunications in teleservices and call-centres have revealed the predominance of women in such employment positions (Cornford 2000; Haddon 1999; Haddon and Silverstone 1999; Yeuk-Mui 2001).

Online service work

There has been considerable interest throughout the western world in the potential for information technology and telecommunications to sustain

rural regions through online service work providing product enquiry, order-taking and technical assistance. Indeed, evidence from Europe suggests there is a strong positive correlation between the availability of advanced telecommunications infrastructures 'with the level of economic performance in rural areas' (Cornford 2000 p.23). While the link between telecommunications and economic performance has justified greater investment in the infrastructure of poor economically performing regions, 'the presence of telecommunications infrastructures and the availability of telecommunication services do not, in themselves, ensure regional development in the Information Society' (Cornford 2000 p.30). The trend to replace face-to-face interactions by telephone-based customer services means that service production is no longer required to be in the same location as service consumption. Therefore, the separation of service production and consumption allows for the relocation of much routine work in the customer service factories – commonly known as call centres – to be located in areas with high rates of unemployment and low rates of economic development and therefore low labour cost regions (Cornford 2000).

In Australia, case studies of seven call centres of three insurance corporations, two of which were multinationals and one domestic, has found that the gender distribution of the Customer Service Representatives (CSRs) or call centre agents was 21% male and 79% female, while their immediate supervisors were evenly balanced between the sexes (Yeuk-Mui 2001). In all of the centres, management was primarily concerned with the productivity of employees taking calls. The computer software applications of all seven centres were designed to categorise calls into different types that are then routed to specific sections. Employees were instructed to pass on more difficult customers or complicated queries that could not be speedily resolved to their supervisors or those designated as

the more experienced customer service representatives. The activities reported in Yeuk-Mui's study appear to be standard in all call centres; including the computer-mediated pacing of work, the use of online scripts, ongoing training by role-playing and the collection of quantitative performance data on the number of calls taken. However, the monitoring of individual representatives reported in her paper did not include the covert surveillance practices in the recording and qualitative assessment of calls. Yeuk-Mui suggests three needs for future research into customer service management, which this study attempts to explore. Firstly, the need to focus on the level and types of work skills and knowledge required. Secondly, issues of electronic surveillance need to include workplace relations between staffs and the use of individual performance data. Finally, future research 'needs to consider external market situations and related management policies when examining the impacts of technology in frontline service workplaces' (Yeuk-Mui 2001 p.197). Yeuk-Mui's suggestion for future research forms an essential part of my study.

Radio National produced an investigative documentary program on call-centres (Bullock 2000) that canvassed several views of those working in the industry. Chris Bullock's introduction to the subject was:

> In Northern Europe, the United States and parts of the Asia Pacific, call centres are providing a jobs renaissance, filling an employment vacuum left by the demise of heavy industries and State bureaucracies.
>
> (Bullock 2000 p.2)

The rise in the number of call centres has been enormous worldwide and, according to Bullock, more people are employed in Britain's call centres than in the coal, steel and vehicle industries combined. Indeed, Britain's call centre workforce was estimated to be 390,000 in August 1999 (InvestUK 2000). India, a relatively new entrant into the international

customer service industry, has low labour rates and a massive computer literate workforce fluent in English. Its customer service industry therefore poses a threat to the Australian call centre industry in the current trend to outsource service work and move industries offshore. According to India's Department of Communications by July 2000 there were 1,962 customer service centres and growing both in number and size (India 2000). One of Bullock's interviewees was the international call centre specialist, Niels Kjellerup, who saw call centres as part of the 'digital nervous system of an organisation' (Bullock 2000 p.3). Judy Slatyer, Managing Director of Telstra's Consumer and Commercial Division, joined Kjellerup on the program. Slayter at the time of the program was in charge of 90 call centres employing several thousand people. However, Telstra has closed several call centres since then with a loss of some 10,000 jobs and now outsources much of its Directory Assistance and consumer inquiries to Stellar, a joint venture company. Telstra has formed Stellar as a joint venture with the large US-based customer service management company, Excell (Bullock 2000). While both Kjellerup and Slatyer acknowledge the customer service industry as a potential battleground of industrial relations over the next two to three years, Stellar has already experienced significant industrial relations problems (Bullock 2000).

The statements of two operators illustrate the ambivalence of call centre work. The first operator found the work interesting and enjoyed the variety in customer contacts with a good working and supportive environment while handling between 70 and 80 calls each day (Bullock 2000 pp.1-2). The second operator on the other hand exemplified the relentless pressures of call centre work, relating a case of operators addressed at the level of kindergarten children when directed to sit down and get back to work. An ex-operator on the program felt that the pressures from abusive customers and the constant monitoring of work performance with what they

considered to be overly close supervision were the major contributions to job stress. Additional stress is created by electronic scoreboards that many call centres have implemented to display the number of calls in the queues waiting to be answered, as well as the average amount of time taken to deal with a call. This is known as the Average Handling Time (AHT), a statistic vital to the resource management of every call centre. Telstra's Directory Assistance centres deal mainly with routine information and therefore, the target time for handling each call is very short with the AHT target between 15 and 20 seconds per call (Bullock 2000 p.8). At that rate, a customer service agent might take a thousand or more calls in a shift. Statistics are the lifeblood of many call centres, or customer service management centres, as is the industry's preferred and more descriptively accurate term. Statistics are used to provide control over physical and human resources, they verify accordance with contracts and provide benchmarks for gaining new business. The main call centre automation is by software called Integrated Voice Response (IVR) and operates by offering the caller options and routing calls to those operators with the required knowledge in that specific area. However, IVR is often used to manipulate statistics, such as the benchmark statistics claiming to represent the efficiency of particular call centres:

> What we see is that IVR [Integrated Voice Response] is being used to falsify the customer service level that the call centre has been given. It could be you must answer 80% of all calls in 20 seconds. Now because they haven't got the manpower [sic] or the budgets to man [sic] so that they can do it, you put in an IVR and the moment the IVR takes the customer, it registers as somebody handled within 20 seconds.
>
> (Bullock 2000 p.11)

The growth in Australia's call centre industry is attributed by Kjellerup to the removal of import restrictions on telecommunication equipment as part

of a move towards trade liberalisation, prompting his declamation that economic rationalism has got it right (Kjellerup 1999).

A critical analysis of the labour process in call centre work detailed in the above investigations may well invoke industrial scientific management literature on production as well as the works of Marx and Braverman on the exploitation, deskilling and control of workers (Braverman 1974; Braverman 1985). However, with the rise of contract call-centres (as distinct from in-house customer services such as metropolitan councils and government departments), the work closely parallels the service work that prevails in fast-food chains and dominates today's casualisation of labour. Therefore, the contemporary extension of Weber's bureaucratization and Taylor's scientific management in Ritzer's *McDonaldization* thesis would also appear to be appropriate to the analysis of call-centre employment (Braverman 1974; Ritzer 1998; Weber et al. [1922] 1978). Both 'McDonaldised' work structures and call-centre systems involve highly formalized tasks. They entail routines with strictly defined activities and the interactions with customers are tightly scripted. Also, the customers are required to perform a number of tasks themselves that will ultimately contribute to the company's profit by reducing labour costs. Similarly, savings in labour costs occur in the flexibility of staff working-hours and the casualisation of employment, when business is slow employees are sent home or are not called in to work and are therefore not paid. Like McDonald franchises, call centres have spread to become global phenomena and both provide an enormous number of jobs, albeit casual or part-time employment, which in Ritzer's terminology are 'McJobs' (Ritzer 1998). The major differences between fast-food staff and call centre agents are in the level of skills required by teleservices agents and the intensity of the programmed pacing of their work processes, with panoptic surveillance and accompanying assessment of the individual's performance.

While customer service centres are frequently called telecentres, particularly in the public service, call centre work is rarely considered as suitable for online working from home. Teleworking is normally considered to be secretarial or office services and is often perceived to be a more benign employment environment in working from home or at small neighbourhood Telecentres, referred to in Europe under the more cosy term of Telecottages (Richardson and Gillespie 1999). These rose-tinted images of rose-covered cottages are extended in contemporary references to working on a computer from home as telecommuting, which disguises its discriminatory nature. It has been argued that such work offers two very different types of work experiences with the routine tasks of secretarial or data entry performed under computer scrutiny of performance and hours, while professional work allows for discretionary hours and unrestricted freedom to use computers for personal tasks (Zimmerman 1990). However, telecommuting has failed to become as widespread as the information and communication technology mass media and technology futurologists would have us believe (Richardson and Gillespie 1999). Richardson and Gillespie assert that new technologies have allowed firms greater options in the spatial configurations of work locations. Some firms based in global cities have centralised facilities to remotely service their global markets, whereas others have utilised telecommunications to link workers in remote locations to form virtual teams (Richardson and Gillespie 1999). While data-processing functions are easily transferred offshore it is more difficult for tasks requiring real-time interaction because of language and cultural differences. In spite of these difficulties, a significant and growing number of firms remotely service customers from call centres. However, despite the proliferation of new ways to possibly organise work, Richardson and Gillespie see no marked tendency towards home-based teleworking (Richardson and Gillespie 1999). The loss of

worker monitoring and thereby control of the labour process may be responsible for the reluctance of some companies to employ home workers in service activities without measurable outcomes.

Digital inequality

In the privatisation and market competition of telecommunications in the United Kingdom (U.K.), suppliers have become more aware of the geographic composition in the relative costs of supplying the demand for services (Cornford and Gillespie 1999). Profits are higher for telecommunication suppliers in high customer density areas where demand can be met at a relatively low cost. Such areas attract greater levels of telecommunications competition, higher levels of investment and a greater supply of new services. While these new services may eventually reach the peripheral low demand and high cost areas, the core locations will have moved to more advanced technologies in a ripple effect so that there is always that gap between the levels of service in core and peripheral locations (Cornford and Gillespie 1999). Cornford and Gillespie claim that they can see this disparity at the spatial scale of a whole global economic region, a single nation or an individual city. Throughout the European Union countries there are wide disparities to be found in costs and availability of basic telephone infrastructure. In some EU countries there are 10% or more households not connected to basic telephone services (Cornford and Gillespie 1999). Cornford and Gillespie found a fractal effect of this pattern repeated again and again in changing their focus on a geographic scale from country to city and from city to town. In some regions, households without a telephone varied widely between 1% and 40% and in one deprived inner city housing estate only 26% of households had a telephone installed (Cornford and Gillespie 1999). In Britain, effective competition between telecommunication suppliers ranges from

multiple suppliers in the City of London to a *de facto* British Telecom monopoly in rural areas. The paper concludes:

> The information society has been heralded as freeing us from the limitations imposed by geography, abolishing the distinction between core and periphery, and overcoming the 'friction of distance' through the ubiquity of information. Such claims are fanciful.
>
> (Cornford and Gillespie 1999 p.256).

There has been considerable debate in recent years about the meaning, understanding and even the existence of a *digital divide*. As James Crabtree noted in the *New Statesman*, '[p]erform a web search for "digital divide" and prepare to discover a dotcom industry' (Crabtree 2001). The term has been widely adopted by government agencies, economic organisations, the media, and the telecommunication industry and taken up by international organisations, such as the OECD, World Bank and UNDP. The d*igital divide* has multiple social dimensions of inequality although it has quickly become singularly popular as an instant sound bite to differentiate between the *haves* and the *have-nots*, the *connected* and the *disconnected*, those who have access to the Internet and those who do not (Norris 2001). However, global computer networks are not a recent phenomenon; packet-switching networks have commonly interlinked dispersed mainframe computer and minicomputer installations since the early 1970s. Computer interactive networks originated long before the advent of microcomputers and have been attributed to the U.S. Defence Department Advanced Research Projects Agency in the 1960's to protect U.S. communications in the event of a nuclear war (Castells 1996; Rifkin 2000). Though other sources suggest that the Advanced Research Projects Agency (ARPA) was created by the U.S. Department of Defence in 1958 in response to the launch of Sputnik by the Soviet Union (Dutton et al. 1999). The ARPA designed and installed the first packet-switched network based

on Network Communication Protocol in 1968 with data communication protocols developed for packet–switched networks in the 1970's (Dutton et al. 1999 p.89). It became known as the ARPANET and was designed to permit students and researchers at one university access to computing facilities at others in an ancestral style of network where a direct connection to a compatible system at one site was required to lead to other compatible and connected sites (Castells 1996; Dutton et al. 1999; Rifkin 2000). The development of the Transmission Control Protocol / Internet Protocol (TCP/IP) in the U.S. and U.K., enabled the linking of heterogeneous computers and services based on disparate and incompatible standards. In 1983, ARPANET moved from its original protocol to TCP/IP and was finally decommissioned in 1989, when the National Science Foundation Network (NSFNET) took on its role as the worldwide backbone of the network of networks (Dutton et al. 1999 p.89). The development of the World Wide Web by Tim Berners-Lee at CERN (the European Organisation for Nuclear Research) and the launch of the first graphic browser, Mosaic, a few years later simplified network access and gave the world of information technology a neurological style network known as the Internet (Castells 1996; Norris 2001). While the Internet appears to have suddenly appeared in the 1990's, it is the result of processes that have evolved over four decades and continue to evolve (Dutton et al. 1999). For many people however, the Internet is a term that refers to both the physical infrastructure and the uses to which the infrastructure is put (DiMaggio 2001b). 'The assumption that there is a widespread interest in getting access to information *per se*' remains strong in visions of the Internet as an important social resource (Dutton et al. 1999 p.97). One such perception of the Internet's importance for society is:

> The Internet boosts immeasurably our collective capacity to archive information, search through large quantities of it quickly, and retrieve it rapidly. It is said that the Internet will expand access to education, good jobs, and better health; and

> that it will create new deliberative spaces for political discussion and provide citizens with direct access to government.
>
> (DiMaggio 2001a)

Castells suggested in 1995 that computer mediated communications were too recent an innovation and too narrowly experienced to enable rigorous and reliable research (Castells 1996). Indeed there are claims that the Internet remains in its adolescence and, while information and telecommunications technology is new, 'global economic inequalities explaining technological diffusion are not' (Norris 2001 p.67). According to Norris, the rapid diffusion of the Internet rippled out from the U.S. and the U.K. Because English was already the dominant international language, it remains the dominant language on the Internet (OECD 1997). In its early years, the Internet was seen as a socially liberating technology, producing a networked society without hierarchy (Castells 1996). Recent analyses has thrown this conclusion into doubt by revealing that users are in the main, white, male and urban residents, thereby focusing debates on the possibility that information and communication technology might exacerbate inequality rather than ameliorate it (DiMaggio 2001a).

At the global level, perceptions of the widening disparities in Internet access between nations are causing concerns at the OECD, UN and World Bank. Studies find a nation's problems of access to the Internet parallel that of its access to other communication and information technologies such as the radio, the telephone and television (Norris 2001). However, the local political, economic, cultural and social factors within each sovereign nation are also determining factors for deciding whether access to the Internet is a national priority. For example civil war in the Sudan or famine in Ethiopia would tend to raise different social and economic priorities other than Internet access in the minds of their peoples. Nations rarely consist of a homogeneous culture or social structure but of interacting

cultures and heterogeneous structures, albeit dominated by an elite stratum. Globally diverse cultural practices, prevailing climatic conditions, lack of content in the common local language, non-existent or fragile telephone and electrical infrastructures all play a part in the level of Internet use in the countries studied by Norris, including the more affluent countries of Kuwait and Saudi Arabia. Viewing a country as a homogeneous social unit and assuming its social life is based on the wealth and lifestyle of its upper strata distorts the social analysis of technology diffusion. For example, access to the Internet might be essential for a wealthy, English-speaking Kuwaiti merchant banker or desirable for the myriad of well-paid North American and European residents living in air-conditioned and relatively sand proof buildings. However, the information content of the Internet, primarily available in derivatives of the English language, would hardly be relevant to an Arabic speaking poor Kuwaiti fisherman or a Bedouin tribesman who depend more on inherited wisdom and life experience to survive on the fickle seas or in the desert sands.

It is generally agreed among social scientists and analysts that a simplistic binary perception of access to the Internet, while understandable in early analyses of the Internet, with the wider dispersion of information and communication technology no longer applies (DiMaggio 2001a; Howell 2001; Warschauer 2002). Chris Dodds of the Australia Council of Social Services agreed in an ABC interview that the digital divide is more a social divide between the rich and poor, the highly educated and the poorly educated rather than a divide in a physical or geographic sense (Bormann 2000). Dodds claims there are as many people in urban Australia, if not more, on the wrong side of the digital divide as there are in regional Australia. Contemporary studies argue that rather than being a simplistic dichotomy, the digital divide has multiple dimensions, many of which are reproductions of the perennial inequality that is endemic in the hierarchical

structure of most human societies (DiMaggio 2001a; Howell 2001; Luke 2000; Norris 2001; Rifkin 2000; Warschauer 2002). Indeed Norris finds five dimensions of social cleavages within nations that are predictors of Internet usage: income, occupation, education, gender and generation (Norris 2001 pp.77-91). Noticeably, location does not appear as a dimension of social cleavage or predictor of Internet usage.

Research has found that household incomes influence the ability to justify the purchase of home computers and modems, particularly with the additional costs for the required software and the monthly Internet service provider and telecommunication charges (Lloyd 2000). Analysis of statistics collected in Australia not surprisingly reveal 'those earning $84,000 or more a year were 3.2 times more likely to have Internet access than those earning less than $22,000' (Simpson 2001 p.9). The cost of keeping software and hardware current in the fast moving development of computer and telecommunication technology presents a treadmill of continuing investment in its perpetual obsolescence (Crandall 1998). As new technological developments emerge in the speed and bandwidth of telecommunications networks and new software, languages, browsers and hardware components are developed they frequently require the upgrading or replacement of existing computer systems. Those without the level of income to maintain the currency of components and software required to access the full range of the Internet content, find the level of access they experience gradually becomes less satisfactory and, in frustration, they use the Internet less (DiMaggio 2001a).

Some analyses has found occupation, gender and education are significant factors in the use of the Internet. Professional and managerial staffs are more than twice as likely to use the Internet than other white-collar staff and three times more likely than manual workers (Norris 2001). Likewise,

individuals who rely on access to the Internet from work often find their autonomy of access is governed by organisational rank and position (DiMaggio 2001a). Therefore, despite the variations in educational curriculum and quality across the more developed countries, access to tertiary education in general appears to improve the capacity for the analytical reasoning and information filtering necessary to utilise the Internet effectively (Norris 2001). Indeed, most research has found that education levels have a greater influence on connection to the Internet than income (DiMaggio 2001b). For example, research in Australia has found that those with a Bachelors degree were 2.3 times more likely to have Internet access than those with only primary education (Simpson 2001 p.9).

Gender differences have been reported between the number of men and women online, with some countries reporting twice as many men as women online. However, in Australia the difference appears to be insignificant, with an estimated 72% of females and 73% of males over the age of 16 reported as having access to the Internet from at least one location (NOIE 2002). Further differences reported include contemporary research that has indicated those under the age of 55 were twice as likely to have access (Simpson 2001 p.9). However, the differences between generations in the adoption of computers and access to the Internet appear to be diminishing with a rising trend for the mature age to attend educational programs to reduce the so-called digital divide by learning about the use of computers and the Internet.

Some commentators argue that the diffusion of informational technology and telecommunication connections is following, at an accelerated pace, that of the telephone, the radio and television (DiMaggio 2001a). The essential provision of a reliable electricity supply seems to have been mainly overlooked in the digital debate. However, it was the wide

diffusion of electricity in the 1870s that allowed the electric telegraph, in existence since 1837, to grow into the telegraphic network connecting the world in what was to become the forbearer of the Internet (Castells 1996). Provision of a reliable supply of electricity cannot be assumed in rural or remote Australian regions and without electricity neither telephone nor computer can function. While solar power is becoming more prevalent for the public network of telecommunications in remote regions of Australia, it cannot operate at night without having a maintained bank of batteries. The costs of travel for maintenance and inspection would be prohibitive in remote areas. The introduction of any new technology is generally restricted to the social and institutional elite at first, before a gradual diffusion to other areas of society. This was the case with the introduction of the broadcast technologies of radio and television. The diffusion of telephone services took much longer than the broadcast technologies due to the necessary and expensive establishment of telephone and electricity infrastructures, nationally and globally. The primary reliance of Australian telecommunication on a range of cabling and switching infrastructures continues to be problematic in the provision of satisfactory, timely and affordable services to rural and remote regions. Although there are signs that the problem might be overcome by further development of wireless and satellite communication technologies, at this time the limitations inherent in cable infrastructures create a geographic disadvantage.

Regional dimensions of digital inequality in Australia

Recent studies have found a significant degree of digital inequality between metropolitan and non-metropolitan regions in Australia (Curtin 2001; Simpson 2001). For example the Rural Industries Research and Development Corporation (RIRDC) report, *The Internet and Regional Australia* (Simpson 2001), found that in May 2000, 56% of metropolitan

households and 51% of non-metropolitan households had access to computers at home, while only 37% of metropolitan households and 26% of non-metropolitan households had access to the Internet. On the other hand, a 2001 parliamentary brief reports a higher percentage of 59% in Australian city populations and 52% of country people with computers at home and those with Internet access of 40% and 32% respectively (Curtin 2001). The estimating of these percentages is an inexact art according to a leading source for Internet trends and statistics (Surveys 2001). While differences in the figures depend on the source from which they are obtained, consensus generally points to a significant gap in the take-up of computers and Internet connection between metropolitan and non-metropolitan regions (Curtin 2001 pp.6-7). Rural households and farms have tended to initially install microcomputers without connecting to the Internet and the three main reasons attributed to this unwillingness to connect are price, no interest and poor computer skills (Curtin 2001; Simpson 2001). In 1999, fewer than 60% of small to medium businesses in Australia were estimated to be connected to the Internet or saw a need or benefit in going online (Simpson 2001). The reported figures for Internet connections are questionable in that they fail to account for those users who are no longer connected.

Invisible in debates about digital access are the categories of non-users of the Internet. While many of the surveys on the growth of the Internet indicate impressive growth in the number of users, most make the assumption that 'once a user, always a user' (Wyatt 2002 p. 30). However, there are people that have never used the Internet and resist using it through a conscious choice, perhaps because they see that it serves no useful purpose in their lives. On the other hand, there are those that have never accessed the Internet due to social or technical exclusion. Then there are those who have voluntarily stopped using the Internet because it no longer

suits their needs. Finally, there are those who have involuntary lost connection due to rising costs or loss of institutional access. Indeed, Wyatt *et. al.* reports that in the USA alone, 'there are literally millions of former users about whom very little is known'(Wyatt 2002 p.36). The taxonomy of never a user, current user and former user does not account for the different types of user, the patterns of use and changes in access to the Internet. Without taking such issues into account the figures simply ratchet up and fail to provide an accurate picture of Internet use.

The number of connections to the Internet in Australia has been increasing over the last few years at all income levels and follows similar trends reported in the U.S. It may be assumed therefore, that a combination of lower computer prices, wider availability of computer education, generational changes forming new household families and the plethora of references to the Web in newspapers and on radio and television infotainment programs have aroused greater interest in the Internet. The Besley report on the Telecommunications Service Inquiry (Besley 2000), found that almost all Australian households had some form of access to the Internet over the public standard telephone network (PSTN), now often referred to as the Plain Old Telephone System (POTS). However, the 'reasonable data speed' of between 14.4 kilobytes per second (kbps) and 28.8 kbps was recognised to be an insufficient data speed for regular and effective Internet use by the federal government's own inquiry (ACA 1998; Curtin 2001). In urban and provincial centres with a population greater than 2500, 95% were able to access data transmission speeds of 14.4 and 75% were able to access 28.8 kbps. On the other hand, in rural and remote areas with a population of less than 2500, the percentage that were able to access data transmission speeds of 14.4 kbps dropped to 85% and those able to access data at 28.8 kbps fell to 60% (Curtin 2001). According to advice available from Telstra's Internet Services Provider, BigPond, the

slowest data transfer rates likely to be experienced were in rural and remote households that relied on radiotelephone links, for which data transmission may only reach speeds of between 2.4 and 9.6 kbps.

Another disparity to be found between metropolitan and non-metropolitan regions is in the quality of access to the Internet. Convergence of media technologies, including video and high-resolution photo graphics, are increasingly part of multimedia presentations on web sites, for which broader bandwidths and faster transmission speeds become essential if effective use of the Internet is to continue. The availability of high-speed broadband Internet connections with data down-load rates of 256 megabytes per second (Mbps) and data up-load speeds of 54 Mbps over fibre optic cable and ADSL networks are expensive to install and are rarely viable or available outside of Australian metropolitan regions (Simpson 2001). On the other hand, Telstra's one-way satellite service is available throughout Australia and provides download transmissions of 400 Mbps. Nevertheless, uploads must be made through normal dial-up access to BigPond Professional Plan, which requires a second telephone line, attracting additional charges and installation costs (Simpson 2001). Telstra BigPond's recent release of its latest broadband two-way Satellite Internet uses a different satellite, AsiaSat3, with a download speed of 512 kbps and uploads of up to 64 kbps or 128 kbps (BigPond 2002). Membership of Telstra BigPond appears to be mandatory for those wishing to use the two-way satellite services. Certified professional installation is essential because the equipment transmits as well as receives and therefore comes under strict telecommunication regulations. While 512 kbps is over 14 times faster than a 28.8 kbps dial-up modem connection and twice as fast as cable or ADSL at 256 kbps, it is considerably slower than the 400 Mbps of the earlier Telstra one-way satellite. It can be assumed however, that if the cost of Telstra dial-up access is seen as a deterrent at approximately $25

a month line rental, $0.17 per call and Internet Service Provider (ISP) fees, the costs to utilise Telstra's satellite telecommunications would be considered prohibitive and well beyond the capacity of the average rural or regional household or business to service (see Appendix H: Extracts from the Regional Forum group). While there is ample evidence to support claims of low levels of access on socio-economic grounds, there are other dimensions to consider. It has been suggested that income, education and other factors provide variations in how the Internet is used (DiMaggio 2001a). Studies have found that while the major use of the Internet is for information purposes there has been an increased adoption of electronic mail (Dutton et al. 1999; Howell 2001). Yet there is a reluctance to use e-commerce that is encapsulated in Castells' statement:

> While tele-banking has never been a favourite of average people (until they are pushed into it against their will, as will happen), and tele-shopping is dependent on the coming blossoming of virtual reality multimedia, personal communication is exploding in e-mail, the most usual CMC [computer mediated communications] activity outside work.
>
> (Castells 1996 p.361)

An information economy

While the majority of studies of the *digital divide* have concentrated on access to the Internet for information and communication, the main concern of governments, transnational corporations and international agencies, is the penetration of electronic commerce (e-commerce) for an information economy. This can be seen in the international competition between countries in achieving high rates of Internet connections. From this competitive perspective, the *digital divide* may be regarded as a marketing ploy to entice families into purchasing computers and connecting to the Internet to ensure their children's future education and employment prospects. In Australia, the competition is exemplified by the regular

release of *The Current State of Play: Australia's Scorecard* (NOIE 2002). The National Office *for* the Information Economy (emphasis added) releases the reports, suggesting that the information economy has perhaps yet to be achieved. From a policy perspective the positive uses of the Internet include economic gain, status attainment and improved employment opportunities through social networks, increases in human capital through education, and enhancement of social capital by access to wider social networks, government information and communication resources. Although gambling and pornography are seen as socially negative uses of the Internet, they remain one of its largest economic activities and provide substantial capital and employment opportunities for some sections of society. The detrimental impact of these activities on the performance of telecommunications, particularly that of unsolicited email or 'spam', is one of the scourges of Internet access for many users. Efforts to block these nefarious messages have imposed additional costs on Internet access and the viability of e-commerce transactions. The complex moral, legal and political issues involved are international and beyond the scope of this thesis to debate. Nonetheless, the technical, social and economic implications present ambivalent perspectives. On the one hand, e-commerce is seen as the precursor for telecommunications as part of an economic development panacea (Joseph 2001). On the other hand, it provides for the realisation of Castells' chilling social prophecy:

> The global economy will expand in the twenty-first century, using substantial increases in the power of telecommunications and information processing. It will penetrate all countries, all territories, all cultures, all communication flows, and all financial networks, relentlessly scanning the planet for new opportunities of profit making. But it will do so selectively, linking valuable segments and discarding used up, or irrelevant, locales and people.
>
> (Castells 1998 p.354)

Others argue that the concept of a *digital divide* provides a poor framework for either analysis or policy (Warschauer 2002). Warschauer discusses three social experiments where information and communication technology hardware and software was provided for specific group projects to enable access to the Internet. In each case, there was limited critical analysis and reports by the proponents of ICT emphasised only the positive aspects of the technology projects while ignoring its less attractive social consequences. Critical analyses would have provided others with valuable information for policy formulation and project implementation. The first case was the 'hole-in-the-wall' computer kiosk, provided by the New Delhi Institute of Information Technology, one of the local software and training companies (UNESCO 2004). The kiosk was in the slums bordering the institute for the local children to teach themselves how to use the Internet at their own pace and without adult supervision. The International Finance Corporation (IFC), a World Bank subsidiary, invested $1.6 million in the project that was to install kiosks in over 60 locations in India's slums (UNESCO 2004). While the program was hailed as a success by the researchers, the IFC and the Indian government, according to Warschauer, the Internet access seldom functioned and no educational programs in the local Hindi language were provided (Warschauer 2002). The children spent most of their time drawing with the paint program or playing computer games. There was no community involvement and some parents complained that their children's schoolwork suffered.

The second case was Ennis a town in County Clare, Western Ireland with a population of 20,000, of which 71% were under the age of 44. A proposal to provide every family in the town with Internet-ready computer systems won the Information Age Town national competition and was promoted as 'the largest community technology project in the world' (Ennis 2002). Telecom Eirann was preparing to be privatised and to be renamed as

Eircom when it sponsored the competition (Warschauer 2002). Warschauer reports that 'well-functioning social systems were disrupted in order to make way for the showcase technology' (Warschauer 2002 p.3). In Ireland, according to Warschauer, the unemployed are required to report to the social welfare office three times a week to sign on to be eligible for unemployment benefits. He concluded the unemployed also value the social interaction that visits to the social welfare office engender, alleviating the isolation that so often accompanies the status of unemployment (Warschauer 2002). In Ennis, the unemployed were instructed to use the computers they had been supplied with under the Information Age Plan to sign in and receive payments over the Internet rather than visit the social welfare office. The result was a 'good number of those computers were reputedly sold on the black market, and the unemployed simply returned of their own accord to coming into the social welfare office to sign in' (Warschauer 2002 p.3). Such actions tend to indicate that perception of computers and Internet access as a vital social resource is far from universal.

Warschauer's third case was a U.S. Agency for International Development (USAID) donor project to supply equipment for a computer laboratory in the college of education of an Egyptian university (Warschauer 2002). Inter-department and faculty tensions arose in the allocation of funds to one specific program when others were poorly funded. As the university was unprepared to spend the money required to house and maintain the computer laboratory, hire staff or provide Internet access, the equipment was stored for more than a year before being installed. According to Warschauer, each of these projects 'was motivated by a sincere attempt to improve people's lives through ICT' (Warschauer 2002). However, each one ran into a familiar social pattern of problems:

> [T]hese same types of problems occur again and again in technology projects around the world, which too often focus on providing hardware and software and pay insufficient attention to the human and social systems that must change for technology to make a difference.
>
> (Warschauer 2002 p.5)

The consensus is that there is no digital divide (Bormann 2000; Crabtree 2001; Curtin 2001; DiMaggio 2001a; Howell 2001; Luke 2000; Norris 2001; Warschauer 2002). There are those that argue information technology, or digital technology, 'has not created a new social divide' rather it has highlighted or exacerbated existing social inequalities (Curtin 2001 p.18). Indeed, others argue that there can be no binary divide simply because there is 'no single overriding factor for determining such a divide' (Warschauer 2002 p.6). Another major problem with using the term *digital divide* to describe socioeconomic problems is that they are then seen as technological problems that may only be corrected by technological solutions. While information and communication technology applications may enable the engagement of complementary resources and complex social interventions, they 'are certainly insufficient when simply added to the status quo mix of resources relationships' (Warschauer 2002). However, by viewing the multiple dimensions of digital inequality as an informational continuum, similar to the way in which the so-called rural and urban divide is now perceived as a rural / urban continuum, the intersection of these two continuums provides a complex analytical model of their relationship (see Appendix G: A spatial model of digital inequality).

Conclusion

There are inherent difficulties in terminologies and assumptions when attempting to combine the disciplines of social sciences, but in many ways

the interdisciplinary perspective of science and technology studies is able to overcome these weaknesses. Similarly, the problems of social structure, individual agency and social reproduction are transcended by the concept of a structuration process. Development of science and technology studies has extended the social studies of scientific knowledge and provided a critical orientation with a more supportive perspective for contemporary analyses. At this time, the social shaping of technology paradigm offers the most clarifying, comprehensive and heterogeneous approach to the complex connections between technology and society. In taking a critical look at the relationships between technology and society in general, it is recognised that there are myriad interpretations of technical potential and that perceptions of any particular technology are dependent on the social structures and the economic, social and political agencies active at the time. In return, technology interacts with society, subtly changing not only the underlying social values but also the intensity with which society adheres to them. This perspective of changing social values accommodates the formation of social, political and economic agenda that provide the conditions for an accumulation of wealth, power and privilege on a global scale. Technical infrastructures are the product of inherently political and dominant choices that are imbued with the values, motives and intentions of those in the position to influence their design and implementation. These infrastructures may endure for generations long after debates on the choices of their specific design, method of implementation and justification for the expenditure have been forgotten. Such overlooked factors can also be found in many of the studies of technology that contest notions of power, patriarchy and profit in a capitalist system that continues to reproduce endemic social inequality. The effects and consequences of many of these technological and socioeconomic systems have wider national and, at times, global implications. It is important to recognise that technology is never external to society and that it plays a fundamental role in the

recursive character of social life. The increasing reliance on all forms of technology in contemporary society and neglect of consideration for social interests has attracted many critical studies. Among these criticisms are those that envisage the concept of technical reason as ideological and technology itself as political dominance and a form of methodical, scientific, and calculating control.

Some social commentators see the application of computers and telecommunications for employment as the continuation of deskilling, displacement of labour and capitalist control of production processes. Others perceive male dominance reproduced in the shaping of computer technologies and employment opportunities. This reproduction of inequality is particularly evident in the new customer service centres, which exploits workers in a tightly controlled technological workplace environment as human components of a convergent system of telephony and data processing. Many managers of customer service centres recognise the stresses inherent in such work by providing a comfortable environment and facilities many workers in other industries would envy. There is still constant pressure in the work flows, with every task timed including the periods away from taking calls, with work performance constantly measured quantitatively and, in many centres, frequently monitored and recorded for qualitative assessment. The workers are in the majority women, employed on a casual basis and, in many cases, working in shifts. The critique of a customer service management expert in the call-centre industry maintains the Howard Government was right to open Australian computer and telecommunication industries to global competition and address the tenets of neoliberal ideology. However, in spite of the many possibilities offered by developments in information technology and telecommunications for the proliferation of new ways to work, home-based telecommuting has failed to become widespread. Access to telephone

services is uneven throughout many of the more advanced countries due to economic inequality and the ripple effect of the availability of advanced and affordable telecommunication services. As a result, the further away from metropolitan regions of high consumer density one is located the poorer the availability of advanced and affordable telecommunication services becomes. Therefore, claims that an information society will overcome the tyranny of distance through access to the Internet are at best fanciful. Likewise the social, educational and economic benefits of a networked or online society advanced by many commentators privileged by connection, seem equally remote for the more disenfranchised members of contemporary societies. As society becomes more dependent on information technologies for access to services and market opportunities, there is a risk that social exclusion will increase the inequalities between the technologically privileged and the technologically disenfranchised, creating greater degrees of stratification and widening social polarity.

Social perceptions of technology that vary between the polarity of pessimism and optimism are important in activities at the micro-level. In particular for the individual, the divergent levels of confidence in the same technology, are dependent on personal perceptions, intimate knowledge and closeness to that technology. The greater a person's confidence in technology and the further away from the technology in question that person is, the more the chance of overconfidence in that technology's capability. This may result in an error of judgement in decision-making or in a failure to achieve projected goals with the possibility of unforseen adverse consequences, often at the expense of money and possibly lives. Many people in today's western academies, including sociologists, economists and technologists, welcome the emergence of an information society or information economy. Others argue that there is no empirical evidence or accurate measurement against agreed criteria to justify these

claims. Equally questionable are the prophecies-for-profit of entrepreneurs and corporate media, predicting new technologies and new forms of society, promoting its products and ideologies in utopian notions of leisure and wealth as the ultimate in achievements for humankind. Although there are manifest artefacts of microelectronic technologies in society, it appears that only those contributing to information and communication technology are seen to have the potential for changing contemporary society. Information and communication technology has fired the collective imagination through the sweeping grandiloquence of journalistic enthusiasm in the media with its widespread adoption of 'cyberbole'(Woolgar 2002b). The constructions of an information society, an information economy and a network society remain contestable.

Paradoxically, the fundamental significance of information and communication technology for society may be threatened by discourses containing prophetic hype and ideological manipulation. Indeed, much of the flowery rhetoric and impenetrable prose are undoubtedly attempts to grasp, describe and project new concepts in the analyses of previously unexperienced effects envisaged in the impact of information and communication technology on society. Furthermore, it has been argued above that the social effects of computer technology and telecommunications are determined by the structure and agency of its social context and by the dominant values of its application. Therefore, what will be the social affects of the introduction of such technology in rural regions of Australia? More important is the question of whether such technology will sustain rural communities with the economic development that they need to survive? The social dimensions of rural regions will be examined in the following chapter.

CHAPTER 3: REGIONAL AUSTRALIA

Introduction

The focus of the thesis is on communities in a rural region of Australia and therefore this review of several literatures, while based on Australian community studies, attempts to provide the necessary social dimensions, agencies and context. Previous researchers have not identified what factors might stand in the way of implementing ICT in rural communities, in an attempt to bridge this gap, this chapter links the recursive nature of social activities with the symbolism, politics, gender issues and ideologies inherent in rural community developments that utilise ICT. Discussions of the definition of terms commonly used in contemporary debates of Australian rural and regional communities are provided as an introduction to the section. Of the many conditions advanced for the implementation of information and communication technology in community developments to succeed, the prerequisite for that community to have sufficient levels of social capital appears to be important. Therefore, a review of social science and political discussions of the concepts of social capital and its descriptive and prescriptive usage in regional Australia is important.

Social dimensions of Australian rural regions

In any discussion of the social dimensions of communities in Australian rural regions there is a need to understand the many contemporary contexts and meanings embedded in the terms *rural*, *region* and *community*. Some scholars of regional Australia argue that from the sociological perspective of the classical writers Marx, Weber and Tönnies, there was a distinctly rural society based on agriculture (Gray and Lawrence 2001). Debates on what may be considered as rural are manifest and continuous with some

scholars warning against attempts to define the rural, arguing that 'the rural is no longer mappable as a set of physical or social distinctions' (Murdoch and Pratt 1997 p.56). Others question the traditional definitions of what constitutes rural by analysing three classifications of occupational, sociocultural and ecological, and finding them all problematic (Lockie and Bourke 2001). Lockie and Bourke argue that the major occupations, even in agricultural areas, may now be services and tourism with only a minority employed in primary rural industries. Yet, popular images of Australia as rural, in spite of evidence to the contrary, are a powerful symbol of the Australian national identity. To be sure, towards the end of the nineteenth century, 'Australians in general became actively conscious, not to say self-conscious, of the distinctive "bush ethos", and of its value as an expression and symbol of nationalism' (Ward 1966 p.13). Today's mass media continues to construct images of rural Australia as harmonious, stable and simplistic so as to represent contemporary Australian society. These stereotypes are constantly reproduced in films, programs and advertising so that 'the myths, therefore, continue' (Finkelstein and Bourke 2001 p.51). A study of rurality in Britain argues that the rural is a multiplicity of social space:

> [C]ontingent, fluid, detached from any necessary, stable sociospatial reference point. Its meanings are asserted relationary (most notably in contradistinction to the urban) and are situationally specific; that is we can know the rural only from and through particular socio-spatial positions.
>
> (Murdoch and Pratt 1997 p.58)

For the purposes of this thesis, the term *rural* is more appropriately applied to 'those segments of Australia and its population whose economic and social lives are connected with, if not dependent upon [a primary industry]' (Gray and Lawrence 2001 p.2). These primary industries might include agriculture, grazing, aquaculture or forestry. For example, many villages

and towns in rural regions might be connected to the surrounding countryside by location but remain dependent on income from tourism, services or manufacturing industries rather than any form of farming.

The flexible use of the term *region* is currently reflected in a homogeneous reference to *regional Australia* as any area outside of metropolitan cities in a regional and metropolitan dichotomy (Gray and Lawrence 2001). However, the report, *State of the Regions* (NIEIR and Australian Local Government Association. 2000), considers all areas of Australia are in one of 58 regions. These regions are categorised into six different types: core metropolitan areas, dispersed metropolitan areas (suburban), production zone regions (traditional industrial regions), lifestyle regions, resource-based regions and rural regions. These distinct categories enable the disparate socioeconomic and demographic characteristics of each area to be taken into account in analyses. State governments on the other hand, group their local government authorities into geographic regions, whereas individual councils are now tending to band together to form new economic-development regions exemplified by seventeen New South Wales Councils and the Australian Capital Territory Government joining in the Australian Capital Regional Development Council. The simplest dichotomy of all is that of metropolitan and non-metropolitan regions. In this thesis the use of the term *region* will be defined and qualified at the time of its use to avoid any ambiguity.

The idea of *community* has historically evoked good feelings of living with other humans sharing similar life views, space and environment, which it often continues to do. However, this subjectivity causes confusion between a normative prescription of what should be involved and an empirical description that proves to be impossible without making value judgements (Bell and Newby 1971). Late nineteenth-century concepts of community

endure in Tönnies' conception of a society moving from the polar oppositions of *Gemeinschaft* (community), intimate or social relations, towards *Gesellschaft* (rational society), impersonal or contractual relationships required to meet the needs of capitalism (Tönnies [1887] 1955). Similar concepts are found in Weber's transition from traditional authority towards a rational-legal authority and Durkheim's dichotomy of mechanical and organic solidarity in divisions of labour. The association of *Gemeinschaft* predominantly with a rural society and *Gesellschaft* with relations in an urban society have subsequently become subsumed under a 'rural-urban continuum' (Gray and Lawrence 2001 p.48). There are others who recognise multiple concepts of community, which includes the two basic social constructions identified with common locations or common relationships (Gusfield 1975 pp.23-52). The use of community as a common territory has provided community entities for the study and understanding of structures and agency. Whereas in common relationships actors perceive the quality of communal interaction as providing a common identity of communal membership with all the claims and obligations that such membership implies (Gusfield 1975).

Some contemporary social theorists, however, reveal the much wider use of community as a symbolic construction (Cohen 1985). Cohen argues that a consciousness of community is encapsulated in people's perception of its boundaries constructed from their social interactions. For Cohen symbols 'are effective because they are imprecise' (Cohen 1985 p.21). Symbols permit flexible interpretations that allow the retention and sharing of a common form without imposing a common meaning. On the other hand, while following a similar line as Gusfield, Cohen argues that an understanding of 'community' can only come from its members' experiences and perceptions and is therefore an aggregate concept. With the advent of computer-mediated communication networks, reified as the

Internet, a virtual community has emerged. Notions of a community without propinquity are also frequently cited in attempts to describe the concept of such a community (Webber 1963). However, Webber was commenting on the contemporary society of the early 1960's, long before the advent of the microcomputer, when he argued that automobiles had created a society without propinquity for a burgeoning middle-class. Today his thesis re-appears in support of the socio-technological dichotomy of the *digital divide*. Among the many critics of his thesis are Bell and Newby (Bell and Newby 1971) and Craig Calhoun (Calhoun 1998). Bell and Newby argue that Webber's 'interest' community is a single-strand relationship that ignores the fact that even the middle classes live in communities of multiplex relationships. While Calhoun's criticism of Webber's classic study follows similar lines, it is from a society in which the Internet plays an increasing role and where notions of 'virtual community' are commonly discussed. He suggests that debates on the social implications of computer networks should incorporate a better understanding of community, an historical context of technology and the spatial dimensions of power.

A new topology of community

There are attempts to provide a better understanding of the social structures and interactions within contemporary communities in an age of information and communication technology and an emergent global economy by formulating a new typology of community. Whether information and communication technology changes the world in which we live is debatable, however, it adds to the ways in which society might be perceived. Understanding the social importance of the idea of 'community' begins with recognition that as 'a symbol and aspiration, the idea of community continues to resonate in public discourse' (Brint 2001). Brint

finds that two lines of development exist in the sociological concepts of community. The first adheres to Tönnies's original formulation of *Gemeinschaft* contrasting with *Gesellschaft* in several typological constructs (Tönnies [1887] 1955). The second is Durkheim's disaggregated approach of four structural and two cultural variables.

Durkheim's variables

Four structural variables:

1. Social Ties
2. Social attachments and involvements
3. Rituals and
4. Group size

Two cultural variables:

1. Sharing physical characteristics, expressive style, way of life or historical experience and
2. Common beliefs

[Brint, 2001 pp. 3-5]

For Brint, these six variables are important in the history of sociological analysis and, because they are not universally found in all communities, he believes analytical focus should be on the individual properties rather than their contexts (Brint 2001 pp.3-5). The crucial role of the four structural variables is identified through sociological analysis. The first structural variable relies on the analysis of density and quality of the social ties providing social support networks. The second structural variable analyses the level of influence active involvement and attachment to institutions has for the building of trust. The third structural variable is the use of ritual to cement the group's identity and strengthen individual self-worth and, the fourth structural variable is the optimum size of the group. According to Brint, the importance of the two cultural variables of social identification and beliefs as a function of interaction and common interest are shown to

have independent effects on behaviour (Brint 2001). Brint's reconstruction of the community idea is defined as a generic concept in which the motives for interaction remain central to the definition, just as they did in Tönnies' construction. Unlike Tönnies however, Brint does not consider that relations among community members need be exclusive or frequent. He defines communities as aggregates of people who share common activities and / or beliefs, bound together *principally* by shared relationships, values and interests. Brint's community typology takes the form of a branch structure that is primarily defined by the interaction among its members in a dichotomy of geographic or choice-based communities and follows a similar concept to that of the distinction between geographical and relational communities (Gusfield 1975). The imagined communities are belief-based and involve no face-to-face contact while virtual communities are activity-based and interact exclusively through computer mediated communications (Brint 2001 pp.9-11). (See Appendix D: Community types). From the perspective of a networked society, the extension of the concept of community into the frequency and quality of electronic interaction provides an additional dimension for contemporary sociological analysis.

Community studies

There was a plethora of studies of rural Australian communities carried out in the 1980s and 1990s (Bowman 1981; Dempsey 1990; Gray 1991; Poiner 1990). Most have been successful in describing the community structures of Australian rural towns, though each had a different focus and has taken a different path. Poiner (Poiner 1990) examined ideologies in her study of power and gender relations, finding that class-consciousness is muted and suppressed for most of the people in Marulan. She ascribed this to petty bourgeois land ownership along with the isolation and insulation of

Marulan's inhabitants from outside influences. Poiner found evidence that the unemployed and socially disadvantaged were often blamed for their own predicament. Dempsey, on the other hand, studied the social stratification of Smalltown exploring the local ideological factors fostering a sense of belonging among classes, ages and religious affiliations (Dempsey 1990). Most of the locals in Smalltown, while acknowledging there are significant differences in wealth and income, rejected the notion of class influencing social relationships in the town. It was only between the non-local transient and primarily middle-class residents that class is found to influenced social relationships (Dempsey 1990). To be sure, many find problems in designating social classes as empirical groups because of their fluidity, vagueness and diffusion, which make their boundaries hard to define (Gusfield 1975 pp.60-1). Any discussion of a class system of social stratification however, cannot be countenanced in sociology without reference to the influential works of Marx and Weber.

For Marx class is a group of people who have a common relationship with the means of production – how they obtain a livelihood. While Marx was writing about the history of class struggles as an uninterrupted fight in 'all hitherto existing society', his observations were of mid-nineteenth century class structures emerging from a feudal society (Marx and Engels [1848] 1988; cited in Morrison 1995 p.232-3). Marx's concept of class has two usages. First, class is defined objectively by common economic activities from the perspective of an observer and therefore not conscious of its character or interests – a class in itself. Second, class is formed by people in a similar economic stratum who are conscious of their specific economic and political interests and of common political enemies – a class for itself (Gusfield 1975 pp. 57-9). Marxian politics is primarily concerned with the transition from the first usage to the second. Weber accepts Marx's view that class is founded on objectively given economic conditions, although he

sees a far wider range of economic factors influencing class formation (Giddens 1993b). Weber extends Marx's concept of class based on property ownership to include market situation and the opportunities afforded by income. In his criticism of Marx's singular dimension of social hierarchy Weber adds two other units of stratification to that of class, that of status and party (Giddens 1993b; Haralambos et al. 2000; cited in Morrison 1995; Weber 1978). Status is the social honour or prestige accorded by others, whether positive or negative, and remains independent of class divisions. Whereas party is the formation of a group of individuals with common backgrounds and aims working together and is, therefore, 'an important aspect of power [that] can influence stratification independently of class and status' (Giddens 1993b p.219).

Conversely, there are some who argue that class is not a social stratum but 'an emergent structure in a historical process' (Connell and Irving 1980 p.21). A structure where class boundaries are *normally* 'blurred' and should be expected to be so, for they are dependent 'on changes in the organisation of production, the fortunes of politics, the processes of cultural change' (Connell and Irving 1980 p.21). According to Connell and Irving, class only becomes sharply defined when 'some kind of crisis' is at hand (Connell and Irving 1980 p.21). Indeed, Weber believes that:

> When the bases of the acquisition and distribution of goods are relatively stable, stratification by status is favoured. Every technological repercussion and economic transformation threatens stratification by status and pushes the class situation into the foreground.
>
> (Weber 1922; Weber et al. 1946 pp. 193-4)

The general aversion to notions of class and class analysis in Australian rural regions is also found in the contemporary British countryside and reflects a rural ideology in which the countryside is presented as a classless

society (Cloke and Little 1997; Cloke and Thrift 1990; Crompton 2000). For some the declining significance of class and class *politics*, 'at least in its now obsolete mass manual, male working class dimension', has been further fragmented in a consumer-based society under the market dominance of neoclassical economics (Crompton 2000 p.86). In Britain, rural populations have undergone a transformation over the last two decades of the twentieth century. There has emerged a middle-class of heterogeneous fractions in some rural regions, constructed of a service class of public and private sector professional and managerial workers (Cloke and Thrift 1990). The number of women in such occupations has rapidly increased and changed the nature of the service class. According to Cloke and Thrift, the service class is a younger class containing more single-person households, a greater number of childless professional couples and fewer families with a non-working spouse and children (Cloke and Thrift 1990 pp.174-175). What is important for Coke and Thrift is the recognition that the complexity of an apparently single homogeneous class is constructed of different and possibly conflicting fractions. The constantly evolving complexities of class relations presented by this concept are similarly expressed in Bourdieu's concept of class as social practice (Wilkes 1990).

While class is a component of the interactions and problems experienced in the arena of local government, status appears to have more significance in the social strata and ideologies of the Australian country town (Gray 1991). Indeed, there are far more empirical studies of status in the structures of rural and regional societies than there are of class. As Gray observed, 'Status, what those blessed individuals possessed, was the perception of others that they had it' (Gray 1991 p.172). It is evident from many of the studies that there is a strong social perception of hierarchical structure and a consciousness of status in rural regions of Australia. While the Marxian

approach to social stratification relies on the key criteria of property ownership, in modern rural societies farm ownership and income poverty often go hand in hand. Consequently the Marxian concept of class struggle based on the ownership of property is an oversimplification of social stratification. In general, most studies follow Weber and separate the dimensions of class, defined by the market situation and economic activity, from status as membership of a group sharing similar lifestyles and tastes in consumption with the pursuit of social esteem (Morrison 1995 pp.238-9; Weber et al. 1946 pp.180-95). Australian community studies have constructed hierarchies of status that are relative and complex (e.g. Bowman 1981; Dempsey 1990; Dempsey 1992; Gray 1991; Poiner 1990). However, there are problems in relying primarily on occupations for the measure of a person's social status. In Cowra, Gray finds that family ownership of farm properties and longevity of residence were the main factors in attaining high status, while wealth, professional employment and social esteem also play major roles (Gray 1991).

There are other problems to be found with community studies for the 21st Century. As was debated in the previous chapter, Share's view is contestable when he states that, "Everybody and his/her dog knows that the information society is upon us." (Share 1993) However one can only agree with his conclusion that there have been few examinations of the issues from a rural perspective (Share 1993). Indeed, previous researchers of rural communities have failed to examine what might get in the way of using ICT in rural development. While most Australian community studies have examined the history of the particular community and commented on its structure and agency, none have explicitly recognised the knowledgeability of agents or the recursive nature of social practices (see previous chapter). Whereas most of the community studies have acknowledged external influences on the community, like most case studies

few have examined them to any significant depth beyond the community's borders.

Governance of regional Australia

The unique system of government administration in Australia is an amalgamation of the British Westminster System of parliaments and the U.S. Federal System. Briefly, each Australian State was formerly a colony of Great Britain that federated in 1901 under a constitution to form the Commonwealth of Australia. Territories on the other hand, were formally administered by the Commonwealth Government but have since gained autonomy and now elect their own parliaments. The federal tier of a three-tier structure of government is assigned responsibility for national defence and foreign policy and all agencies concerned with the national interest. The State and Territory tier of government consists of the six States and two federal Territories and 'are more involved in people's day to day affairs' (Maddox 1991 p.150). Within the State tier lies responsibility for the local authority tier of government, often called the grassroots level of government. While local government is not formally recognised in the Constitution, each State follows the British administrative divisions of municipal and county councils at this grassroots level. However, the Anglo-Saxon term of *shire* is preferred for non-municipal Australian local government authorities, reserving the French term *county* for the local distributors of electricity, at least until amalgamations and privatisation took its toll of state electricity county councils. The local governance of Australia is the responsibility of State and Territory Government Legislative Assemblies and, under State and Territory control, is assigned to local government authorities that are historically divided between municipal and shire councils often with offices in the same central municipality that services the surrounding shires. Many of these local

councils have subsequently been amalgamated by state government legislation to form new and larger shire councils, thereby providing more efficient services while reducing local employment opportunities. The lack of formal standing in the Constitution for local governments means that state governments can alter the boundaries, merge and dissolve local authorities.

The amalgamation of local government authorities is not a recent phenomenon and will continue as long as rural populations continue to fall, regional centres and cities continue to expand and experience urban overspill into neighbouring shire councils. Indeed, there are a myriad of economic, social and political reasons why state governments will continue to restructure local government areas. For example, in 1910 the State of New South Wales (NSW) had 324 local government areas, Victoria (Vic) 206 and Queensland (Qld) 164. By 1994 the number of local government authorities had been reduced to 177 in NSW and 78 in Victoria, which was still restructuring local governments at the time of the survey (Tucker 1995). The number of Queensland councils fell to 134 in 1986. However, full recognition of Aboriginal and Torres Straight Islander councils as local governments in 1990, following state legislation that authorising them to approve their own budgets, saw the number of Local Government Authorities in Queensland climb to 156 by 1994 (Tucker 1995 p.59). As the number of local government authorities continue to shrink so their responsibilities continue to grow. 'State and Territory governments pass on to local governments an ever widening array of duties, often without commensurate financial assistance' (Daly 2000 p.193). According to Daly, this is one of the factors that alienates the local populace and creates perceptions that local councils fail to provide adequate and equitable delivery of services and resources. Councils are normally one of the biggest employers of people in rural regions, therefore the major

detrimental impact of the amalgamation of councils on the local levels of employment.

Gender issues in rural-regional communities

Many farm families have long lived under the financial threat of losing their properties and have increasingly relied on supplementary employment to avoid that prospect. The main strategy for farm families is to utilise off-farm work to cushion the fluctuations inherent in farming incomes, with about one in three spouses having off-farm employment (Gray and Lawrence 2001). Farming is inherently stressful due to the uncertainties of weather, the possibility of equipment malfunction at crucial times and the high risk of injury and ill health for humans and animals, all of which can occur with little warning. These problems are compounded by relative isolation and unreliable telecommunications. The volume of material on the roles, construction and reconstruction of women in rural regions, although fragmented across a number of collective works and organisations, is continuing to grow (Alston 1996; Dempsey 1990; Grace and Lennie 1998; Gray and Lawrence 2001; Gray 1991; James 1981; McKenzie 2000; Poiner 1990). Many of the social problems that have been experienced in rural Australian communities since 1976 include the large rise in suicide for young rural males, an increase in domestic violence and shrinking rural communities as the young leave to search for work leaving behind a poorly serviced aging population (Alston 1996). 'The current government economic rationalist agenda dictates that as populations contract, services will decline' (Alston 1996 p.79). Alston focuses on the rise of rural women's political activism as a result of the above social problems, with women's networks established in all the Eastern States of Australia, including Tasmania and South Australia, with Federal support established under a Labor Government. Other writers on rural feminist

issues suggest that women 'are emerging as a powerful force for change in rural Australia ... where rural women have formed women-only organisations and networks in their efforts to gain recognition, influence policy and support each other' (Grace and Lennie 1998). Grace and Lennie's article highlights the construction of rural women in the media as either victims or heroes and saviours. Each representation serves a different purpose with the victim identity serving to demand more services for rural women, while the hero / saviour image documents the stories of her struggle. The danger for rural women in adopting the hero / saviour image is that they then become susceptible to those interested in their untapped human resource potential. This potential exploitation emerges from their willingness to 'participate unwittingly in the reproduction of the existing power imbalance, where women's energies are routinely co-opted to serve men's agendas' (Dempsey 1992; cited in Grace and Lennie 1998 pp. 365-6). Women, however, are generally invisible in debates on farming issues. They continue to remain invisible in farming because the rural construction of two separate spheres of activity, public and private (Dempsey 1990; James 1981; Lockie 2001). The male public sphere is perceived as production, decision-making and politics while the female private sphere is seen as reproduction, support and domesticity. Rural men are understood to be 'farmers' and rural women are 'housewives'. This private / public dichotomy is apparent in other areas of rural and regional life. Voluntary associations are considered to be public, in that they involve community affairs and are, therefore, generally seen as within the male sphere of activities. Likewise, local councillors are predominantly male because greater numbers of men than women are involved in voluntary associations and the roles of counsellors are generally related to their class, status and political influence in the town (James 1981). According to James, rural women are traditionally considered subordinate to men and male-only associations tend to have more prestige than female-

only associations. James found the importance of social prestige evident in the strategic membership of service clubs in the town of Ennis, where it is generally acknowledged:

> The best way to get on in the town is to belong to one of the service clubs, preferably either Rotary or, if one is younger, Apex, as these have the most wealthy and prestigious membership.
>
> (James 1981 p.102).

Rural ideologies

There are a number of community studies that point to the political and ideological constructions of the rural / urban dichotomy, leading to social perceptions of homogeneity in both rural and urban domains (Dempsey 1990; Gray and Lawrence 2001; Gray 1991; Gray and Phillips 2001; Green 2001; Lawrence et al. 1996). Green writes on the political differences between the interests of rural and urban populations in a predominantly urban nation and the demise of the traditional country political party, previously the Country Party and now the National Party (Green 2001). In many of the rural studies, ideologies are variously referred to as country-mindedness, agrarianism, or an all-encompassing rural ideology (Gray and Lawrence 2001; Lockie and Bourke 2001). Country-mindedness invokes the myth of the Australian bloke as:

> [A] hardworking and honest larrikin, true to his mates but fiercely independent and self-reliant, more at home under the sun and the stars than in the feminised confines of an office or home.
>
> (Lockie 2000 p.17).

Agrarianism on the other hand, is the belief in farming as a superior occupation and lifestyle incorporating values of hard work, perseverance and family life (Gray and Lawrence 2001 p.73). Rural ideology may

therefore be drawn on to gain political leverage, to achieve community solidarity or justify rural values and lifestyles. Indeed, according to Bourke and Lockie, rural ideology has been 'accepted by many people outside of the farming and grazing community, giving farmers and graziers considerable political influence considering their relatively small number' (Lockie and Bourke 2001 pp.9-10).

A strong attachment or sense of belonging to a community transcends class or status, gender, generation and religious affiliation in many rural and regional communities (Dempsey 1990; Gray and Lawrence 2001; Gray and Phillips 2001). Such positive sentiments are generally seen as a result of persistent face-to-face interaction and stems from the ideology of localism, which is particularly evident whenever bushfires, floods or exogenous interventions threaten the general wellbeing of the community. Localism is most frequently, although not exclusively, experienced in community solidarity calling for action against particular economic developments or specific political strategies. According to Gray, while localism is often seen as the division between local 'locals' and local 'others' coming from outside the community, it does not promote any clash of interests (Gray 1991 p.170). Various aspects of ideology are detailed in a number of publications on rural Australia. Dempsey for example, finds there are several factors affecting a sense of belonging in his study of *Smalltown* (Dempsey 1990). According to Dempsey, the primary factor of a sense of belonging is the length of residency often in terms of generations, which is accompanied by a sense of alienation felt by newcomers, by those who do not conform, those that had no intention of remaining in the community or who retained close ties in their previous place of residence. This latter group includes those professionals and administrators posted to remote or regional areas as part of their career path, such as teachers, bank staff and public servants. On the other hand, Dempsey found those who moved to

rural or regional towns from cities were those most likely to develop a sense of belonging within a few years of residency, whereas most of the marginalised in the community have been locally born or have lived locally for most of their lives. Indeed, many of these 'marginals' still feel they belong in the community, whatever their age group, because they retain many kinship and friendship bonds. They are members of their own often low socio-economic networks with indirect ties to others in the community and many express 'some sense of belonging even if it is mixed with feelings of isolation, rejection, and resentment' (Dempsey 1990 p.94).

Globalisation and neoliberalism

While much of the material reviewed in this sub-section goes beyond the micro-level social interaction that is the primary focus of the thesis topic, it does provide an explanation for much of the macro-structure and activities in the two major problematic areas facing rural regions of Australia today (Gray and Lawrence 2001). Gray and Lawrence believe the first major problem is in finding a secure role for rural Australians in a global economic system. The second is the effects of a revived form of liberal or *laissez-faire* policies popular in the nineteenth century that tend to favour free-market capitalism commonly referred to as the Washington Consensus, neoconservatism or neoliberalism (Stiglitz 2002). In conjunction with global economic policies, neoliberalism is accused of driving regional Australia into further economic, environmental and social decline. The effects of globalisation are emerging as a topic of many rural Australian studies (Burch and Rickson 2001; Gray and Lawrence 2001; Lawrence et al. 1996; McMichael and Lawrence 2001). The term 'globalisation', like many other concepts attempting to explore and understand an emergent social phenomenon, has become increasingly opaque. Some argue that all such vogue words share a similar fate,

supplanting more orthodox theories while becoming 'no-questions-asked canons' (Bauman 1998 p.1). Others attempt to explain the processes of globalisation through information technology's social transformation and creation of a network society (Castells 1996). Globalisation, or the more precise term of global capitalism, has impacted on rural Australia in the market displacement of Australian products by the subsidised exports of other countries and control of agribusinesses by transnational corporations (Magdoff et al. 2000; McMichael 2000; McMichael and Lawrence 2001).

It is argued that the processes of worldwide interconnectivity that are collectively referred to as globalisation are not new, consistent or homogeneous phenomena, while others point to the use of the term as political justification for the introduction of unpopular policies or economic strategies (Held 1999). Indeed, the works of Bauman, Castells, Held and McMichael encapsulate many of the factors impacting on Australia in general and rural regions in particular. However, there is ample evidence to claim the international money markets control national agendas throughout most of the world. While Australia, as a first world economy, has escaped direct International Monetary Fund (IMF) or World Bank intervention, globalisation forces Australian policies to reflect the neoliberalist and monetarist orthodoxy of interventions in the third world to protect Australia's currency on international money markets. Many commentators believe neoliberalist agenda are reflected in the current policies of electronic commerce that opens rural Australia to global competition together with the micro-economic reform in the public interest of a National Competition Policy, which opens local government tenders to exogenous companies, continue to threaten the viability of local rural businesses (Hess and Adams 1999; Hilmer 1993).

'Globalisation' can - arguably - be seen as another imprecise and malleable concept that has escaped the academic world and is now taken up by the media and society at large to become a contemporary cliché. Many accept the definition attempted by Held that:

> Globalization may be thought of initially as the widening, deepening and speeding up of worldwide interconnectedness in all aspects of contemporary social life, from the cultural to the criminal, the financial to the spiritual.
>
> (Held 1999 p.2).

What concerns many commentators however, are the important social changes and economic impact of global processes on non-metropolitan regions of Australia (Gray and Lawrence 2001). They perceive the features of globalisation emerging from the post World War II development of global capitalism in the activities of transnational corporations and global financial institutions such as the World Bank, International Monetary Fund and the World Trade Organisation. However, while politicians and economists present globalisation as inevitable and therefore without an alternative, others argue that it is 'an ideologically coherent vision of global economic management' (McMichael and Lawrence 2001). McMichael and Lawrence point to the active support of Australian governments for an integrated world market for its agricultural produce while ignoring the negative impact on the local level of Australian rural society and environment (McMichael and Lawrence 2001). Similarly, others question the future shape of agriculture in a global economy that transforms farming by industrialisation, concentration and control of agriculture to the point where farms become just one link in an agri-food system of production (Burch and Rickson 2001). However, Burch and Rickson envisage the possibility of reversing the current trends by developing alternative farming technologies and methods of distribution. For example, the practices of organic farming and the creation of farmers' markets at the local level

signal attempts to resist the global corporate model of agriculture using mechanised and chemical means to produce a standardised product for a global export market (Burch and Rickson 2001). Indeed, recent attempts to overcome the weaknesses perceived in the term *globalization* and problems in the dichotomies of global and local, time and space, homogeneity and heterogeneity, have produced a new concept in the tailoring of goods for local markets but produced on a global market scale; a concept called *glocalization* (Robertson 1995).

While attempting to construct a model of economic globalisation, one analyst finds in a review of relevant literature that many of the writers 'point to a direct link between "globalisation" and neoliberalism' (Bell 1997 p.345). For example, Chomsky points to U.S. self-interest in global economic and cultural dominance and a Washington consensus or neo-conservative agenda to gain and maintain control over the world's finances through international organisations since the end of the Second World War (Chomsky 1999). Bell argues that neoliberalism now dominates Australian domestic macroeconomic and microeconomic policies, abandoning high levels of protectionism while embracing global free trade (Bell 1997). To be sure, some economists recognise the emergence of new methods of economic governance, variously referred to in Australia as economic rationalism, neoliberalism, Thatcherism and Reaganomics and so on (Hindess 1998). However in his paper, 'Neo-Liberalism and the National Economy', Hindess is primarily concerned with how the impact of globalisation and international economic activity will be mediated by prevailing government rationality and perception of their own national economic management (Hindess 1998). Hindess acknowledges that national governments are 'trapped by the legacies of social cohesion that they inherit' and cannot just simply decide to adopt another nation's structural relationships, no matter how conducive to achieving similar

economic goals those structures may appear to be (Hindess 1998 p.222). On the other hand, others believe that much of the discussions of globalisation ignore its complex history, relying instead on simplistic mono-causal explanations or implicit assumptions (Quiggin 1999). Quiggin argues that three main types of explanations dominate current globalisation debates. The growth of world trade due to exogenous developments or removal of impediments to such trade; the advances in technological developments particularly in computer and telecommunications; and globalisation as a result of international and national policy decisions coupled with a broader neoliberal agenda of reform (Quiggin 1999).

Bourdieu joins with Castells in recognising that the global focus of financial markets in conjunction with the development of information and telecommunication technologies 'ensures an unprecedented mobility of capital' (Bourdieu 1998; Castells 1996). Indeed Bourdieu suggests neoliberalism is a 'programme for destroying collective structures which may impede the pure market logic' (Bourdieu 1998 p.1). He finds that the economic world imposes policies of an implacable logic that reduces labour costs, reduces government expenditures and provides more flexible work practices. Bourdieu argues that violations of this logic are suppressed by the sanctions imposed through its intermediaries, the International Monetary Fund (IMF), the World Trade Organisation (WTO) and the Organisation for Economic Cooperation and Development (OECD). While Bourdieu believes neo-economic theory of market determinism is a pure mathematical fiction, he recognises the power of the utopia of a pure and perfect market is made possible by the destructive action of political measures that seek to remove obstacles to achieving that goal. The questioning of all collective structures, the promotion of individualisation and the atomisation of workers, draws its power from the political and

economic interests it expresses at the macro-level in a micro-level economic and social Darwinism.

Indeed many argue that - at the meso-level of Australian regions and communities - neoliberal policies and the emergence of rationalism and partisan ideology are destroying rural society and communities (Davidson and Grant 2001). The dominant economic discourse of neoliberalism plays a major role in many recent publications of Australian non-metropolitan studies (Gray and Lawrence 2001; Hindess 1998; Lawrence et al. 1996; Martin 1996). Martin's paper on the environmental problems of salinity in the Hunter Valley of New South Wales elaborates how neoliberal ideology and practices influence participatory rural development initiatives and policies (Martin 1996). Representation came from 'four state agencies, two universities, two state corporations, two community groups, one industry association and the Trust' (Martin 1996 p.225). While the aims might have been to obtain a consensus between the stakeholders, cooperation appeared unlikely. Pressures arising from neoliberal reforms of the public service and competition between state agencies meant that many of the participants needed to promote their particular agency's line and orientation to the problem (Martin 1996). In addition, the profit motivation of private organisations and the diversity of views within the groups resisted substantive agreement except on the broader issues of continuing the debate. The neoliberal orientation towards governance and the localisation of problems as problems of the community legitimates the non-interventionist role of the state because it then becomes the problem of the community to solve ... if indeed such an entity exists (Martin 1996).

Social capital in rural regions

There have been many attempts to define the concept of social capital and a question of what it means remains to be comprehensively answered (Falk and Kilpatrick 2000). The social activist, Eva Cox, provides one definition that '[s]ocial capital refers to the processes between people which establish networks, norms and social trust and facilitate co-ordination and co-operation for mutual benefit' (Cox and Australian Broadcasting Corporation. 1995 p.15). More succinctly, Cox suggests it is the 'glue' that holds society together. However, while in broad agreement with Cox, others attempt to explain the intuitive appeal of social capital and to map its conceptual genealogy (Baron et al. 2000). According to Baron, Field and Schuller, social capital was first envisaged as describing the physical architecture and infrastructure of public institutions. Current debates include Bourdieu's European sociological perspective, linking the concept of capital in social, human, financial, cultural and symbolic capitals (Bourdieu 1999; Bourdieu and Thompson 1991) as well as the classical sociological tradition within the works of Coleman and the political philosophy of Putnam (Winter 2000). Coleman provides the most definitive, three-part conception of social capital (Coleman 1988; Coleman 1990). He states that social capital is the 'obligations and expectations, which depend on trustworthiness of the social environment, information-flow capability of the social structure, and norms accompanied by sanctions' (Coleman 1988 p. S119; Jackman and Miller 1998 pp. 48-9). Putnam, on the other hand, believes that social capital is the networks, norms and trust that enabled the pursuit of shared interests (Putnam 1995; Putnam 2000). According to Baron, Field and Schuller, Putnam later shifts the emphasis from trust to reciprocity and acknowledges that people may have high levels of trust, even though they may be socially inactive or even antisocial (Baron et al. 2000).

Michael Woolcock (a sociologist at the World Bank) has argued that social capital has been defined in so many different ways that it now risks losing any sense of meaning (Woolcock and Cox 2000). In recognising an emerging consensus on the definition of social capital, Woolcock suggests 'social capital refers to the norms and networks that facilitate collective action' (Woolcock 2000 p.9). He chooses to examine the sources rather that the consequences of social capital and, while recognising the vital dimension of trust, he sees it as an outcome of social capital and therefore, eliminates it from his definition. However, according to Woolcock, there are four basic approaches to social capital: the psychological, the sociological, the economic and the political (Woolcock and Cox 2000). The psychological approach is popular among some influential economists at Harvard University, where they perceive social capital as the capacity to negotiate and problem solve with other people. Woolcock states that we have to note the definition because it is out there, however he argues the psychological approach is narrow, and essentially deals with outcomes rather than sources of social capital. According to Woolcock, an economic approach looks at social capital's capacity to lower transaction costs, encourage cooperation and resolve disputes. On the other hand, Woolcock believes the sociological approach tends to focus on the norms, the expectations, patterns of behaviour and the networks of connections and interactions in a particular community. The political approach brings into question rule-of-law and democracy, variables that Woolcock sees social capital used as shorthand to encapsulate. However, the distinctions between economic and sociological approaches appear to be increasingly blurred in the concept of social capital.

There are a number of lists defining the characteristics of social capital to be found in the successful development of many communities, derived

mainly from studies in North America and the United Kingdom (Gray and Lawrence 2001). It is no coincidence, given the preceding arguments of critics, that '"healthy communities" with strong social capital also have access to economic capital and political resources' (Greig et al. 2003 p.47). It can be argued that the descriptive characteristics of social capital have become prescriptive criteria in recent proposals for community technology projects to sustain the socio-economic well being of regional Australia. According to Gray and Lawrence, many analyses of successful community developments find the presence of social capital, human capital and economic capital (Gray and Lawrence 2001). These multiple concepts of capital are defined by Bourdieu (Bourdieu and Thompson 1991) and are described by Portes thus:

> Whereas economic capital is in people's bank accounts and human capital is inside their heads, social capital inheres in the structure of their relationships. *To posses social capital, a person must relate to others, and it is those others, himself [or herself], who are the actual source of his [or her] advantage*
>
> (Emphasis added Portes 1998 p.7)

Social Capital and community development

The concept of social capital is important to review because of its advocacy by many of the analysts involved in setting economic and political policies. It is also an important concept for those people concerned with community development from their perspective of high social status locations. Indeed, a neoliberal orientation of the social capital concept has been embraced by the right wing, free-market think-tank, the Centre for Independent Studies (Winter 2000). This neoliberal orientation of the clearly contested concept of social capital is seen as 'part of the battle to find a new social contract between governments and citizens to replace the embattled welfare state' (Winter 2000 p.30). There has been a worldwide proliferation of

government and academic interest and an explosion in research on social capital since Putnam's article *Bowling Alone: America's Declining Social Capital* (Putnam 1995). This has been reflected in a widespread interest in Australia, particularly from government departments involved in any form of social policy, and globally from international agencies like the World Bank. Nevertheless, criticism from Skocpol joins with that of Portes in opposition to Putnam's extension and interpretation of the social capital concept (Portes 1998; Skocpol 1996). Skocpol notes the elitist stance of Putnam's argument in his attribution of responsibility for the alleged decline in social capital on the leisure behaviour of the general public rather than the prevailing economic and political practices of the corporate and governmental establishments.

More recently, Putnam attempts to counter much of the earlier criticisms of a nostalgic perspective and the failure to account for changing patterns of civic engagement (Putnam 2000). Portes notes the concept of social capital is a popular export from sociology (Portes 1998). He contends that it offers few ideas for sociologists that are not already to be found in Durkheim's *Division of Labour* (Durkheim [1893] 1984) and *Suicide* (Durkheim [1897] 1966) or Marx's *Capital* (Marx [1867] 1976; Marx [1885] 1957; Marx [1894] 1909; cited in Morrison 1995). Portes continues the academic trend, tracing the genealogy of social capital from Bourdieu's identification of different kinds of capital (Bourdieu and Thompson 1991) and the connection of social capital with human capital (Coleman 1988; Coleman 1990). One of Portes' criticisms of the concept of social capital is that it focuses on the consequences while ignoring its less attractive features (Portes 1998 p.1). He finds 'at least four negative consequences of social capital: exclusion of outsiders, excess claims on group members, restrictions on individual freedoms, and downward levelling norms' (Portes 1998 p.9). A recent case study reveals the dark side of the paternalistic

form of social capital embedded in workplace and community social relations that prevent alternative forms of social capital from emerging (Schulman and Anderson 1999). Portes argues that within social capital's attractive simplicity lies a fundamental problem with Putnam's concept in its logical circularity. 'In other words, if your town is "civic," it does civic things; if it is "uncivic," it does not' (Portes 1998 p.20). The enormous volume of material generated over the last decade on the contentious concept of social capital has reached the proportion of a sociological fad. It has become a focus of discussion and a topic of research and critique in government, bureaucratic and academic circles (Falk and Kilpatrick 2000; Lin 1999; Portes 1998). In spite of the criticisms that Putnam's concept has attracted, his observation that rural communities have traditionally had high levels of social capital. He concluded that the smaller the community the better in that regard. Putnam also commented that the almost universal decline in social capital accompanied the widespread rise in poverty, including rural poverty. The necessary selections of social capital material for this thesis will therefore focus on those aspects relevant to individuals in communities and local networks at the micro and meso-levels of rural regions.

Measurement of Social Capital

The measurement of social capital for policy formulation remains problematic. For some, the measurement of economic capital in a community is fairly simple to assess by the level of local business and institutional investment, the structure of its economic development program and realistic appraisal of economic opportunities (Gray and Lawrence 2001). The level of human capital in a community can be measured by the aggregate of individual educational attainment, skills achieved in past employment roles, support for community educational institutions and

commitment for life-long education. However, a simple aggregation of social capital to provide social measures for policy makes the same mistake that economists make in using gross national product as an indicator of national economic development (Edwards and Foley 1998 p.130). The same level per capita can mask vast differences among subgroups. While Gray and Lawrence find it has been either difficult or impossible to adequately measure the level of social capital, a recent research paper attempts to rectify this problem (Stone 2001).

The Australian Institute of Family Studies endeavours to contribute to the development of the aggregate concept of social capital by identifying guidelines for its empirical measurement at the individual level (Stone 2001). At the same time, Stone's survey questions have, to some extent, addressed the general argument that much of the criteria proposed in Putnam's measurements of social capital are specific to North American not Australian cultures (Putnam 1995; Putnam 2000). Stone's definition of social capital is that it 'consists of networks of social relations which are characterised by norms of trust and reciprocity' (Stone 2001 p.4). While recognising the dichotomy of formal and informal networks she finds the measurement of social capital is complicated by research that frequently relies on the measurement of its outcomes as indicators of its existence. Classifying outcomes, or indicators, as 'proximal' and related to the core components of networks, trust and reciprocity or 'distal' indicators that are not directly related to social capital core components, according to Stone, lacks theoretical precision and fails to provide clarity (Stone 2001 p.5). While Stone recognises that social capital is, firstly, a multi-dimensional concept consisting of social networks, norms of trust and norms of reciprocity, others identify its multi-dimensional nature by the terms of bonding, bridging and linking and the use of horizontal and vertical metaphors (Gittell and Vidal 1998; Woolcock 2000). Secondly, social

capital is a resource to action and, finally, social capital is empirically distinct from its outcomes. Stone understands networks as the structural elements of social capital with the norms of trust and reciprocity providing the content (Stone 2001). Social network analysis has long been proposed as a tool for linking micro and macro levels of sociological theory (Granovetter 1973). Similarly, Burt links financial, human and social capitals in his structural holes argument, which describes 'the extent to which the social structure of a competitive arena creates entrepreneurial opportunities for certain players to affect the terms of their relationships' (Burt 1992 p.7).

The concept of social capital as a tool for bringing together two intellectual perceptions of social actors and action, which according to Coleman is the one followed by most sociologists, is the sociological perception of socialised actors whose actions are governed by social norms, rules and obligations (Coleman 1988). The other more favoured by economists, is that actors arrive at goals independently, and are wholly self-interested. Coleman disputes this economic construction as a 'broadly perpetuated fiction' of modern society, arguing that 'individuals do not act independently, goals are not independently arrived at, and interests are not wholly selfish' (Coleman 1990 pp.30-1). Coleman examines the formation of social relationships and the exchanges that actors engage in to achieve their goals. He believes actors start out with resources in which they have some interests and possible control, which then leads to the emergence of social interdependence when actors have interests in resources that are under the control of others. The social relationships that come into play when individuals attempt to make the best out of their individual resources are seen as a form of social capital (Coleman 1990). On the other hand, there is a degree of uncertainty present in the use of social capital as a resource. For example, in looking at using social capital as a resource in

bank decision-making, Mizruchi argues that 'in some cases, what appears to be a perfectly reasonable use of social capital has consequences that are the opposite of those we intended' (Mizruchi and Stearns 2001 p.647).

While the establishment of relationships between social and human capital is possibly the most important and original developments in the sociology of education, the value of social capital in the family and community lies in its effect on the creation of human and other capital in the next generation (Coleman 1988). However, others warn of a number of risks when utilising social capital in the formulation of policy (Schuller 2000 p.5). There is no agreed definition of social capital, its measurement is problematic and its context dependency resists aggregation across multiple levels of society. In spite of these risks, Schuller believes there are four key reasons to consider the use of social capital in policy making (Schuller 2000). First, while technological innovation and human capital cannot be taken out of their social contexts, social capital demands a wider focus and therefore avoids a reliance on single policy instruments. Second, social capital brings the dynamics of relationships and issues of social cohesion into the effects of human capital growth. Third, social capital takes time to develop and thus acts to counter the tendency to look for a quick fix policy. Fourth, Edwards and Foley argue that the 'quality of relationships in any given social unit will determine its sustainability' (Edwards and Foley 1998 p.6).

Status Attainment in Social Networks

In a parallel development of social action, there emerges the proposition that social capital enhances the chances of socioeconomic attainment and status of some individuals (Lin 1999). From a structuralist standpoint, Lin argues that social capital is contingent on social hierarchy and the embedded resources in social networks. At this point it is important to note

that Giddens rejects 'the idea of structural forces which "externally" constrain and determine behaviour' (Layder 1994 p.129). Layder points out that Giddens also rejects 'functionalism' and finds 'interpretative' schools of thought problematic. Giddens suggests that structuralism and functionalism 'view social phenomena as independent of individuals', thus giving priority to structure and limiting action and meaning in social analysis (Layder 1994 p.131). Additionally, Giddens argues that 'interpretative' schools of thought emphasise the importance of individual subjectivity (Layder 1994 p.131). Giddens views these two great blocks of social thought as creating two opposing, entrenched positions that represent a dualism that is associated with other 'unnecessary' dualisms that he wants to overcome (Layder 1994). These dualisms include object and subject, macro and micro, society and individual, institutional and interpretive analysis, that tend to falsely assume structure and action are separate, with one determining the other. Giddens sees both structure and action as part of the 'duality of structure' forming part of social practices and the basis for overcoming other dualisms in social theory (Layder 1994 pp.125-149). Lin suggests that '[s]ocial capital may be defined as investment and use of embedded resources in social relations for expected returns' (Lin 2000 p.1). He believes social capital works because these activities enhance outcomes of actions through the elements of information, influence, social credentials and reinforcement. He identifies two motives in individual access and use of resources embedded in social networks, the first priority is to preserve gains in expressive actions and only then to gain returns in instrumental actions. In relation to the macro or relational uses of social capital, Lin finds that for most commentators on social capital, it is problematic. That is:

> Difficulty arises when social capital is discussed as collective or public goods. What has occurred in the literature is that some terms have become alternative or substitute terms or measurements. Divorced from its roots in individual interactions and networking, social capital becomes merely another trendy term to employ or deploy in the broad context of improving or building social integration and solidarity.
>
> (Lin 2001 p.26)

To be sure, Lin argues that most controversies focus on the collective aspect of social capital in the closure or density of social relations and networks. For example, from Bourdieu's class perspective social capital is the investment of members of the dominant class in a mutual recognition of the need to maintain and reproduce group solidarity while preserving the group's dominant position (Lin 2001 p.14). Coleman has no such class perspective and from Coleman's point of view closure enhances trust, ensures norms of authority and allows sanctions to be employed (Coleman 1990; Lin 2001). However, for Lin, neither network density nor closure is necessary or realistic as it denies the significance of bridges, structural holes or weaker ties (Lin 2000 p.27). On the other hand, Coleman questions:

> Whether social capital will come to be seen as useful a quantitative concept in social sciences as are the concepts of financial capital, physical capital, and human capital remains to be seen; its current value lies primarily in its usefulness for qualitative analyses that employ qualitative indicators.
>
> (Coleman 1990; cited in Lin 2000 p.28)

According to Lin, confusion arises from extending social capital beyond its theoretical roots in social relations and networks towards an unattainable theoretical position that prediction holds for every individual case. He defines social capital as resources embedded in social structures, accessed and / or mobilised in purposive action (Lin 2001 p.29).

Debates over agency and structure are endemic in the discipline of sociology and are unlikely to ever be resolved despite attempts to do so by Giddens in rejecting the primacy of either agency or structure (Giddens 1984; Giddens 1991; Giddens 1999). However, the concept of the duality of structure in Giddens' structuration theory, in which structure is both the medium and outcome of action, is reflected in Lin's debates on the process of social capitalisation by which structural resources are turned into social capital. The value of Nan Lin's formulation of social capital for this thesis lies in providing explicit motivations for action, revealing the importance of social structure in constraining actors while highlighting the effects of an actor's social position on the actor's ability to gain access to resources. As he concludes:

> It is these structurally empowered relationships among positions and embedded resources that offer opportunities for the actors/occupants – the agents – to gain access to structural resources for their own interests. That is, these structural opportunities become social capital of the actors/occupants.
>
> (Lin 2001 p.54)

Inequality in social capital

Lin's research on the relationship between social resources and status attainment examines two processes (Lin 2001). One process focuses on the access to social capital and the resources accessed in the person's general social network. The other process focuses on the mobilisation of social capital in the process of status attainment through the use of social contacts and the resources provided by those contacts in the job-search process. In his initial empirical examination, Lin found male contacts more likely to reach high-status contacts than female contacts and whereas women contacts were more likely to use female contacts, men were more likely to use male contacts. However, when women used male contacts, their disadvantage in reaching high-status contacts was significantly reduced.

Lin found that for unemployed people, better social capital did not necessarily lead to a job but did provide increased optimism. This increased the job-search intensity leading to more job opportunities. 'After a year of unemployment, those with better social capital among strong ties (relatives) also tended to have a better chance of being rehired in the next one to three years' (Lin 2001 p.89). Informal channels tend to be used by the disadvantaged where the contact's status and social resources make a major difference. For employment that requires specific skills the formal application may suffice but for other positions that require personal and often intangible qualities, such as high levels of trust and integrity, informal contact may also be required. However, hidden channels of influence used in job attainment cannot be detected in survey instruments and they remain an important methodological challenge for Lin. Lin finds that for the disadvantaged, social capital is restricted by their low position in the hierarchy structure, providing poor access to low levels of social capital. At the high end of the hierarchy structure, however, strong ties tend to lead to successful job attainment unlike weak ties, which offer no incentive for exchange. In utilising the extent of heterogeneous resources in distant parts of networks, however, weaker ties may be useful (Granovetter 1983; Granovetter 1973). Lin concludes that social groups attain access, or are denied access, to social capital because of their advantaged or disadvantaged structural positions and social networks.

The relationship between social capital and human capital is theoretically important with Coleman proposing that social capital helps produce human capital (Coleman 1988). Indeed, human capital induces social capital and 'when social capital is high attainment status is high, when social capital is low, human capital exerts a strong effect on attainment' (Lin 2001 p.97). Lin finds however, that social capital is the more important factor in status attainment particularly at the high end of the hierarchy. Given that

inequality in the different types of capital brings about social inequality in socioeconomic factors and quality of life, capital deficit is the consequence of a process of differential investment or opportunity resulting in the relative shortage of quantity or quality of capital for comparative groups. For example, Lin suggests that families may invest more in the human capital of their sons rather than their daughters, while different social groups may be part of different social hierarchies or networks that might constrain or facilitate member's capital acquisitions (Lin 2001). 'For example, males and females, with a given quantity or quality of social capital, receive differential returns in status attainment - such as positions in organisations, occupational prestige or earnings' (Lin 2001 p.100).

Lin's understanding of how unequal transactions in exchanges provide benefits for actors that give more than they receive relies on perceptions of the relational aspect of the exchange as social exchange and the transactional aspect as economic exchange. The economic element in Lin's discourse on social exchange is based on Weber's rationality and his calculation of alternative means to an end. His four types of action, goal-oriented, value-oriented, affectual and traditional are also implicated (Morrison 1995). For Lin in the event of unequal exchanges the critical element is the ultimate payoff. The two ultimate kinds of rewards for human beings in a hierarchal social structure are their economic and social standing, with each reflecting the ranking of an individual in the social structure and hence the ability to command capital. Through reputation it becomes possible to mobilise social capital, which provides a powerful motivation for an actor to engage in exchanges. While both economic and social standing enhance an individual's power and influence in the social structure, they are complementary. Lin argues that '[w]ithout social enforcement, economic standing collapses; without collective wealth, social standing is meaningless' (Lin 2001 p.150).

Conclusion

Many of the traditionally used definitions of social spaces are contestable and no longer adequate for contemporary Australian social conditions. In a highly urbanised Australian society, the image of Australia as mainly rural is part of the mass media mythology and evoked as a national ideology by all shades of politics. However there are sufficient and significant differences between rural and urban lifestyles to justify the concept of a rural-urban continuum. Many Australian townships and settlements have close relationships with the surrounding rural areas to the extent that, in some cases, they are permeated by rural values. The flexible use of the label *region* should therefore, in the interests of clarity, be qualified. In Australia, a region may be geographical, political, economic or symbolic. On the other hand, regional is normally accepted as the opposite of metropolitan in a regional-metropolitan dichotomy. The term *community* is frequently used rhetorically to provide a warm feeling of living with others or symbolic in describing or prescribing a sense of belonging to a group. In a networked society, perceptions of a group have been extended to include virtual groups of online entities. However, the notion of *community* has endured in the concept of the polarities of *Gemeinschaft* or *Gesellschaft*, traditional or rational-legal authority, mechanical or organic solidarity. All human associations can be found somewhere between these poles and in a contemporary 'rural-urban continuum'.

The review of rural and regional community studies reveals a reticence among many of the general population of rural Australia to allocate themselves to a social class and a denial there is a class stratification of Australian society. This lack of class-consciousness may be a form of class awareness in a burgeoning middle-class (Giddens 1981). It may equally be attributed to the subsumption of class in a neoliberal concept of

individualism (Greig et al. 2003). In many of the studies reviewed, rural regional communities are envisaged as historically patriarchal. However, while Australian feminist movements in many geographic regions have appeared to achieve numerous advances for women in relation to equality with men, in rural regions the relationships appear to be intrinsically more complex. Many farming families are reliant on the cooperation of each member of the family in sustaining the family's home and business, with a substantial number employed in the local area to provide off-farm income. The restructuring of rural economies has impacted heavily on rural families and communities, creating extensive problems of family violence, poverty and disintegration, while leaving an increasingly aged population with reduced access to diminishing essential services. While this has impacted significantly on the women in rural regions, they are emerging as a significant force through the establishment of extensive and effective women-only organisations, the implementation of computers and telecommunication providing wider employment opportunities and extending social networks. In spite of these advances, women continue to be invisible in many areas of rural and regional life due, in part, to the rural dichotomy of a male public sphere and a female private sphere with women's traditional subordination to men remaining in many aspects of rural life. Indeed, the traditions of rural lifestyle are sustained by the rural ideologies of countrymindedness, agrarianism and localism. These ideologies in turn encourage individualism and a tendency to follow the more conservative political parties. The dependence of rural regions on Commonwealth and State governance, policies and funds makes rural regions particularly vulnerable to government restructuring, the activities of global capital and multinational corporations in the agri-business.

The concept of social capital as inhering in individual interactions within social networks, dependent on locality, reciprocity and trust is an

aggregation of classical and contemporary sociological theories. As a heuristic device social capital may provide a coherent concept to aid analysis in a society pervaded by neoliberalist policies. Some analysts suggest social capital might aid the development and measurement of policy initiatives, or that it introduces issues of dynamic relationships into the effects of human capital. Critics of social capital argue that the concept is elitist in not recognising its negative social effects and in blaming the victims in lower social strata for the destruction of social capital and loss of civic involvement. From this notion of elitism in social capital and its use in the social attainment of status and wealth, comes the idea of employing social capital to throw some light on contemporary social theories in the analysis of field research data. This approach seems particularly useful in the exploration and explanation of individual motivations and interactions in the upper strata of hierarchical networks of rural communities. While it should be noted that linking each section of the literature review is the thread of neoliberalism, there is no intention to open a hornet's nest of economic versus sociology debates. Rather it is to highlight the dominance of contemporary values of a free market political economy in social, regional and technological policy development. The inconsistencies and detrimental consequences from such policies have impacted, and will continue to impact, on many aspects of Australian society. However, its major consequences are felt in rural regions of Australia, where the precarious socioeconomic survival of many rural settlements and regions depends on the increase or retention of local employment opportunities and population levels. In order to answer the research question of what might get in the way of using ICT and the wider question of whether rural communities can promote its own development, my case study will recognise the knowledgeability of agents and the recursive ordering of social practices. My study will look at the community's history and the recursive nature of social practices, reaching beyond the borders of the case

study to examine external influences on the region under study. Many of the above issues will appear in the conclusion of my case study in chapter five and will receive a more in-depth examination and analysis in chapter six.

CHAPTER 4: DEFINING THE METHODOLOGY

Introduction

This chapter defines the methodology, the strategies employed and the data sources, types, selection and collection involved in the research. It describes the processes attempting to answer the research question about what gets in the way of applying information and communication technology to regional development by examining the structural characteristics of a rural region, the interactions and the recursive relationship between them. The chapter begins by describing the strategies behind the development of the research methodology and design. The justification of research methods leads to definition of the source, type, forms and selection of data and debates on data collection processes. Finally, there is an overview of the ethical guidelines, principles and activities required in social research before a summary and conclusion of the chapter.

The research focus

The focus of the thesis is on impediments to the implementation of information and communication technology with a primary emphasis on the daily social problems of people living in rural regions. The question of what might inhibit the implementation of ICTs has not been asked in a doctoral thesis before, particularly in relation to solving social problems. Indeed, adopting a social methodology that aims to solve social problems by enlisting the help of those involved to improve social understanding rather than improve technical knowledge conforms to Maxwell's philosophy of wisdom (Maxwell 1984). The first step towards designing a research study therefore involved identifying a range of development

projects utilising informational and communications technology that would provide an opportunity for social inquiry. Once the ranges of technology projects were identified the next step was to select those rural communities that were implementing, or had already implemented, such developments. Finally came the location and selection of communities of sufficient size to have constructed their own development project rather than have an exogenous authority or organisation implement a development with minimal community consultation. This was to increase the likelihood that there were community networks and interactions of sufficient breadth and depth to enable an examination of social capital in exploring the community's capacity to implement technology developments.

Research site selection

A research design initially considered was for comparative case studies of a number of Rural Telecentres or Regional Transaction Centres. Therefore, the criteria formulated for selection of possible research sites were that they must be classified as rural regions with a population of over 4,000, the community level required for sustainability (Forth 2000). The community should not be on a national arterial road between, or close to, capital cities to avoid distorting local economic or social viability factors that were likely to be the case in so-called 'dormitory' towns. To enable research to be completed within a limited time span and budget, the sites must be accessible in all weather conditions and within a reasonable drive to reduce travel times and the need for additional accommodation costs. A number of sites were examined, but the problems of being able to handle comparative studies in the three months allotted for field study within the limited research funds available

were major considerations. When the federal government announced a new rural community initiative of a technology centre as a pilot strategy to develop rural regions, it appeared to be a solution to the problems of manageability. The community technology centre fitted into the above criteria and offered a unique opportunity to explore sustainable rural industry development supported by the application of information and communications technology. The community project was a complex arrangement with a call centre division providing funds for an industry development division in a technology centre. The development division would endeavour to develop business opportunities and e-commerce initiatives in the region, including a network of regional transaction centres with capabilities for video conferencing. The uniqueness of each Australian rural community was emphasised in the Rural Summit. While it can be argued that there are similarities between all communities, rural or not, the uniqueness lies in the particular history, structures, agencies and contemporary circumstances of the region. Therefore the ambitious community proposal to implement a call centre to support and sustain industry development in the region meant that a comparative analysis with other community technology projects was no longer essential or preferable. By focussing on the exploration of this single pilot project, the research immediately became more manageable within time and budget constraints.

The Research Strategy

The research strategy adopted in this thesis is a comprehensive approach founded on the commonly advanced schema for sociological research of the four related concepts: ontology and epistemology, methodology and methods (Blaikie 2000 p.8). Others believe the term 'theoretical

perspective' is more specific to the claims and assumptions of social reality than the philosophical term of ontology when 'the study of being' is not the issue under debate and that ontological and epistemological issues tend to converge as they emerge together (Crotty 1998 pp.10-12). The research topic is an exploration of the networks, both social and technological, involved in applying information and communications technology to regional development and is based on the broader question of whether a community can promote its own development. Therefore, the problems underlying this topic are how to assess the recursive relationships between rural social structures and knowledgeable agents, which might also extend beyond the community boundaries of the case study, to find what gets in the way of the application of information and communication technologies. Emerging from the framework of theories and analytical concepts of previous chapters is a social constructivist approach and a theoretical perspective of social inquiry (Crotty 1998). The choice of topic and formulation of the research question contributes to defining the logic of the research approach in this study, which is based on the synthesis of social science theories and the concept of Structuration Theory (Giddens 1984; Giddens 1991). 'Structuration Theory is based on an *ontology* of recurrent social practices and their transformations' and is concerned with the relation between agency and structure (Blaikie 1993 p.99). 'While Structuration Theory does not conform to a predetermined set of epistemological principles,' it provides an understanding of the social world through the perspective and frames of meaning of social actors (Blaikie 1993 p.99). An alternative inquiry that conforms to Structuration Theory is presented by a constructivist paradigm with relativist ontology, transactional and subjectivist epistemology and hermeneutical and dialectical methodology (Guba and Lincoln 1998).

The four research strategies considered here differ in their starting points, in their processes and in their aims. An *inductive* strategy begins with the collection of data and derives generalisations using inductive logic to derive patterns of established regularities that explain the occurrences of specific events by their location within those patterns (Blaikie 2000, p.25). However, the method was found to be problematic and is now rejected by most natural and social scientists following Popper's claim that the use of inductive inferences cannot be logically justified and can lead to infinite regress (Popper 1959, p.29; cited in Blaikie 1993, pp.140-143). A *retroductive* strategy on the other hand, observes regularities and constructs hypothetical models to discover the underlying structures or mechanisms that explain their existence using creative imagination and analogy, while looking for evidence of its consequences in the occurrence of certain events (Blaikie 2000, p.25). *Deductive* strategies also observe regularities although they seek to explain the behaviour or phenomenon by formulating theoretical arguments, deducing hypotheses from literature reviews and collecting relevant data to test the theory and accepting, modifying or rejecting the theory based on the results. 'Therefore, according to this research strategy, knowledge of the social world is advanced by means of a trial and error process' (Blaikie 2000, p.25). The starting-point for an *abductive* strategy is from the perspective of the social actors under investigation and follows a very different logic to the above three strategies. On entering the actor's social world, individual motives and actions are 'abstracted into typical motives for typical actions in typical structures' (Blaikie 2000, p.25). The empirical and theoretical objectives of this study are to capture social actors' experiences of everyday life and to attempt to understand their actions, interactions and motives within the social structures of their natural

surroundings. This research will therefore adopt an *abductive* strategy and follow the research practices common to sociology and many other social sciences that 'rely on the case study for fundamental insights' (Feagin et al. 1991 p.6).

An exploration

This study seeks to explore, describe and understand actors' interactions in social networks, their perspective on informational and communication technologies and their accounts of everyday life in a rural region, which is in accord with 'ontological assumptions that view social reality as the social construction of social actors' (Blaikie 2000 p.115). While some researchers believe qualitative research should follow an *inductive* strategy, it is a strategy based on positivism rather than constructivism and risks encountering the problems of induction discussed above (Taylor and Bogdan 1998 p.7). In aiming to describe and understand social life from the social actors' meanings and accounts, the logic of the *abductive* strategy is associated with a constructivist approach to social enquiry and - unlike the other three strategies - is peculiar to the social sciences (Blaikie 2000 p.114). While *abductive* and *inductive* are considered by many scholars as synonymous research strategies for *exploration* and *description*, only the *abductive* research strategy can pursue the objective of providing the researcher with an *understanding* of the social actors' activities (Blaikie 2000 p.126). Weber's notion of *Verstehen* (understanding) as a subjective process of sociological interpretation remains a confusing and contested concept (Schwandt 1998). Attempts have been made to clear up this confusion by taking an epistemological approach to the problem (Schutz 1967; cited in Schwandt 1998). Schutz finds two senses of *Verstehen*. A first-order sense in the process by which

actors interpret their everyday life and a second-order sense in the process by which social scientists attempt to make sense of the first (Schutz 1967; Schwandt 1998). Giddens' refers to this understanding of social actions at two levels as *double hermeneutics* (Giddens 1984). To provide a meaningful understanding of the social actor's activities in this study, the researcher attempts to capture the social actor's own interpretation and understanding of the interactions and social phenomena in a subjective understanding of the acts of others that may influence their subsequent actions (Giddens 1995; Morrison 1995; Weber 1978). It is this subjectivity of human understanding that differentiates between the methods appropriate to investigations in the social sciences from those attempting an objective approach common to the natural sciences (Blaikie 2000).

Unit of analysis and the macro/micro connection

The topic and research question of this particular study have a direct bearing on the selection of the approach and the need to be able to move between the philosophical distinctions of the micro-level of individuals, the meso-level of groups, institutions and organisations and the macro-level of society. The spatial differentiation of macro and micro teleology are concepts of interaction between human and institutional bodies that are confined in dimensions of space and time, and therefore, 'the macro / micro distinction is not a particularly useful one' in the characterisation and explanation of social conduct (Giddens 1984 p.141). Indeed, by subscribing to theorists such as Giddens 'it is no longer plausible to subscribe to a separation between the micro and the macro' (Fielding 1988 p.198). Although it was necessary to define the relevant boundaries of the study to limit the scope of the collection of research data to that

with a link to the community development project, the boundary of the study remained flexible until the end of the field study. In addition, the application of these boundaries enabled the production of a contextual and structured unit of analysis for sociological research (Ragin and Becker 1992).

In defining the characteristics of the unit of analysis some of the fundamental problems to be considered before embarking on the case study were overcome. Divisions in the perceptions of micro and macro sociology stem from a combination of functionalism and Marxism, which regard social relations as determined by structural factors, and from Durkheim's controversial writings on individualism (Durkheim [1893] 1984; Giddens 1984; Giddens 1995). As Giddens' emphasises, '*there is no such thing as a distinctive category of "structural explanation"*,' only an interpretation of the modes in which varying forms of constraint influence human action (emphasis in original, Giddens 1984 pp.212-3). The configuration of the particular unit of analysis for this study was limited to staff at the technology centre, to social actors in the community's networks with connections to the project and in the context of the wider local rural community.

Avoiding methodological individualism

A case study approach was adopted to avoid the serious limitations inherent in a study based exclusively on the natural science model of the individual as a basic unit of analysis and the problems of methodological individualism (Sjoberg et al. 1991). The intrinsic problems of a methodological individualist approach are that individuals are regarded as 'a stable and unproblematic source of social action: individuals are causal

agents who produce, mediated by their dispositions and beliefs, a steady flow of social phenomena' (Knorr-Cetina 1988 p.24). While many scholars refute such a perception of individuals, a case study 'can permit the researcher to examine not only the complexity of life in which people are implicated but also the impact on beliefs and decisions of the complex web of social interaction' (Orum 1991 p.9). The case study approach thereby provides the clarity and focus necessary to study community technology and social capital in the complex plurality of the rural region's networks.

Source, type and selection of data

The source, type and selection of data were determined by the research strategy employed. Employing an *abductive* strategy determined that the sources of data were to be found in the interactions, knowledgeability and subjective understanding of social actions and the structural context in which they occur. While the research is an exploration of community developments, in common with every exploration, it should have some purpose that should be stated in the design of the inquiry, along with the criteria for the measure of its success (Yin 1984 p.30). The purpose of this study is to explore the effects of a community's recursive social structures and agency on the implementation of information and communication technology. The measure of its success is how much and at what depth it reveals the complex factors of technology, social structure and agency that verify previous theories and analytical studies while informing contemporary sociological theory.

A case study

A case study is a means of retaining the unitary character of a phenomenon when a comprehensive, in-depth investigation is needed and should be seen as the organisation of data rather than as a specific research technique (Feagin, 1991; Blaikie, 2000; Tellis, 1997) Case studies have long been the preferred methodology for sociological analyses of technology, community structure and development (Bergman et al. 1991; Bowman 1981; Gittell and Vidal 1998; Gray 1991; Tellis 1997; Thomas 1994). Indeed, case studies are now the favoured method for many government departments and organisations to examine the strategies employed to counter the cumulative impacts of policies, particularly in small communities (Kenyon 2001). While case study practices exist in many disciplines, a precise definition of a case acceptable to all disciplines is difficult to achieve, it is generally accepted that a case is a specific bounded and integrated system rather than a process (Stake 1995). To be sure, drawing a boundary around the research data selected to form a case study is an essential part of using empirical evidence to articulate theories and achieve the research goal of linking empirical and theoretical evidence (Ragin and Becker 1992). The choice, analysis and presentation of cases are all part of the way in which they are used in arguments designed 'to reach a conclusion which the reader (and writer) will find convincing' (Platt 1992 p.21).

In this thesis, use of the case study method is to construct the necessary boundaries to frame the field research and provide a snapshot in time for observations of contemporary structure and agency in the heterogeneous perspectives of technology. At the same time, a case study can provide the spatial dimension for the relative questioning and analysis of social

interactions. Adopting a contextual, cultural and biographical approach provided the rich data necessary to analyse the many complex interactions between society and technology. An examination of perceptions, relationships and activities within and surrounding the community project attempted to reveal the social capital that inheres in the actors' daily interactions in and between community networks. An overview of the region's socioeconomic history provided an analysis of community structures and the region's capacity to sustain its own future whether through the use of information technology and telecommunications or in some other way. As Orum observed: 'Case studies permit researchers to discover complex sets of decisions and to recount the effect of decisions over time' (1991 p.10).

Orum, Feagin and Sjoberg reject criticisms of the single case study as an early, primitive social research method and maintain that case studies, either as a single study or series of studies, are indispensable to the progress of social sciences (Feagin et al. 1991 p.1). For other researchers each case is unique in many ways as well as sharing similar aspects with other cases or phenomena (Stake 1995). It has been suggested that for research - especially exploratory research - by an individual researcher on a limited budget, the single case study provides a multifaceted, in-depth study in a limited time-scale (Blaikie 2000). A case study 'is expected to catch the complexity of a single case' (Stake 1995 p.xi) and is generally seen by many of its contemporary advocates as 'an in-depth, multifaceted investigation, using qualitative research methods, of a single social phenomenon' (Orum 1991 p.2). Nevertheless, in many case studies qualitative research is neither mandatory nor the only research method applicable. On the other hand, qualitative research emphasises the importance of social processes that extended beyond the community and

can overcome some of the limitations of a case study. Certainly, some researchers argue that a case study is a method of data selection rather than a method of data collection or a research design (Blaikie 2000). It is argued that:

> Since the case study seeks to capture people as they experience their natural, everyday circumstances, it can offer a researcher empirical and theoretical gains in understanding larger social complexes of actors, actions, and motives.
>
> (Orum 1991 p.8).

Data collection: quantitative versus qualitative

Over the last decade, the social science model of qualitative research has regained some measure of respectability in sociology. In the meantime, criticisms of the inadequacies of the post-war adherence to a natural science model and the dominance of quantitative research methods have emerged (Crotty 1998; Guba and Lincoln 1998; Sjoberg et al. 1991; Wainwright 1997; Yin 1984). Critiques of quantitative approaches include the stripping of context in the selection of variables that might possibly alter findings. Clearly, '[q]uantitative studies pay a price for their standardized precision' (Weiss 1994 p.2). A qualitative approach, on the other hand, is able to provide contextual information. As Guba (1998) argues, human behaviour can only be understood by reference to the meanings and purpose human actors attach to their activities. A qualitative approach can provide that insight through the description and understanding of social life from the social actors' perspective and collection of rich data. On the other hand, quantitative social research can survey demographic changes, indicate social patterns and, while focusing on individual attributes and life-styles, provide assessment of

wider social trends. A number of writers hold the view that the division of qualitative and quantitative analysis is false (Layder 1993; Silverman 1985). Therefore, in this case study both quantitative and qualitative methods are used in a mutually supportive, exploratory manner, wherever or whenever it is considered appropriate to provide the fullest picture, thus avoiding a singular perspective that might be distorting.

In this study the data collection was primarily through the use of qualitative methods of focused, open-ended and in-depth interviews, observations and unstructured conversations, which provided a closer study of real human beings in the context of their everyday life (Feagin et al. 1991). The purpose of in-depth interviewing is not simply to gain answers to questions, or to test hypotheses or to evaluate. 'At the root of in-depth interviewing is an interest in understanding the experience of other people and the meaning they make of that experience' (Seidman 1991 p.3). While interviewing followed a flexible design, it considered each social actor's frames-of-reference and experiences of reality, which included that of the researcher as an actor in the research process and developed further insights and paths of questioning as the research progressed.

The research process

The use of quantitative data was initially required to prepare the research proposal and to evaluate possible research locations and designs. These processes involved communications with relevant government departments and industry organisations, reviews of reports, official documentation and statistical data. During the research process, a review and where necessary or appropriate, a re-evaluation of secondary or

tertiary data obtained from government, non-government organisations and the private sector provided a measure of the veracity of personal accounts and accuracy of reports. Such data provided an analysis of the region's capacity to sustain its own future and a review of the region's socioeconomic history. The examination of documents, publications and reports, provided evidence of competing activities of public and private interests, national organisations and multinational corporations, in particular from the region's urban centre. Much of the quantitative data provided analyses of factors influencing social actors' perceptions of fact and reality, while providing justification for their motivations, decisions and activities in daily life.

Interviewing

Interviewing was carried out by open-ended questions in a series of focused and in-depth interviews, initially with the key informants, the directors of the call and technology centres, then expanding to the Board of Directors and finally, the third key informant, the Call Centre Manager. The initial question to interviewees connected to the project asked how they had become involved in the project, their background and experiences. They were asked to relate their stories and where their stories warranted more detail, follow-up questions attempted to draw out the history of interactions, relationships and perceptions. Asking them to relate their stories was intended to reveal the recursive nature of social practices. Interviews with Brian, Phillip and Tom, because they had no direct involvement with the project, began with the name of the person who had suggested that I speak with them about the community. In the course of their interviews they were encouraged to relate their experiences of the community's problems and reveal a fundamental

recursive character of social life. All interviews were tape-recorded and were later written up in the informant's own words. The transcripts were supplemented with my notes and observations taken at the time of the interview or shortly after. At some time during most of the interviews, the interviewee was asked to provide the details of others who they considered to have particular knowledge to inform the case study. In most cases, the interviewee not only provided an introduction to others but also provided alternative avenues to explore. Interview structures and procedures remained flexible throughout the course of the field study in regard to the number of interviews with each informant, the particular approach and length of interviews. The goal was to be as inconspicuous and non-disruptive as it is possible to be for a researcher intruding into personal accounts and perceptions of daily life. While some informants made time for interviews during business hours, others preferred meetings at lunch or occasionally over breakfast. Sometimes, meetings were arranged at the end of the day or outside of the region altogether. Thus, interviews were fitted in whenever and wherever the informants could spare the time or felt more comfortable. Yet the researcher remained conscious of the risks of forming a therapeutic relationship by such an empathetic approach (Seidman 1991). One major factor influencing outcomes of in-depth interviewing in the qualitative approach to research, which does not occur in interviews of a quantitative approach, is the instrumental role of the interviewer. This role might include aspects of the experiences, age, gender, culture, social strata, ideology or ethnicity of the researcher (Seidman 1991). Any bias by the researcher, however, will be reflected in the preconceived notions or theories evident in the conclusions of the research.

The validation and measure of reliability in informants' recollections of dates, sequences and events were through the combination of multiple informant accounts and a multiplicity of methods, including reference to historical documentation and reports. However, there could be no triangulation of social actors' perception or experiences as these were individual constructs of social reality. Instead, the researcher's approach to in-depth interviews and non-participant observations relied on a critical reflexive assessment of each event to question whether he had influenced the informant's responses, distorted observations or misrepresented events. Silences or avoidance on the part of the respondent indicated areas for further inquiry, although not necessarily with that person. The practicalities of conducting sociological research frequently traded-off the comprehensibility of research schema, strategies and design with the need to describe and understand lay accounts, details of interactions and community networks in following the iterative processes of an exploratory case study. However, it was important to avoid becoming so focused on the research design that opportunities were missed to gather data about other, perhaps more important problems (Whyte and Whyte 1984). Analysis of the research data involved construction of typology and themes, development of concepts and propositions for evaluation against a wide theoretical framework. Finally, the data analysis provided insights into how independent community initiatives might provide for a sustainable future, while accommodating the hierarchy of regional, national and global network interests.

Ethical considerations

Issues of research ethics when dealing with human subjects either as individuals, groups or collectives are of paramount concern to most, if not

all research organisations. This includes the major funding body in Australia outside the fields of clinical medicine and dentistry, the Australian Research Council. The Australian National University, as is the case in most other universities, has mandatory requirements that every social research project be considered and approved by a human ethics committee to address these issues. These requirements are guided by the 'National Statement on Ethical Conduct in Research Involving Humans', which is in accordance with the *NHMRC Act, 1992* (NHMRC 1999). The first requirement for conducting in-depth interviews was to obtain *informed consent* from the subjects to be interviewed in relation to the purpose of the research, the area of study and the researcher's role in the project. The proposed agenda was provided when making the appointment and written consent was obtained prior to the commencement of the interview and verified where appropriate during the course of the interview (See Appendix C: Information & Consent Form). Participants had the right to know and were explicitly informed with whom the interview data will be shared (no one), in what form it will be published and how it will be disseminated (Seidman 1991).

The informants were reassured of the anonymity and confidentiality of their responses and contributions to the interview as far as the law allows, while being made aware that research information is not privileged and can therefore be subpoenaed by the courts. The anonymity of respondents and confidentiality of records-of-interview and information obtained in the course of interviews were maintained in research notes through coded identification of respondents. This was achieved by initially recording them under their initials and, once the research was completed, allocating fictitious names to them in writing up the research. Any references that could be used to identify individuals, places, institutions or organisations

if included in the thesis text will be inserted in a confidential appendix. While respondents' anonymity and confidentiality can never be guaranteed 100%, all interview materials were locked in a briefcase and secured in a restricted access location remote from the research site until the completion of the study (and, ultimately, the destruction of the research notes). The anonymity of the locations and organisations that were the subject of research is provided through the use of pseudonyms, a common practice in much sociological community research. Some examples of these practices are Dempsey's *Smalltown* (Dempsey 1990), Whyte's *Street Corner Society* (Whyte 1955), and Lynd and Lynd's *Middletown* (Caplow and Bahr 1982). While people familiar with the areas involved in the field research may decode the pseudonyms, the objective was to provide and maintain a degree of anonymity and therefore comfort to participants responding to the research. Care was taken to report accurately and insofar as is humanly possible without bias on conversations and contexts, however they are from the researcher's perspective and therefore subject to his recollections and interpretations. Class, culture and gender combined with lived experiences, religious or political convictions and generational differences might all contribute to a researcher's perspective.

Beginning the study

As was stated above, the names of all respondents taking part in the study are fictitious and the anonymity of the locations and organisations is provided through the use of pseudonyms. The number of actors involved in the numerous networks presents a complex picture that is difficult to navigate without referencing Appendix I: Bemeringal Research Network in conjunction with Appendix J: List of Research Informants. While

reading this chapter the reader should therefore refer to these appendices. My interest in the Bemeringal region began with meeting Larry and Simon on one of their many visits to Canberra. The two men were closely involved in a community technology development project in the Bemeringal region while I was looking for case studies of regional technology developments for my research thesis. Larry had worked for a number of years for a large regional corporation in its computer department and later its computer bureau, following the 1970-80 trend for large mainframe installations to take on outside work. Although we had never met before, the corporation had been a client of one of the computer software companies I had worked with in the early 1980s. Simon on the other hand, had been involved in radio communications and the media throughout most of his working life and in his semi-retirement was now setting up a farm guesthouse in one of the districts of the Bemeringal region. The three of us shared an interest in information technology and telecommunications particularly in the ways it might benefit regional communities. Simon outlined the structure of the Bemeringal Technology Centre and its goal of becoming the hub of a regional development network. From Simon's perspective, the implementation of computer and telecommunication networks depended on user confidence and education for acceptance, which primarily relied on the affordability and availability of a high quality telecommunication infrastructure. He believed that the introduction of competition among telecommunication carriers and the privatisation of Telstra would provide the required levels of quality and reliability of telecommunication services that were currently lacking, through technical developments in the market place.

Larry explained the role of the community call centre division was to provide the necessary finances to fund the industry development division and sustain the technology centre for the long term. We discussed the potential of call centres in regional areas for the provision of employment opportunities and the implementation of regional communication hubs to provide community Internet access. I queried how a small community call centre located in the Bemeringal region might compete against the larger commercial call centres established in highly populated regions. Larry suggested there were marketing advantages in having lower operational overheads, a low attrition rate of staff and the traditional rural work ethic providing a higher quality response to client customers. Following a brief resume of my career and answering their questions about my research thesis, Larry and Simon agreed to approach the project's board of management to gain permission for my study. They welcomed any association with the Australian National University, assuring me that they would contact me later with the Board's decision. Management of the community technology centre later endorsed my proposed research.

The initial exploration

The Bemeringal Technology Centre, incorporating the Call Centre Division, was established in April 2000 with an Industry Development Director, a Call Centre Director, a Call Centre Manager and six permanent agents. On an initial, exploratory visit to the Bemeringal Technology Centre at Creeks Crossing, I was unfamiliar with the town and parked at the Memorial Gardens in the town centre. After walking up and down the main street and not being able to find the Technology Centre, I asked directions of a smartly dressed businessman about to enter

the offices of a local building society. He was enthusiastic about the new technology centre and offered to drive me there. However, after obtaining directions and thanking him for his kind offer I returned to my car. Following his directions I soon found the arcade in a small retail centre some distance outside of the central business district. My first impression was of a neglected shopping arcade on the verge of closing down. The supermarket, the newsagent and the Technology Centre shop front were the only shops with lights on at 9:00 AM on a dark autumn morning. Three other shops were empty and the arcade café was still closed. Although there were no people to be seen in the arcade, there was a lot of activity at a building construction site at the top end of the car park behind the building. On entering the Technology Centre, Kate on the reception desk greeted me and Larry came out of his office when he heard my voice. We went to the unlit arcade café and, while it did not officially open until 10:00 AM, we were able to buy coffees. On returning to Larry's office, he made a telephone call upstairs to Carol, the Call Centre manager, to check if it was convenient for us to come up. Entry to the stairs going up to the call centre was secured by a card key and keypad and, whereas the downstairs offices had partitioned bays that were brightly lit and functional, the Call Centre appeared much more comfortable and luxurious. The desks were made of a warm honeyed timber, there were pictures on the walls, softly lit by down-lights and the voices of the agents were muted by the acoustics. The workstations were well lit with the work areas positioned to avoid any operator directly facing another agent's face or back. Larry introduced me to Carol and we continued our tour through the lunchroom, or "break-out" room, which was a modern open plan dining area and a galley kitchen containing modern appliances with a large stack of current magazines on a side table. We passed the computer room and through another security door to view

the boardroom before returning to the work centres area. There were several male and female call service representatives doing survey work for a local Internet service provider (ISP) intending to introduce a broadband network in the town and attempting to build an online local business directory. Not wishing to disturb them, we left after quietly talking to Carol about my proposed research agenda. Larry, Simon and Carol were my initial contacts and, while they provided introductions to other participants, they remained the key sources of research data for the study.

The path of my research mainly followed the directions provided by the three key informants. Simon provided me with the names and contact details of each member of the Board of Management and the email address of the Regional Development Officer who had originated the community technology project and now lived in Queensland. In later interviews with members of the board, I was advised to speak to the manager of the Business Enterprise Centre about why the Regional Development Officer left the Bemeringal region. While the manager, Jack, avoided such direct questioning he was able to detail his involvement with the region and provide invaluable background information of the interrelationships and social structures within the Bemeringal region. Larry provided me with contact details of the church networks in Creeks Crossing, some details of the Corporation and an insight into the effects of post-war migration on the town. However, Carol was instrumental in my gaining information of the women's network by her introduction to many of the women of the region. These contacts included the TAFE manager, the women's professional network and those women directly involved with the project. Many of the women, conscious of the potential gossip in a small town from being seen with a

male stranger, would only meet with me during working hours in the technology centre.

There were some difficulties experienced and problems encountered during the research process. Initially, all those involved in this particular community pilot development enthusiastically welcomed the study. By the time fieldwork commenced in May 2001, the situation had changed and it looked as though their project would end through the exhaustion of grant moneys and lack of sustainable income. While the fieldwork was carried out in May, June and July 2001, the project was first investigated and selected to become the focus of this thesis towards the end of April 2000. The two directors greeted me warmly each time we met and generally remained open to questions, providing answers in depth and at length. The call centre manager exhibited signs of exhaustion for much of the research period and, after taking time off sick, went on holiday leaving a gap in my team of informants. When I spoke with others involved in the management of the project there was a detectable note of caution, obfuscation was apparent in some of their replies and a silence when we touched on many of the more sensitive issues. Over the course of my study, some informants began to disclose more information and reveal their concerns. By the same token, many of those close to the project continued to treat me with suspicion as an outsider pursuing a deeper understanding of the social implications. My requests to observe a Board of Management or a Chamber of Commerce meeting were never granted, ostensibly for reasons of confidentiality. Similar difficulties were experienced with gaining entry to the other two councils in the Bemeringal region, Clearwater and Forest Shire Councils. While I managed to contact and meet with the Development Officer at Forest Shire Council, staff I was advised to contact at Clearwater Shire Council

said that their part-time status prevented them from finding the time to be interviewed. This was also a standard response by parish church administrators when I attempted to arrange interviews to discuss community issues and activities. Likewise, some members of the Board who had other business interests outside of the region were never able to allocate a time or place were we could meet. Though, over time people in general around the town of Creeks Crossing gradually became friendly as they began to recognise me and, through this familiarity, began to talk more openly, joke and relax more in my company. When I called in at a café that I had regularly visited to say my fieldwork was ending, the couple wished me well and the wife added that she would miss me. At that point, the husband said, 'She never says that to me!' to which she softly replied, 'I'd say it to you if you were to leave me.' While not wishing to romanticise the research or the community, I felt privileged to be accepted enough by this couple to be allowed to share that intimate moment between two people who had experienced a lifetime together. The incident also succinctly illustrates those values frequently observed in society although, as subjective criteria and essentially a variable in social interactions, rarely surface in any objective sociological inquiry. Subjective criteria will, however, be tacit in the social exploration of the following chapter.

Conclusion

The researcher attempted to develop a research design that would provide an exploration, description and understanding of a pilot project for rural community technology development. The research design was based on the ontological assumptions of relativism, while remaining conscious of the dangers of the nihilism of unconditional relativism, and a theoretical

perspective of critical inquiry, an epistemology of constructivism with a methodology of in-depth interviews and non-participatory observations in a single case study. Selecting an *abductive* research strategy that seeks to explore, describe and understand social actors' interactions in social networks, their perspective on information and communications technology and their accounts of social life in an Australian rural region. Data collection was primarily by a qualitative method complemented by the use of secondary and tertiary quantitative data, to provide a validation of the data in conjunction with the researcher's critical reflexivity and a multiplicity of lay accounts.

The consideration of research sites were initially based on investigating local community technology developments and addressing previously formulated criteria on the size of population, location and access. The manageability of in-depth research within time and budget limitations was a prime consideration. The launch of a promising new community technology development project made possible a case study of a single location, alleviating many of the anticipated problems of time and budget. The Human Ethics Committee of the Australian National University approved the above research project after ensuring that it conformed to the guidelines of the 'National Statement on Ethical Conduct in Research Involving Humans'. Ethical principles were addressed in obtaining consent from all the participants after informing them about the purpose and nature of the research, including issues of confidentiality and anonymity, and making it clear that they may withdraw consent at any time. The research design, strategies and methods constructed in this chapter were applied when the researcher began an in-depth exploration of a community project in rural Australia.

CHAPTER 5: EXPLORING THE BEMERINGAL REGION

I love a sunburnt country,
A land of sweeping plains,
Of rugged mountain ranges,
Of droughts and flooding rains.
I love her far horizons,
I love her jewel-sea,
Her beauty and her terror -
The wide brown land for me!

MY COUNTRY by Dorothea Mackellar

Introduction

Dorothea Mackellar is among a long list of Australian poets who have lived and worked in regional Australia and have been inspired to try and capture its essence in verse. Her poem, *My Country* captures much of the range of topographical and climatic conditions of the Bemeringal Region and the emotions of many of its inhabitants. Many of these poems are now part of school curricula and they have come to symbolise the way many Australians visualise their country. Tourist organisations avidly insert verses from these widely known poems in their promotional material alongside coloured photographs, reinforcing emotive images of the area in the hearts and minds of visitors and residents alike. An elderly male resident of the region who originally came from Eastern Europe, softly recited the above verse to me as he sought to explain his attachment to Australia and the Bemeringal region in particular. Similar feelings were expressed by many of the residents I spoke with, though perhaps not quite as eloquently. For example, one businesswoman from a farming family said that she sometimes wondered why she chose to live in the region, particularly when the icy winter fogs close in on the town. At other times, the air is crystal clear with bright sunny days and starry nights. She then knows that she lives in the Bemeringal region for its healthy climate,

natural beauty and affordable lifestyle ... but it would be better if they got more rain.

The structure of the chapter

This chapter begins with a brief overview of the Bemeringal region, followed by a deeper study of the local community before finally focusing on the development project itself. In order to explore and examine the conception, implementation and operation of the Bemeringal Technology Centre project, it was important to study the social context of the networks, agencies and interactions involved. This study includes the organisations and institutions at the meso-level of social networks, structures and agencies framing the micro-level perspective of individual social actors. The history of the region was gathered from many sources including the media, local government publications and material in local public and university libraries. However, the major sources for the construction of a historical perspective and the collection of contemporary data were unstructured interviews, daily observations and general conversations with people throughout the region. Information gathered by such means frequently verified and, in some cases, enhanced the data already obtained with enduring community perceptions and values. The spatial, social and economic dimensions of the region and its three component shires are briefly examined before focusing on the community structure. An examination of the community's structure is followed by a study of women's contributions to the region as a whole and the Call and Technology Centre project in particular. An example of the way in which a farmer's wife contributed to the family farm also demonstrates some of the benefits of information technology for rural education and agricultural industries. This exploration of communities in the Bemeringal region attempts to understand the structures and agencies in the implementation of

a pilot information technology and telecommunications development. The concept of a call centre as a core enterprise to provide employment and support for industry development clusters was seen by the federal government as a pilot model to sustain rural regions of Australia. The regional focus of the proposed community technology project ensured it was successful in obtaining a grant from the *Networking the Nation* fund. The Call Centre Division is explored through the agencies and interactions involved in its conception, its implementation and in its early and current operations. The issues of governance and management include aspects of gender; technology and human skills in call centre employment. Call centre work and skills are explored from the perspective of staff and compared with their previous local work experiences. An examination of the Industry Development Division is the final section that explores the successes, doubts and frustration in attempting to provide e-commerce solutions to rural regions.

The region

The region of this study is not delimited by the boundaries of State or Federal electorates, or the geographic regions defined by the New South Wales Local Government Association or even the economic regions that are now commonly declared by major urban centres over their surrounding rural shires. In this case study, the Bemeringal region is that area covered by three adjoining shires in an Australian Bureau of Statistic's statistical subdivision, endorsed in local rhetoric and defined in a development application for a grant from the commonwealth government's *Networking the Nation* fund to comply with the government's regional development guidelines. I asked the Industry Development Director for details of the Board of Management and if there was anyone else in the region he thought I should interview in my research. One of the first names on his list was a

long serving Councillor and a founding member of the Technology Centre's Board of Management, Terry. In a later meeting with Terry to unearth community perception about the possible causes of the endemic decline of the region, he said the best way to find out what was of current concern and to gauge general community feelings I should speak to those who normally listened to public opinion without engaging in a debate, the local taxi drivers and hairdressers. The owner of one of the town's hairdressing salons later proved to be a mine of information about the history of the region and the town. His observations about the problems the town has recently experienced and continues to face were rarely coloured by everyday gossip, although some of his stories tended to become sidetracked by personal recollections and experiences they provided an essential social context.

Demographics and distances

Many of the problems experienced by the people, organisations and institutions administering regional services can be traced to the region's demographics, topography and distances. The Bemeringal Region covers an area of 14,911 square kilometres; it is inland from the coastal fringe and is therefore subjected to extremes in annual temperature ranges and weather patterns. (See Appendix F: Bemeringal Region demographics and distances). Most towns of the Bemeringal region began as service centres for the surrounding, largely pastoral, rural industries. In general, pastoral holdings have remained with the same families for generations with sales rarely passing ownership outside the established farming families. The Shire of Forest covers an area of about 4,000 square kilometres, has a population of a little over 3,000 and relies mainly on agriculture and tourism. Clearwater Shire on the other hand, has experienced a substantial growth twice the New South Wales State average in the last decade (see

Ref.1 in the Confidential Appendix). The shire's small residential village centres, the largest with a population of less than 1000, have been joined by several resort areas forming a combined town population of around 4500. The remainder of the total residential population of less than 6500 is scattered in district localities covering more than 6,000 square kilometres (see Ref. 2 in the Confidential Appendix).

One Tree Shire, the central location of this study, covers nearly 5,000 square kilometres with a population of less than 10,000. Eighty percent of the Shire's population resides in the township of Creeks Crossing that straddles the crossroads at one of the main gateways to the region. As the Shire's service centre and the Bemeringal region's main administration centre, the town expanded significantly as the headquarters of a civil engineering construction project, which began in the middle of the twentieth century and ended twenty five years later. During that time, workers and companies were drawn from all over a war-devastated Europe, the United Kingdom and North America to work on a number of civil engineering and mining projects throughout Australia. With the end of the construction phase of the local civil engineering project the town reverted to its primary roles of rural and regional administration, albeit with major changes in the ethnic diversity of its subsequently diminished population and the addition of a tourist industry. Unlike the region's new resort centres that rely on seasonal trade, most of the long established towns and villages are experiencing a progressive social and economic decline.

Erosion of employment opportunities

There has been a continuous erosion of employment opportunities in the Bemeringal region during the final quarter of the twentieth century. The State of New South Wales trend toward the amalgamation of Shire

Councils, the restructuring of Municipal and Regional Electricity Councils and the closure of State and Federal Government offices and institutions is still continuing. Since the demise of its local hardwood timber industry and loss of its woollen mill, Forest Shire continues to struggle with attracting new industries that will provide sufficient employment to sustain the shire's population. In 2000, according to Forest Shire's online profile, only a little over 40% of its 15-24 year old population was employed, the lowest rate in the region (see Ref. 3 in the Confidential Appendix). This low rate of employment is partly attributed to a low participation rate and a high level of predominantly female unemployed due to the closure of its woollen mill and shrinking opportunities in the retail and service sectors. On the other hand, Clearwater Shire relies heavily on tourism and during the off-season most of its resort centres appear deserted, many of its shops are closed and unemployment levels rise significantly for its residual inhabitants, particularly for the youth and women. However, the number of unemployed in the Bemeringal region is difficult to accurately quantify, as official unemployment rates have been compromised by changes to several Commonwealth policies over the last decade, effectively removing a number of people from labour market participation and unemployment statistics. In allowing for these policy changes, the official unemployment rate appears to be only 60% of the corrected figures for the New South Wales economic region that includes the Bemeringal region (Manning 2001; NIEIR and Australian Local Government Association. 2000). Manning's adjustment to the unemployment rates reverses the decline in official national unemployment figures from 9.4 per cent in 1991 to 6.6 in 2000, to an upward trend in the real level of unemployment over the same period (Manning 2001). While the erosion of employment opportunities has occurred from many factors many believe it was signalled by changes in transport infrastructures.

Transport infrastructures

Van, a corporate executive on the technology centre's Board of Management, concurs with Terry's statement that the region's current decline started with the downgrading of the region's transport infrastructure by the closure of its railway line. The loss of rail services thus cut the umbilical cord between the region, the nearest major urban conglomeration and beyond to the major cities. The railway opened up the area in 1890s and became a major economic benefit and the main means of transportation to and from the region, replacing the bullock and the horse. Following the development and diffusion of more reliable and affordable motor vehicle transport technology in the 1960s, the number of railway passengers gradually dwindled until, in the opinion of the State Government, it was no longer economically viable to maintain and the line finally closed after a century of servicing the region (see Ref. 4 in the Confidential Appendix). According to a shire councillor, while there was a gradual reduction in the number of railway employees, it was the indirect effects of the loss of goods and passenger services that had the greatest local impact. For example the loss of work transporting goods from the rail-freight yards to local destinations had a detrimental effect on the businesses of local carriers. Though, for people with restricted access to alternative means of transport, such as the poor and elderly among those visiting relatives in the local correctional establishment or the local hospital it was the loss of rail transport that had the greatest impact. Many in the region still decry the passing of the railway era, particularly those in the tourist industry that regard the iced-confection of the 19th Century Railway Station and the romance of rail travel as a potential tourist attraction.

Improvements to the road infrastructure, including the surfacing, widening and straightening of many roads, provides good access between the major

regional centres and the coastal fringe. Indeed, in response to my question of what he liked about the area, Simon, a resident of the town and owner of an outlying rural property, replied that it was the town's location within an easy drive to the city and the sea. As he pointed out, people working in many of the major metropolitan centres took nearly as long to drive shorter distances between their homes and workplaces every day. According to many of the long term residents, improvements in road and motor vehicle design has obviated the need for overnight accommodation and frequent rest stops for those travelling through the region, with subsequent detrimental consequences for the region's motels, fuel stations and other local businesses. On the other hand, Simon has an interest in the local flying school and he pointed to the number of commercial and private airfields in the region when he discussed the potential for providing increased tourism and conference facilities through investment in air transport.

Tom, who is closely involved with one of the local churches and charity organisations, suggested one of the benefits of living in Creeks Crossing was the savings in not needing to run a car because everything was within walking distance. From my observations, the town covers a large, undulating area with a number of steep hills. One would have to be quite fit to walk from some of the town's suburbs to the town centre, where just going to church can involve a steep hill climb. In answer to my question about public transport Tom did concede that while the private motor vehicle is the most common form of transport, there remained a substantial number of people that must rely on friends and family members, a limited bus service or taxi to travel around the region. These people include the young, low-income families and many of the elderly who do not drive for various reasons, particularly the women many of who never learned to drive in their younger days. Those travelling by bus to Creeks Crossing

from the more remote towns and villages of the region frequently have to stay overnight and return home the following day.

According to Brian, an avowed socialist and rural financial counsellor, the downsizing and retrenchments of the early nineteen-nineties, low world commodity prices and the region's drought have exacerbated the detrimental effects of Federal and State Government policies of restructuring, centralisation and competition. My first meeting with Brian was in his cramped office above the shops in Creeks Crossing town centre, which came about from a suggestion that I should speak with Brian because of his intimate knowledge of the region's rural poverty. He believed the region followed the national trend of rural community decline and the situation is unlikely to be reversed given the long-term trend in terms of trade. He gave me a photocopy of one of his charts on terms of trade that he had compiled from statistics from the Australian Bureau of Agricultural and Regional Economics (ABARE) (See Appendix E: Terms of Trade.) His photocopy was blurred because it had been done in haste and in attempting to recreate a new graph I realised that it had already appeared in several other official reports, derived from common ABARE statistics. In later interviews with Norman and farming interests, Brian's pessimistic outlook appeared prevalent in much of the Bemeringal region with the deepening drought already extant for nearly a decade. Driving in the region on most days during my field research, the combined effects of the drought and vehicles speeding over good road surfaces could be measured by the overnight road kill of kangaroos, wallabies and wombats lying starkly on the bleached roadside verges. On a winter's morning, this dreadful carnage is softly framed by the sparkling frosts, coloured pink by the ochred winter grasses and the mistletoe hanging from gum trees bathed in the rose-tinted light of dawn. Visitors to the region eager to reach their destinations frequently drive late into the night, ignoring the peril to native

animals and leaving behind a terrible scene to greet early morning drivers. Many of the residents I spoke with expressed some concerns and even anger at the environmental damage and disregard for the native fauna caused by some visitors' driving in the region. How could such people care so little for the beauty and the natural benefits the region offered was a commonly posed question.

The community structure

Although there is a small commercial airport near the town of Creeks Crossing, the majority of visitors arrive by road after driving through countryside dotted with the remnants of past settlements and a myriad of tiny villages. The older village hotels and restaurants are often relics of the days of the horse drawn coach or bullock dray and the need for frequent overnight stops. Approaching the town, the first indicators of the town's recent prosperous past and economic importance become visible with a microwave signal tower, a large electricity substation, sprawling industrial estates and office blocks bordering the main road on the outskirts of the town. In common with most Australian regional centres, at the gateway to the town is a strip of modern motels, car yards and franchised fast-food restaurants. However, in Creeks Crossing this gateway development is comparatively small and is separated from the town's central business district. According to some of the residents, shopkeepers and council staff that I spoke with, there had been strong resistance to allowing these global fast-food franchises into the town and, while a compromise had been reached, opposition remained. However, there is a general air of prosperity in the town, reflected in the well-kept buildings of the main street, the neatly mowed lawn and well-tended garden beds of the memorial park and the large number of smartly dressed people. Of particular note was the number of men in suits, an unusual sight for most Australian country towns

during the working week and a reflection of the number of professional offices and chambers remaining in Creeks Crossing.

Merging town and country interests

According to Terry, the amalgamation of One Tree Shire and Creeks Crossing Municipal Councils in the closing decades of the twentieth century, merged town and country interests under a new shire council. Such amalgamations were repeated throughout the Bemeringal region, much of New South Wales and in most other states. However, the influences of long established farming families and town businesses still endure in the social history and local folktales and are reflected in contemporary social interactions. There were several occasions when the person I was speaking with described another person by association with a particular surname. Assumptions were made from regional knowledge about the family name, which provided that person's inherent personal characteristics, their measure of wealth and level of influence, and hence their status in the community. Fortunately, questioning those assumptions generally provided a wealth of local knowledge, past and present, while revealing much of the person answering my query. On one occasion Robyn, a local health professional, described the strength of the local women's network by listing each of the most prominent members by their married name, family name and professional status. If the woman was born and bred in the region Robyn added the comment; 'She's a local girl.' Robyn then noted that while there is still a social division between migrants, graziers and town residents it is not as strong as it was a few years ago. She believes this is due to many from the original grazier families having married migrants and people from town over the last three or four decades. Not only was Robyn describing the inherited status of the prominent members of her network and her implied status by her

association and acceptance, she also revealed the extent to which she had assimilated the local history, culture and folklore during her two decades in the region. While reviewing some of the personalities in the region, Robyn expressed concern about the levels of poverty among the local farming families and their failure, in some cases, to come to grips with computers and telecommunications. It appears to be a mandatory condition for community acceptance to posses a good knowledge of the regions' local history and an acknowledgment of the families, individuals and organisations that have played major roles in developing the region. The history, topography and ecology of the area now attract many tourists to the region in both summer and winter. However, it is the values of courage, hard work and self-reliance, embedded in local folk tales and assimilated in rural ideologies, that provides the necessary resilience to overcome the economic variations and climatic extremes for long term residence.

Church and charity groups

Larry's community networks include church and charity groups and, while he had been brought up as a Catholic, he had been a member of most Churches in Creeks Crossing. Although he had 'tried' Anglican, Methodist and had worked with the Salvation Army, he was now a member of the Uniting Church. At his suggestion, I made contact with some of the town's church and charity groups to gain a different community perspective on rural inequality and poverty. In conversations with various church employees and members of congregations, concerns emerged of the continual decline in church attendances, with the notable exception of the Uniting Church. In noting that a Convent dominated the town, I asked a local businessman if there was any historical significance in the town's churches given that they were all built along the ridge descending from the Catholic Church down to the Uniting Church. The laconic reply was that

the Catholic Church always liked to take the high ground and it was one of the first churches in the area. In a meeting with Phillip, one of the church leaders and a newcomer to the town, he expressed particularly concerns in the erosion of religious knowledge and practices most noticeable between the generations in families. However, he declined to comment on the degree of poverty in the town or region, saying he preferred to leave social welfare details to the qualified staff of his church's relevant organisations while he attended to the parish's spiritual needs. He did however, confirm that there were several church-run charity organisations active in the shire with groups from all denominations banding together for the annual Red Shield Door-knock Appeal of the Salvation Army.

Unlike Phillip, Tom had no hesitation in answering my questions on the level and possible causes of poverty in the region. Daily observations supported the statistics and revealed many indicators of rural poverty, from the poorly clothed children playing in darkened backstreets and vacant shop doorways of the town on a bitter winter's evening to the young farm worker asking about available local work at a rural store, while his wife and baby waited outside in a battered utility. Dimensions of poverty were also regularly observable in the town's drop-in centres. On one occasion I observed a poorly dressed elderly woman sitting on her own cradling a cup of coffee between her gently quivering, gnarled hands watching a teenage couple with a young baby looking through racks of second-hand baby-clothes. For me, they presented opposite ends of the same spectrum of limited circumstances and stages in a life of inequality. Tom, a church leader, expressed concerns about the impact of what he perceived to be high levels of addiction to illicit drugs, alcohol, gambling and smoking on family budgets in the lower socio-economic stratum. He was concerned about the lack of rehabilitation services in the region and emphasised that, while offering a helping hand, it was very important not to destroy hope of

a better life for 'those in the gutter'. Tom indicated that many of these people could be identified in the local pubs or walking up the hill to the local RSL club around ten thirty every morning and they were still to be found at the bar or playing the poker machines in the late afternoon. The growing number of single parents, the unemployed and the elderly were cited by a number of people as the major local factors contributing to the growth of the region's poor. Indeed, a shire councillor and a member of the community's retirement home committee confirmed the statistics of a burgeoning aged population in the shire. When Council's finance committee asked why additional funds were required to expand the lodge for aged care, the exasperated reply was, 'Because they aren't dying fast enough!'

The Local Government Authority

When asked about Council's role in the community technology project Norman, a senior member of Council staff, introduced the issue of an unjustified distrust of Council expressed by many members of the general public and the public's lack of awareness of the responsibilities and workload of Council staff. He pointed to the negotiations he and other members of his staff had held with state and federal local representatives and their government departments. He also detailed the Council's active participation in obtaining the grant from *Networking-the-Nation* fund, in the unsuccessful attempt to obtain the promised departmental outsourcing contract and the finally successful achievement in securing the new Commonwealth Department Call Centre for the shire. In an earlier meeting, Councillor Terry had also mentioned the general public's distrust of Council with antagonism expressed in some instances. He believed that this stemmed from a general Australian intolerance of authority and distrust of bureaucratic organisations. While Norman recognised that there were

pockets of poverty in the shire, he expressed Council's particular concerns for the vulnerability of many of the local farming families and the precarious conditions of rural industries caused by prevailing adverse weather conditions, low commodity prices and the rationale of a global economy. Many people in the region, including Norman and other community leaders, expressed the belief that farming families might be forced off their land if the current climatic and economic trends continued. They emphasised the importance of providing opportunities in the Bemeringal region for rural families to obtain off-farm income to survive long periods of drought and the constant poor returns on investments in rural industries. Indeed, Brian had already noted that the greatest asset for any farmer or grazier is a wife who is a nurse or teacher, both professions in constant demand in rural regions. There appeared to be less concern about those in absolute poverty than with the relative deprivation among the region's elite and on whose welfare the region was apparently so dependent.

The importance of education

According to Brian, there is a general belief in the importance of education for the local rural communities and a culture that insists on their children having access to the best possible education, although few can afford such access. Moreover, as several residents of the region observed, one of the problems of this culture was that those children that went away from the region to one of Australia's major cities, regional centres or overseas to access better educational and employment opportunities seldom returned to the region to live. For example, Terry was very proud that his daughter had returned to teach in the town after graduating from teachers college and surviving a posting to a remote NSW community. A more typical case would be that of one of Robyn's sons, who had left to secure an

apprenticeship as a carpenter and never returned to the Bemeringal region. However, there is a small counter flow of people moving into the region, which tends to slow the rate of population decline. Among those of the region's inhabitants who have moved to the area over the last two decades, many have come from major metropolitan or urban centres as a part of a counter-urbanising flow, while others have moved from similar rural regions elsewhere in Australia. It would appear that many of these new residents were once visitors enjoying the natural attractions and convenient location of the area. Several inhabitants, including Robyn, Terry, Norman, Larry and Simon came from outside the region and expressed a sense of belonging to the community. They choose to live in the region for a combination of reasons, including the region's location with the coast, the mountains and major metropolitan centres all within a day's drive over a network of sealed roads, much improved over the last two decades. Robyn said that it was the region's abundance of relatively low-cost housing, a low crime rate, good social networks and affordable lifestyle that were the main incentives for her family to live in the area, views that were reflected by many other residents. Indeed, some like Larry said they had returned to the region after moving away for a time to other rural regions, larger regional centres or major cities, while others returned from living overseas. Indeed, Larry had lived in the area for a number of years, working in a local corporate operations centre. When the centre closed he and his immediate family moved from the area to a metropolitan region for a number of years before returning to Creeks Crossing. The idea of self-employment in a rural industry as a working retirement in a less hectic environment with lower housing costs, has motivated many urban dwellers to consider living in one of the rural communities or life-style resorts scattered throughout the Bemeringal region.

In response to my questioning residents on their perception of the region's sustainability, many of the residents declared that the community's strengths were to be found, first, in the region's cosmopolitan or multicultural nature and, secondly, in its high number of tertiary educated and degree qualified residents. The claim of a high level of human capital appeared in a report supporting the case for Commonwealth funding of the technology centre that noted the number of its inhabitants with a tertiary degree-level qualification was at the level of regional university towns. However, this claim proved to be an exaggeration. Figures from the 1996 ABS Census show that the town's population of degree-qualified people aged 15 years and over is 8.63%, whereas university towns in New South Wales recorded levels ranging between 9.4% and 17.07%. Though, the level of educational qualification does compare favourably with other regional centres with a similar size population and substantially exceeds the State average of 6.6%. Perceptions of the community as a multicultural society might appear to be supported by claims that residents come from a wide range of ethnic background or by the comments of a family from Sweden that their children were not the only ones with rye bread lunches or by the number of foreign names in the local telephone book. However, debates on whether those factors represent assimilation, justified by the region's lack of ethnic social organisations, rather than multiculturalism remain ambivalent and beyond the scope of this thesis to argue.

Volunteers and service clubs

Several people commented that while there was always a shortage of volunteers, service clubs could always be relied on to contribute to the community. However, as Tom said, there was a small group of people who were always prepared to offer their services on a regular basis to church and other charitable organisations. The volunteers included retired people,

those no longer participating in the workforce and the many short-term unemployed in transitions between casual jobs. As Tom pointed out, many of the volunteers were only marginally better off than those they sought to help. While many of the unemployed volunteered their services as part of the mutual obligation conditions for their continued receipt of the Commonwealth's unemployment benefit, others from the lower socioeconomic network of pensioners and those no longer in the labour market, donated their time for the social contacts such work presents and the security of belonging to a community group rather than risking isolation. In the early hours of a freezing Monday morning, while sorting the weekend's donation of goods left outside the warehouse, one elderly man commented, 'They are nice people here, good company, and the weather ... well it'll warm up later in the day.' Turning to the others just arriving he said, 'I'm sure I saw a sofa in front of the doors yesterday, but it's gone now.' Tom replied that in a trust system, there was no way of knowing what had been dropped off and how much was taken overnight or over the weekends. He only hoped that those who took it had a genuine need and would return it for sale when they had finished with it.

According to Tom, there were active community service clubs in the town, like Apex and Lions, which generally sought membership of small business managers, administrators and trades people to contribute towards helping those in need. On the other hand, those invited to join Rotary were business owners, managers and professionals who had attained a substantial level of status in local communities and regional hierarchy. While making major contributions to the economic well being of the town and the region, few in this higher social stratum appeared willing to acknowledge that there was any class polarisation or social exclusion. When talking of the long term welfare recipients from the lower socioeconomic strata, which a few referred to as dole bludgers, many were

thankful that such people preferred to move to the coast or north to warmer and presumably friendlier climates to live. Tom related how he sought to reassure some of the region's long-term residents who expressed to him a degree of trepidation about moving to join their children in cities or regional centres. He told them it was a fear engendered by media accounts of the high level of crimes in areas of high population density but the level of crime per capita was little more than the local area experienced.

The Business Enterprise Centre

One of the most active community organisations in the region is the Business Enterprise Centre (BEC), a not-for-profit regional organisation established in the Bemeringal region for a decade. According to its Rotarian manager, Jack, it was a concept that originated as Enterprise Agencies in St. Helens, a town in the English county of Lancashire, under the Thatcher Government. Corporate business groups sought to help small businesses through the creation of an organisation called Business in the Community Ltd. The concept was brought to Australia through Rotary in Sydney when it realised that the bureaucracy of Federal, State and Local Governments had failed to develop policies that would stimulate and support enterprise development in local communities. While the centre's role is to provide advice, training and incubation facilities to new and existing businesses in the region, it also establishes norms of acceptable business conduct. Jack related one incident where a recent newcomer to the region had purchased a local business. When the businessman attended a BEC seminar some of his comments and proposals appeared to alienate the established local norms and Jack informed him, 'That is not the way we do business here.' Jack later took him to one side and explained the rules and obligations expected of businesses operating in the Bemeringal region. The Bemeringal BEC plays a major role in local enterprise development,

with the State Government funding its operation through an annual grant. The Bemeringal County Council, an electricity distributor, also provided sponsorship for the BEC and other community organisations. However, one consequence of the County Council's amalgamation with other distributors is, while the larger new electricity organisation continued to sponsor the BEC, all the other community benefits were lost. For example, the printing of circulars for community groups or simply the donation of typing paper to local charity organisations was a regular benefit provided by many county councils. With the recent announcement of more amalgamations to form even larger and more centralised electricity distribution in NSW, further contributions to the Bemeringal Business Enterprise Centre remain at risk.

A major problem for the region has been federal and state government duplication and competition, particularly when each has different political parties in power. A Commonwealth Government grant of $440,000 was awarded to the BEC for building extensions and expansion of its regional services. Many consider it fortunate that the actions of a conservative government has not cost the BEC its NSW State Labor Government funding provided for administration purposes. According to Jack, there are many instances where such duplication has continued to cause problems. When the federal government recently announced the appointment of Regional Officers, it came as a complete surprise to most local organisations and local government authorities. The Director of the Industry Development Division in the new Technology Centre told his local Federal Member of Parliament that it was madness to duplicate a service that could so easily be supplied locally by the BEC. By having an outsider come in, such an action may create problems that will have future detrimental and unanticipated consequences for the region. In Simon's opinion and that of many of the region's Chambers of Commerce and

Industry, the federal government has created a position for a person who has little knowledge of the region's issues and is nothing more than a signpost to federal schemes rather than utilise local resources. As Jack related to me when asked to outline its history, the Business Enterprise Centre's close links to each Local Government and Chambers of Commerce and Industry in the Bemeringal region were initially forged as a move toward providing regional infrastructures to encourage an environment for micro businesses to grow. At that time, there were no regional development organisations existing in the Bemeringal. Although One Tree Shire Council had a small enterprise committee, its focus and activities were kept within the boundaries of the shire. At that stage, most of the chambers of commerce and industry, community committees and organisations that existed in the region were ill managed, structurally disorganised and often counter-productive in developing quality solutions to their community's needs within a regional structure. As a first priority, chambers of commerce and industry, community committees and progress organisations were identified in each town and village in the Bemeringal region and they were then provided with assistance to reform as effective community and business development organisations involving their respective councils. The next stage was to bring together all the regional stakeholders in a forum to think about what they needed to do for regional development. The stakeholders included the region's electricity supplier, the National Parks and Wildlife Service, the three councils and their tourist organisations. According to Jack, after two years hard work, the Bemeringal Development Group was formed with, for the first time, a regional focus.

In the early 1990s, the State Government proposed a community development concept from the US, which was adopted by One Tree Shire Council for Creeks Crossing and subsequently became known locally as

Mainstreets with a permanent office at the Bemeringal BEC created from Council funds. It was a non-profit organisation bringing public and private individuals and groups together in committees to revitalise the central business district and create a more prosperous and marketable image of the town, which would then encourage residents and visitors to stop and shop. In the mid-1990s, the Chamber of Commerce and the Tourism committee in Creeks Crossing joined with *Mainstreets* to form a central body to coordinate more activities in the town and shire and, not limited to the central business district, it has now become *Creeks Crossing Unlimited.* Similar organisations were set up in other townships in the region and throughout regional NSW. There were a number of residents that spoke of the many businesses the BEC have advised and the wide range of new businesses they have incubated. The high regard in which the BEC is held was highlighted by recognition of the Centre's work in the recent grant it received from the Commonwealth Government. The grant was to build a new centre to enable the BEC to expand its resources and services in providing help to a greater number of businesses.

Women in the Bemeringal

Women in the Bemeringal region have played increasingly important roles. While the professional and business women's organisation Soroptimist International has closed its local club through lack of membership, it has left a legacy in the District Nursing Service, a Sheltered Workshop, the Peer Network at the local high school and the Hydrotherapy Pool at the local hospital. Women are active on the region's Shire Councils and four women are members of 'Creeks Crossing' Rotary Club, with one having just served a year as president. Women are increasingly involved in local businesses, either as partners or managers, owners or administrators. They made up 48% of the BEC client contacts in the year October 2000 to

September 2001 and 42% of the BEC in-depth interactions with small business enterprises. The importance of women's contributions to the region as partners, business administrators and entrepreneurs can be found in many of the region's committee networks, particularly the dynamics for regional changes in the diversification of rural enterprises, the development of tourism and new small businesses. However, the primary focus of the study was on those actors directly associated with the Bemeringal Technology Centre. The majority of those people involved in the establishment, the training and the daily administration of the Call Centre were women. These included the call centre manager, the work place health and safety consultant, the customer service representatives, the sole female member of the Board of Directors and the head teacher of the local College of Technical and Further Education (TAFE). In the course of interviewing these women, several common patterns emerged.

Most of these women had taken whatever employment had become locally available over the past decade, whatever the status of that work or whether the positions had been permanent, contract, casual or temporary, with some travelling over 240 kilometres daily to work in major urban centres when necessary. All of the female call centre personnel had previously worked in some form of business administration, they had various levels of management expertise and many had extensive experience in running their own businesses. They knew each other prior to their present employment at the call centre, some working together in telecommunication centres and others interacting in the same social networks. Commonly expressed feelings were the comfort they felt working together as a small team, in a relaxed and supportive atmosphere with a wide variety of client work. Several women had stories of gender discrimination and considered some of the local committees and organisation as boys' clubs, while most had a wealth of information about other women that they considered had attained

status in the local community and wider region. Women who had started businesses in the region, those who were perceived as dynamos in the region's community and tourist organisations and those who held positions of power were held in high regard. While the matrons of old established families and members of the Country Women's Association were accorded some deference, the greatest respect was reserved for those women who had broken into the male dominated organisations, gained degrees and entered the professions, had won seats on the Council or who had gained office in local service community organisations, such as Rotary International.

Rejecting the feminist label

While many of the women that I met in the Bemeringal half-jokingly disparaged men in general and husbands or partners in particular, few saw themselves as feminists. They described themselves as independent women, partners or business administrators, some were proud to be recognised as professionals and were considered by many of the men to be of equal status in community organisations. Most of the women had extensive links throughout the region; many had connections across Australia and some regularly corresponded with links overseas. Many of the retail and service enterprises in the Bemeringal region are owned by rural families and primarily managed by graziers' or farmers' wives and daughters. Brian pointed out some of these businesses as we walked down the main street of Creeks Crossing for lunch. Jack confirmed that in their role as administrators for their husband or the family's business, women maintain the books, answer the telephones and deal with suppliers and the customers or buyers. These women also overcame the problems and difficulties of work and family care.

As one example of this Brian told the story of a farming family that found there were insufficient funds available to cover tax, debts, and household expenses and to invest in new stock for the coming year. The farmer's wife telephoned Brian, an agribusiness counsellor, and asked him for advice. Brian informed her that as the farm belonged to her husband he could only respond to a request from him. The next telephone call he received from her was, 'Hang on! (Aside to her husband.) You tell him!' The farmer then arranged a date and time for a visit and when the counsellor arrived at the farm, all three sat at the kitchen table. The farmer's wife and Brian sat opposite one another and discussed the financial problems, while the farmer sat down at the end of the table in silence. This situation continued for nearly an hour until Brian had completed outlining the problems as he saw them and how he could help. The farmer then cleared his throat and said to his wife, 'Any chance of a cuppa tea?' While his wife made the tea and rejoined them at the table, the farmer asked for clarification on several points and began to discuss the finer details. Although he displayed an encyclopaedic knowledge of the year's expenditure and income, when asked for documentation to substantiate his claims, he reached into a kitchen drawer and withdrew a pile of crushed papers. There was not even a shoebox. Brian added that he liked shoebox files because he knows most, if not all, of the receipts will be present. Whereas, he believes the kitchen drawer is an after thought, with crumpled papers drawn from coat or trouser pockets at some later date and stuffed, unsorted, into a drawer.

Over several days, Brian set them up a cash flow budget on a computer in his office and explained the details to the farmer's wife. From then on she brought in the receipts once each month, stayed to update the farm's accounts under guidance and took away a detailed printout of the accounts. When Brian, who is also a local farmer, had first used a personal computer he had set budgets up on a generic spreadsheet. This was until his degree-

qualified secretary, a local farmer's daughter who was married to a shearer and small-hold farmer, had suggested he use a software package specifically designed for Australian farm accounting. He now recommends the use of software packages to guide farmers in correct accounting procedures and budget forecasting. After a few months, when the farmer's wife stopped bringing in the receipts, he assumed that she had given up on keeping a budget. However, he met and spoke with her at a sheep-dog trial and found that she had bought a microcomputer system with the same farm accounting package he used and, by following the software guide, was doing it all herself. Further more, she had attended a course at the local College of Technical And Further Education (TAFE) to learn about personal computers, word-processing, farm accounting, Internet access and the use of email. She now had online access and an account with one of the local Internet Service Providers (ISP). When Brian later ran a seminar on accounting for the General Service Tax (GST), the mother and daughter were there. 'The old boy had sent his wife along to learn what to do! So things are changing and the young ones are working smarter.'

Women's innovations

Jack, Terry, Norman and others pointed out several examples of women's innovations in the region. Farmer's wives have banded together in the locale of Border, a remote corner of the region, to grow and produce lavender products. Apart from one of the women persuading her husband to donate a ploughed paddock in which to grow the lavender, it is primarily a women's collective that has grown to host several national lavender growers conventions. They are now known among farmers in the region as 'The Lavender Ladies.' An equestrian school with accommodation, a black truffle seeding project and many of the 'farm stay' holiday projects are additional examples of the rural women's innovations in creating viable

options for regional diversity. Women have also created new enterprises in towns across the region. One example is Robyn, a farmer's wife, who obtained a degree in Vocational Rehabilitation studying part-time while working full time as a corporate executive's personal secretary and was then promoted to a position in occupational health and safety in the Corporation's Human Resources section. Her work colleagues, both male and female, called her a feminist when she refused to join with the other women and serve coffees to all the men in the office, rather than only for her boss. Some gossiped about her relationship with her boss when she obtained her promotion. However, more importantly for Robyn, was the failure of all those she worked with to acknowledge her degree or treat her as a professional, including those higher up in the corporate hierarchy. Robyn asked to be able to practice her new profession on a part time basis while still employed full time with the corporation. She was told that it was possible as long as she did not do so during office hours, she did not use office facilities or resources and she did not take on other employees of the corporation as clients. For Robyn, this stance implied that she lacked the integrity to separate personal and business interest, which was an important issue to her, so she left and built up her own business as a consultant. Thanks to her degree, she is now part of the region's professional network and is consulted by doctors, lawyers and managers throughout the Bemeringal region, with links stretching as far as major urban centres on the coast. Apart from their initiative, gender and determination there is one other aspect the above women have in common, they are all recipients of business enterprise training and advice from the Bemeringal Business Enterprise Centre.

Creating the Technology Centre Initiative

A history of the creation of the Technology Centre was constructed from many sources including many of those people initially involved with the original idea for the project. Briefly, the concept began in June 1998, when the local correctional institution (built in the early 1870s) was closed for the second time. The first time it closed was at the beginning of the twentieth, because of the high cost of provisioning and staffing of such a remote facility. The facility reopened in the 1950s to house a new classification of prisoner declared in 1949, 'the homosexual'. According to Terry, Jack, Van and other community leaders questioned on the history of the community technology project, the latest closure followed extensive lobbying, community protests and agitation lasting almost two years to save some 30 jobs but to no avail. As a result, the New South Wales State Government provided a grant to Council of $50,000 per annum for two years for the employment of a Regional Industry Development Officer (who was subsequently appointed and will be discussed below). The decision to locate the regional development office in the BEC and have the officer report to the Regional Development Committee (RDC) rather than Council was to avoid local government bureaucracy, which Jack believed was detrimental to business development in general and the regional focus in particular. The grant was to compensate for the loss of what many saw as a major government institution and a further decline in the town's economic viability. Further loss of employment opportunities in the ancillary services partly dependent on the institution followed the closure. For example the demand for overnight accommodation, media, medical and legal services were all affected, as was the local provision of consumables. In addition, Norman explained that the Shire Council was anxious to ease the economic problems of the region's farming sector caused by low commodity prices and the nearly decade-long drought by providing

employment opportunities for off-farm income. The availability of off-farm income was a concern repeated time and again by many of those I spoke with. These were some of the issues to be addressed by the successful applicant for the redevelopment position from a desk in the BEC, although separate from the centre's operations. The RDC had previously considered establishing a call centre to advertise and market the skills and experience possessed by many members of the local community in the specialised areas of management, engineering and information technology for national and international projects. This was an attempt to provide income for members of the local community left unemployed by the economic restructuring of several major local corporations and the recession of the early 1990s. A small call centre of the national telecommunications company, Telstra, was already operating an Operator Assistance Service in the town of Creeks Crossing with a capacity of nine seats. While the Committee decided not to proceed with the project, it had gathered a substantial amount of data on the burgeoning call centre industry. This data was later to be useful to the Regional Development Officer in development of the Bemeringal Technology Centre project.

The Regional Development Officer

When Paul was appointed the Regional Development Officer, he and his wife moved into Creeks Crossing where he enjoyed early successes in the identification and facilitation of a number of small community projects. He then met Carol, who was later employed as the Call Centre Manager but at the time was a casual customer service representative at the local Telstra call centre. While advising Carol on the feasibility of a new personal business venture she was considering, Paul became interested in her then current employment and the possibilities of a Community Call Centre to provide local employment opportunities. At that time, call centres were

being heralded worldwide as a source of employment for depressed regional areas with suggestions of the mutual benefits for call centre employment in rural-regions of Australia. According to Jack, the Development Officer was therefore given access to the research data on call centres already obtained by the BEC. Paul's vision was to form an independent; community owned (at least in spirit), professionally managed and adequately resourced Development Corporation to avoid the deeply entrenched attitudes and sectional interests he saw simmering under the veneer of friendly country towns. First, he had to obtain government grants or corporate funds to restructure an existing business or attract a new enterprise to the region. This was to act, in Paul's words, 'as a bolt-on cash cow' to cover the long-term core expenses of the development corporation in developing small business enterprises that would form a support cluster around this core. He believed that in the Bemeringal region an engineering business, or an educational, agribusiness or health food export consultancy would have worked just as well given the relatively high level of human capital in the region at that time. However, the concept of a call centre established by Federal funding from the recently announced *Networking the Nation* initiative appeared to Paul as a logical choice to provide ongoing support for industrial development and the enterprise most likely to successfully gain government funding.

The Regional Development Officer effectively lobbied the local Member of the House of Representatives, who had regained his seat in the Federal Parliament by a small margin of votes. Indeed, most of the regions inhabitants made similar comments about the major advantages to be gained for the region in the marginal nature of its State and Federal electorates. While the Federal Electorate is smaller than its overlapping State counter-part, which extends further north, it is claimed to be as large as some European countries. Both of the electorates are considered as

"litmus" electorates where the political party that wins power in the local electorate, tends to gain government in the State or Federal Parliaments. In Simon's opinion, the negatives of this situation are to be found in the rival claims of local successes, the duplication of governance and interventions in local issues from both State and Federal branches of the major political parties seeking to gain electoral advantage. According to Terry, the Development Officer tried several times to obtain funding. His first application was rejected because the Department of Transport and Regional Services (DOTARS) said they could not fund a profit-making call-centre enterprise. In his second application, Paul emphasised that the call-centre's profits were to support the technology development centre. DOTARS said the project had to be regional and not for a single community. This was the reason Forest and Clearwater Shire Councils were included in the successful proposal to nominally present a regional focus. In the negotiations, there was a commitment from the local Member of the House of Representatives (MHR) that a major contract from a Commonwealth Department outsourcing its Human Resources teleservices operation would accompany the grant. A grant of $1.65M to One Tree Shire Council was finally secured in the annual budget for 1999/2000 from the *Networking the Nation* fund to provide a pilot model for regional development. Shortly after the grant was secured Paul and his wife departed Creeks Crossing.

When questioned, many of those involved with management of the project at the time agreed that Paul was liked and had performed well as the Regional Development Officer. His intention to use the Bemeringal Technology Centre to develop, sustain and facilitate regional businesses through the application of information and communication technologies to develop e-commerce opportunities appealed to many community leaders. In response to questioning the circumstances of his leaving, most said they had been surprised at his departure and could not provide an answer.

However, Van, Norman and Terry ventured that tensions had developed between Paul and those critical of his lack of acknowledgment of the contribution of others and his use of commercial-in-confidence to prevent open discussion of business development proposals. Of particular concern for Jack was the contentious issue of whether Paul was an employee of the committee or retained as a consultant. Jack's major criticism that was echoed by other members of the Board was Paul's lack of a business plan based on valid market research and knowledge of the Customer Service Industry. Although Paul had been generally expected to become the Bemeringal Industrial Development Director, he wrote that he and his wife felt that their so-called friends had turned on them as outsiders and when Paul's contract expired they returned to their home in the north.

The implementation of community technology

In the meantime, a Call Centre Committee was formed to manage the implementation of the community technology project. A business case report was locally commissioned in September 1999 by the Call Centre Committee to assist them in their decision processes. The report's evaluation of the customer service or call centre industry found strong growth potential, although accompanied by tightening margins and increasing pressures on the industry in Australia from corporate moves offshore to countries such as India. The report highlighted the risks of opening without a government contract or strategic alliance and the problems of trying to enter a competitive industry without experience, with no track record and without human resources based on a record of skills and performance. In stating the specific advantages for the Bemeringal region as a community technology centre location the report said:

> With the serious downturn in the wool commodity market, many farms are seeking off farm income, often for the younger generation wanting to return to the farm but needing outside source income. The base of farmers, spouses, sons and daughters would provide a well-educated source of skills to provide rural based industries.
>
> (See Ref. 5 in the Confidential Appendix)

While the report followed the general aims of the original project proposal, with a call centre creating sustainable jobs and funding regional industrial development, it differed in one vital aspect. The objective of the centre was to create jobs. However, the report considered that if the people to fill these jobs must be imported into the community then it was as effective as providing additional employment options for the local inhabitants. This placed at risk the projects primary objective of providing opportunities for local off-farm employment and, while acceding to the interests of the town's Chamber of Commerce in providing a larger customer base for existing businesses; it assumed a multiplier effect of increased economic activities would provide greater local employment opportunities.

The Bemeringal Technology Centre was subsequently established as a company, limited by guarantee, with the number of shareholders capped at twenty. A board made up of seven members voted from the company's shareholders manages the company. Of the seven members of the Board of Management three were initially reluctant but later agreed to be interviewed, while two never found the time due to business commitments. These two had businesses in other regional centres and divided their time between those branches. All of the Board are members of Creeks Crossing's Chamber of Commerce; the six males are Rotarians, three of them Councillors and one the Shire Council's General Manager. The sole female, Kathleen, is the manager of the local branch of a major NSW retail chain and, while a recent appointment to the Board, is adamant that she is not a token female. Our interview was conducted in a local coffee shop on a bitterly cold winter's evening after the close of her long business day.

When I asked Kathleen how she had become involved with the Board, she briefly related how she and her husband had moved to the region, how she had become employed in call centre work with the regional electricity supplier and her later retail management experience. The story she relates of her involvement with the Board is:

> I have been aware of the centre. I'd been to a couple of business meetings where the Board had actually come up in the discussion. And I had become interested from my call centre experience and joined the company. And - at the Annual General Meeting - I nominated to become a Board Member and got elected. I was involved in very little of the community groups at the time so - I - ah, got involved there. ... I've lived in [Creeks Crossing] for a while and became involved and fairly active in the business networks, I believe networking is important to surviving in this town. I have become involved with the *Mainstreets* committee and done a lot of networking through that and then a lot of networking through TAFE.

Kathleen is the only board member with any call centre operations and management experience. She advises on call centre operations and is the interpreter for the more complex Customer Service Management industry terminologies and concepts. Kathleen taught the Teleservices (Telephone Consultant) – Certificate II course at the local college of TAFE in conjunction with Carol Hibiscus, who was later employed as the Call Centre Manager. The Industry Development Director is a member of Rotary and serves on the *Mainstreets* committee of Creeks Crossing. He was enticed out of semi-retirement to take up the position by fellow Rotarians on the One Tree Shire Council, in the region's numerous Chambers of Commerce and the Bemeringal Enterprise Centre. However, the story he tells is that his wife, who worked for the National Parks and Wildlife Service, was disgruntled at continually seeing him drive past her into the National Park while she was working and told him if he had so much free time he should get a job. He agreed to work an average of three days a week so that he could continue to develop his rural property and tend to his livestock. On the other hand, the Call Centre Director is a long-

term resident of the town who was chosen from a number of applicants for the position. While not a member of any community service organisation, he is a member of the Australian Computer Society and a family man active in church, choral and charitable groups. Therefore from its inception, the Bemeringal Technology Centre organisation had people with wide experiences and depth of knowledge in management, administration and marketing in a variety of fields encompassing hospitality, information and communications technology, the media, customer services and bureau work. In the early stages there was only the call centre manager with any experience in the teleservices or call centre industry. In spite of this lack of industry knowledge, it was generally believed that many of the local unemployed could be trained to make good customer service agents.

Teleservices training

When Council informed the head teacher of the local TAFE College, Rosemary, that there was to be a large call centre of up to 120 seats established in the town, she obtained a grant to set up a mock call centre and, using her community network, recruited the teachers to provide a basic teleservices training course. The media publicity and community optimism generated an enthusiasm that ensured full enrolment for classes and over ninety students were quickly trained. The Bemeringal Call Centre has employed few of those students, although the customer service component of the course has enabled those who were unable to secure call centre employment to find positions in other retail and service sectors. However, many of these positions were located in other regional and metropolitan centres outside of the Bemeringal region.

In discussions with members of the Board, technology centre management and Council staff, I was able to piece together the following development

of the community technology project. The application for a grant from the *Networking the Nation* fund was successful and the final stages of obtaining the government contract looked set to proceed. In the meantime, the Minister of a Commonwealth Department intending to centralise its Human Resources Teleservices had taken steps to place the teleservices centre in his Queensland electorate and had gone as far as contracting his local college of TAFE to provide the training. When the Prime Minister stepped in and informed the Minister that he had personally promised the department's call centre to the Bemeringal region, the Minister protested that for security reasons, only members of his department could staff the call centre. Therefore, a call centre for the Department was built in Creeks Crossing with some of its staff transferred from other regions at an estimated cost of $30M. According to Rosemary, the Commonwealth Department had still retained its contract with the Queensland TAFE College to provide continuous training for staff at its new call centre, flying in teachers from Queensland when required rather than taking advantage of the facilities and experience of the local TAFE. While this situation may change when the contracts expire, at the time of the study two federal electorates were benefiting from the Commonwealth Department's central call centre. The Creeks Crossing Campus of TAFE offered the teleservices course again in 2001, however, no students enrolled. The reason given by Rosemary is that those who have studied a course at TAFE only to find no local employment in that area, in her words, 'use a community pipeline to inform others in the region and people stop enrolling in that particular course'. In 2001, there was a marked downturn in enrolments for most courses at all the TAFE campuses in the region. Nevertheless, Rosemary said there was a large demand for courses on personal computing due to the opening of the Bemeringal Technology Centre and community perception of the importance of information and communications technology. Therefore Creeks Crossing College of TAFE ran a series of personal

computer, email and Internet courses for mature and senior citizens to learn together at their own pace, away from the intimidating presence of young students. The levels of attendance and enthusiasm were high among both town and country people for those courses. According to Rosemary, at the end of the courses they had gained such confidence and ability in the use of personal computers that many have since installed a personal computer at home and many have connected to the Internet.

The Call Centre Division

The promised Commonwealth Department's call centre contract did not accompany the grant for the Bemeringal Technology Centre project. However, it was hoped that they would still obtain some work from the Commonwealth Department's call centre, which had subsequently been built across the car park from the Bemeringal Technology Centre. This did not occur and the Bemeringal Call Centre began its operations with only a few small local survey contracts for its six full-time teleservices representatives, a top-heavy management structure and the unanticipated expenditure to solicit further work contracts. Before the start of the field study, Larry and I had a lunchtime meeting in the city to discuss the research study and methodology. To my question of what problems were experienced in the implementation of the call centre, Larry's response was that the consultant had failed to fully complete the installation, set up and hand-over of the Bemeringal Call Centre. He found that the documentation of computer operations was inadequate with none of the safety standards or recovery procedures clearly defined. Neither was the security of call recording tapes, data backups or operational safety measures implemented. Local companies were employed to correct these omissions at additional cost. When commencing the fieldwork a few months later there were reports that the Bemeringal Technology Centre had nearly expended its

grant monies and if it did not secure adequate contracts shortly it may have to close. The changes that had occurred in the arcade since the opening of the Commonwealth Department call centre and the Call Centre Division of the Bemeringal Technology Centre were remarkable. Many of the shops were occupied and open for business, including a new clothing store, a community art gallery and a church based employment agency, while the café had expanded outside into a courtyard area. The couple that owned the café were post-war migrants who had bought a grazing property north of the town and now raised Angus cattle. The husband complained, while broadly smiling, that they were often so busy now the Commonwealth Department call centre and the Bemeringal Technology Centre had been built that he spent more time in the café than he did on his farm. His wife beamed while commenting that she was happy with the increase in trade, saying she made twice the number of scones and muffins than she ever did before both call centres opened. The arcade was busy by lunchtime every weekday and the café always appeared to have several customers.

The opening of the Bemeringal Call Centre

At the commencement of my field study one of my main informants was Carol, the Call Centre Manager. A long-time resident of the Bemeringal region, she had at one time owned and operated a motel in the shire. My interviews with Carol provided the background and the historical data of the Bemeringal Call Centre's conception, establishment and current operation. She also provided introductions to many of the women contributing to the centre's establishment and involved in the community's networks. Carol observed that the Commonwealth Department's call centre had an official opening attended by the local Member of the House of Representatives (MHR) accompanied by government officials, Council representatives and representatives of the Rural Press. In contrast, the

Bemeringal Technology Centre quietly opened without ceremony, fanfare or publicity. The Call Centre Director, who was also performing the functions of marketing manager, had managed to secure twenty-nine small short-term contracts and one small but long-term contract over the first twelve months despite having no marketing training or experience. According to Carol, his achievements were remarkable given that he had no knowledge of the customer service industry, was unfamiliar with the terminology and was expected to compete against young, well trained, marketing representatives from large, private sector, customer service organisations. As Carol noted:

> I've got a marketing background but I'm a mature aged woman and the call centre industry is a very sharp, very narrow industry. We need a sharp new look – we've got a sharp new centre! This (indicating her physical dimensions by drawing her hands down the sides of her face and torso) is not the best image to go out marketing a customer service centre. If I'm not the best marketing image that puts Larry a fair few steps behind.

Larry and Simon had always dressed in smart suits whenever we met and they had impressed me with their sartorial elegance and professional image so I can only surmise that Carol was commenting on Larry's mature image and his masculinity. In spite of criticisms, Larry had managed to quickly define the centre's market advantages for rural surveys and communicating issues perceived as rural by regional and metropolitan clients. The first long-term contract Larry negotiated was to take over the teleservices of a Regional Waste Board that had become dissatisfied with the services it was receiving from a large metropolitan call centre. The design of the Waste Board's database, supplied with the contract, did not meet the quality Larry required for the Bemeringal Call Centre's operations. It was therefore replaced by a locally written database, which was so well received by the client that the centre was able to expand its client base with other Regional Waste Boards. The Bemeringal Call Centre still retains a 50% interest in the database. The quality of the centre's service quickly spread by word of

mouth throughout the State of New South Wales. These recommendations were supported by written testimonials with many of the smaller contracts that provided a source of repeat business obtained from previous work. According to Carol and Larry, the reputation of the quality of service available from rural call-centres had also begun to reach urban and metropolitan regions through articles in the customer resource management press.

The Call Centre's initial period of operations with only a few small local contracts available meant that there was an extended period of staff working regular hours. However, when more contracts were signed and the workloads began to increase many of the six permanent call-centre staff felt disinclined to work the extended and flexible hours that were the condition of their contracts. According to Carol, the earlier extended periods of training and under-employment had changed the enthusiasm levels of the younger employees and created tensions from the 'hangovers and hormones' they brought to the workplace. Eventually, after a two months delay, the Call Centre Director gained authority from a reluctant Board of Management to retrench all but one of the Customer Service Representatives. They were dismissed on the grounds that their availability and their skills no longer matched up with the work requirements of the centre. However, the sackings were reported in the local press without giving any reasons for the retrenchments. Their replacement by a greater number of casual workers was not reported. As Carol said, 'That was seen as "They're in financial strife" and at that stage we weren't.' A pool of twenty casual Customer Service Representatives (CSRs) with a range of skills replaced retrenched staff, some of the new staff were telesales people, some customer service people. In general, they were more mature then the original staff, they were all experienced and had no problems working flexible hours, depending on the availability of contracts and skill-sets

required. In response to my query Carol was quick to assert that there was little difference between the skill-sets or performances of the customer service agents based on gender. However, the women generally seemed to prefer inbound call work whereas the men seemed to favour outbound survey work. The Bemeringal Call Centre did not handle cold selling, telemarketing campaigns and thus avoided the most stressful type of work.

An Australian distribution company that specialised in the supply and maintenance of call centre systems supplied the information technology and telecommunications system installed in the Bemeringal Call Centre. The American based company that provided the call centre platform and management system was at the time a leading global provider of multimedia customer service and management technology. While the consultant employed to design and implement the call centre was a customer service centre specialist, it appeared she had little experience in information technology installation or systems implementation. The Bemeringal Technology Centre management claimed that she failed to provide sufficiently comprehensive backup and recovery procedures for the computer system, she failed to provide alternative methods for services in the event of a loss of the computer system or telecommunications and, finally, she failed to provide adequate procedures, documentation and arrangements for invoking those alternatives. As a result, the Bemeringal Call Centre management contracted local companies to provide these essential requirements, thereby incurring additional unforseen costs

Although the Bemeringal Call Centre hardware, operating system and communication system is considered an industry standard convergence of computer and telephony technologies, the integration of hardware, software and human components in a system always presents unanticipated problems. Early in the Bemeringal Call Centre operations there were

several system "crashes" that caused some concerns and frustrations in a mission critical environment. Following several updates of the application software, the problems appeared to have been corrected. One of the members of the Board of Management, Len, considered that the call centre technology was fairly simple and the software systems easy to follow and wondered why some people appeared to make it any more complex or problematic than answering a telephone while operating a personal computer. Len was a local businessman in the hospitality industry who had recently moved to the town with his wife and young children. He enjoyed the lifestyle that the Bemeringal region offered and had left a sales career in a major metropolitan area. Len quickly became involved in several of the community's service organisations, maintaining that networking was essential in a small rural town. He appeared to have little understanding of call centre work or appreciation of the problems and stresses involved in its operation and shared with others in the business community the same attitude towards community networking and a similar lack of knowledge in the work of Customer Service Management (CSM) systems.

The consensus of call centre staff was that few in the community knew of the Bemeringal Call Centre's existence, confusing it with the larger Commonwealth Department call centre. Even fewer members of the general public appeared to know of the skills and abilities teleservices work involved, including many of those who had contributed to the original decisions for the project and the Centre's Board of Management. This last factor has, in part, been corrected by inviting Kathleen to join the Board. Apart from the requirements for high levels of keyboard skills, call centre agents are required to have highly developed personal abilities in communication with customer service and conflict resolution skills and a capacity to learn new tasks and concepts quickly. The skills include attributes of clear speech and enunciation with a good tone of voice, an

ability to demonstrate enthusiasm and professionalism while quickly establishing a good rapport with the person making the call. Other essential skills include maintaining control of the pace and direction of the conversation, while actively listening to gather complete and accurate information from the caller to provide an understandable response within the level of the caller's knowledge. It is likely that the essential skills, personal qualities and maturity required for such work may only be found among those with more formal education, rather than among those of the general public looking for work in rural regions. The above key resource areas are measured for quality by monitoring a series of calls and evaluating the agent's performance for a monthly coaching and development session with their team leader. While the CSRs are expected to quickly gain sufficient knowledge of the client's business to answer customer's queries they are assisted by a 'Question and Answer' database. The questions and answers are entered as part of the preparation for each individual campaign or contract and selected staff are familiarised with the client's business aims and objectives. If the call appears beyond the service representative's ability to answer, requires an extended response time or follow-up action, it is referred to the more experienced members of the team or their supervisor who is able to take over the call whenever necessary. Call answering responses change for each client or campaign and therefore specific text prompts are presented on the desktop of each representative chosen to engage in specific jobs. The selection of which representatives to involve in taking the calls depends on the skill-set of the individual agent and is activated by the call routing defined in the individual representative's log on. This enables the operator to navigate the system and simply follow the specific text defined for each separate call response if necessary. While the emphasis is on providing a high quality of service to the clients' customers, the financial viability of the centre is dependent on agents conforming as closely as possible to the cash flow

model of a 3-minute call, 30 seconds of call administration and a 30 second break. The Bemeringal Call Centre's cash flow model is far more benign than its metropolitan commercial call centre counterparts. According to the agents, while there are always peer pressures to improve and maintain personal performance, in the Bemeringal call centre advice and assistance is normally given and received in a friendly fashion.

The Bemeringal Call Centre CSRs see the adverse reports in the media of a 'galley slave' electronic pacing of calls as simply ensuring the financial viability of the centre, while they believe automatic call distribution is the sharing of workloads according to skills and experience. However, media reports of so-called 'toxic' workplaces, where staff churning can be as high as 100%, are not considered by the agents or management to apply in the Bemeringal Call Centre. Carol had worked at the local Telstra centre on the Operator Assistance Service with Larry's wife and hated it because it was only based on productivity. As she said, 'The reputation of Telstra call centres is shocking, horrendous, the community hates them.' Since the initial retrenchment of five of its six original staff the turn over of staff has been around 1%. The retention of staff is a salient point in supporting the notion of a rural work ethic for marketing the Bemeringal Call Centre. The monitoring of calls is defended by most of the Bemeringal Call Centre staff as a means of quality control by providing the necessary feedback to CSRs as a way of improving personal performance and therefore the centre's viability. Customer service representatives are evaluated on a monthly basis and must complete an Action Plan set in consultation with their supervisor. This plan is based on an evaluation of performance against specific criteria of quality assurance, control of calls and customer service efficiency, which determines the representative's rating for that month. Standard call handling may alter for each campaign or customer contract and specific training to highlight the needs for particular jobs is provided to

the representatives. Up to forty jobs may be run at any one time, although this number has never been achieved in the short history of the Bemeringal Call Centre. Nevertheless, the CSRs confirmed that they enjoyed being able to help the client's customers and they appreciated the variety in their work that a heterogenous client base provides them.

While there are no longer any male teleservices agents employed at the Bemeringal Call Centre, I was told that it was not for any perception of their lack of teleservices skills, but because they were able to take outdoor work. Sarah voiced the general feeling among the remaining call centre agents and, in their opinion the wider community, that women should not be expected to take outside work. This may be a status rather than a gender issue, because Council employs women for outside work and many farming families expect female members to help with whatever work is necessary. Indeed, one of Council's female gardeners raking up leaves in a local park on a freezing winter's morning cheerfully offered me her rake so I could get warm. Most of the Call Centre's agents are farmer's wives or daughters and, as Carol stated, they tend to be either the young looking for a career or the mature nearing retirement. Another agent, Susan, said that working at the call centre gave her more leisure time than she ever had in the past. She said she had worked four part-time business administration jobs that were spread over seven-day-weeks before attending a course at TAFE and gaining her current employment in the call centre. Although single, she said had never considered moving to the city for work as she enjoyed working on the family farm and would miss her horses too much. Another agent, Elsie, a farmer's wife and a 'local girl' originally from the town, said that her much older husband was selling the family farm to retire and they would then move into town. Elsie appeared to be a very reserved person, had attended university and worked as a secretary with the NSW Farmers' Association. Elsie believed the call centre work had given her the

confidence and skills to work in any customer service position in the town should the centre close. All agreed that the only locally available work for most people before the call centres opened in the town was casual and seasonal work, unless they were fortunate enough to obtain permanent part-time work. For women, part-time work was the norm in the region and those positions that were permanent rarely became vacant or were advertised. All of the women knew each other before being employed in the Call Centre and felt comfortable working together in a small group that also provided a supportive environment for the stresses of teleservices work.

Most of the Board of Management recognised that the Bemeringal Call Centre required larger, longer-term contracts if it was to survive and therefore, marketing and negotiations continued throughout the time of my field work in attempts to secure contracts with other Commonwealth and State Government Departments and instrumentalities. However, in government, media and public perceptions the region's MHR has delivered on his commitment to provide a community call centre for regional development. The Commonwealth Department's call centre has already brought more people to the town and provided over one hundred jobs; some from the local pool of TAFE, trained Customer Service Representatives. While the Council recognises the benefits the Commonwealth Department's call centre has brought to the town, Norman confirmed that its tenure remains dependent on Federal Government largess and that it may only survive until the next change in outsourcing policy or advance in teleservices technology. A situation similar to this has already occurred with the long-term contracts negotiated by the Bemeringal Call Centre with the New South Wales state-wide network of community waste boards, promoting and advising on the ecological use of worm farms and compost bins. The NSW State Government made a policy decision to

centralise control of all the community waste boards to a State environmental authority based in a Western Sydney electorate and therefore, the Bemeringal Call Centre contracts were to be terminated at the end of the year. The Call Centre Director continued to pursue State and Federal Government contracts until he succeeded in negotiating a long-term contract to ensure the survival of the Bemeringal Call Centre. He has now stood down as a director and has left the Call Centre Manager to operate the call centre with its remaining pool of female casual, on-call agents.

The Industry Development Division

The self-sustaining symbiotic relationship between the call centre and the industry development divisions of the Bemeringal Technology Centre was detailed above, with the call centre division providing funds for regional industry development. The Bemeringal Industry Development Division had a part-time Director, Simon, working a three-day-week whose main task was to facilitate information and communication technology for community, industry and business developments and thus provide employment opportunities and Internet access to national and global services for the region. Simon's first objectives were to create a current regional business and services database, accessible through an Internet website, to encourage the use of email communications and the connection of all businesses, institutions and organisations in the region to the Internet. Call centre staff initially used the 'Yellow Pages' telephone directory to contact and verify each entry listed and to update the details of those remaining in business. According to Simon, the telephone directory proved to be outdated and therefore highly inaccurate. However, it provided a starting point for a basic directory that could be verified and updated with information obtained from the Call Centre's telephone campaign and the

region's Local Government Authorities and Chambers of Commerce. The next stage was to persuade local small to medium enterprises and organisations to sign-up with an Internet Service Provider, connect to the Internet and provide e-mail or web site addresses. This endeavour succeeded in registering 1,440 regional businesses, 709 (49.2%) with email addresses and 240 (16.7%) with a website.

The Board of Management, the One Tree Shire Council and the Creeks Crossing Chamber of Commerce envisaged Internet access would ultimately provide global e-commerce opportunities for businesses in the region. However, when asked whether they had read the current reports on e-commerce and the region's level of Internet access to open our discussions, the responses were either negative or evasive. There were evidently some reservations about discussing the possible benefits mentioned in the reports as well as a number of negative findings of e-commerce for the region or they had indeed failed to read the relevant reports. Had *The State of the Regions, 2000* (NIEIR and Australian Local Government Association. 2000), or the National Office for the Information Economy's 2000 report on *E-Commerce across Australia* (NOIE 2000) been studied by any member of the Shire Council, the Board of Management or the region's Chambers of Commerce, it would have been interesting to gauge their opinion of the estimates. In *The State of the Regions, 2000,* (NIEIR and Australian Local Government Association. 2000) for example, the report estimated that e-commerce would create a $5M loss of sectoral activity in agriculture and a $15M loss in retail by the year 2010 for the statistical division that includes the Bemeringal region.

The NSW and Australian average for all metropolitan and regional businesses connected to the Internet with a website was around 16%. When the poor access speed, reliability and availability of regional

communication infrastructures was compared to that of metropolitan and other regions, the achievement of such a high take-up over a period of one year in the Bemeringal region was impressive. Although the number that were connected to the Internet before the project began proved difficult to obtain, many of the small to medium size enterprises in the town were already using personal computers to manage their businesses. Many now had access to the Internet and can be easily contacted by e-mail. Conversely, several local business people began to complain that they received a large volume of e-mails, many of them unsolicited. In some cases these complaints may simply be a way to inform others of their connection to the Internet. In other cases, complaints about the level of unsolicited email, or spamming, is entirely justified and with the slow line speeds experienced in rural regions preventing any productive use of email and severely impacting on Internet access. However, the majority of the local business people on the Internet recognised the potential benefits of online ordering from their suppliers, of being able to track their orders and of paying accounts online. While few local businesses have taken full advantage of all the Internet facilities available to them, there are several public Internet access points in the region. In the main street of Creeks Crossing the newsagency has several workstations in a side room and there is another at the entrance to one of the town's central cafes. According to the proprietors, school children, itinerant workers and tourists are the main users of the Internet access points. Clearwater Shire has extensive public access Internet computers in the resort shopping centres for the use of visitors. All three councils of the Bemeringal region have web sites and can be contacted online, although few of their staff are allowed to access the Internet at work. The Community Technology Centre in Creeks Crossing appears to be unique among the businesses in the Bemeringal region in allowing staff free access via an Internet kiosk. Some of the local light-manufacturing industries are using the Internet for online research to

provide a more targeted marketing of their services and products. A few are already gaining recognition for their specialised products and business skills interstate and overseas, generating a number of business inquiries through their Web sites and entries in the Regional Online Directory.

The Regional Communications Forum

In May 2001, the Commonwealth Department of Communications Information Technology and the Arts (DoCITA) held a two-day regional communications forum in Canberra. The Forum attracted many of those participating in the development of regional communities, including the Bemeringal Technology Centre's Industry Development Director. There were people from local government authorities, non-government organisations (NGOs) and community organisations throughout Australia to listen to the presentations and engage government communication agencies in interactive sessions. A number of displays were available in the foyer each day and there were sponsor presentations during the lunch breaks. Simon was particularly interested in the wireless technologies of Virtual Private Networks (VPNs), which he said was under consideration to provide a more regional focus for the Bemeringal Technology Centre. He had already investigated Telstra's satellite communications as a means to overcome the problems of providing an economic broadband, high-speed telecommunication infrastructure for the scattered communities across the Bemeringal. The topography of the region ruled out the use of an infra-red network because of its line-of-sight requirements and fibre-optic cable networks were too expensive an option given the region's distances and sparse population. At the time of the study, only an expensive but limited broadband, one-way satellite communication was available in which download speeds were up to 400Kbps while upload speeds were still tied to the speed of the telephone lines. Simon planned to implement a VPN and

said he was willing to wait for the implementation of two-way satellite technology for the region's telecommunication requirements. He believed that this would eventually occur when the private sector saw a market advantage in the federal government's policy on competitive telecommunications and the full privatisation of Telstra. At times the forum delegates appeared to be outnumbered by the representatives of Information and Communication Technology companies peering at the delegate's badges to identify potential customers, which fortunately made it easier for me labelled as a non-customer and therefore not a person of interest, to negotiate the often-crowded foyer. While the forum provided some good network opportunities, delegates generally appeared to gain little additional information from presentations that was not already covered in the forum's extensive program literature. However, the interactive sessions with the panel at times introduced much interest and intense debate into the proceedings. Simon, like many of the other delegates, found little to change their opinions about Telstra's poor performance in rural areas.

In informal conversations with some of the delegates from around Australia, including those that I had known for several years, many expressed doubts in the honesty of the presentations. They dismissed many of the statements made by commonwealth departmental staff as out-of-touch with regional issues, by telecommunication companies as merely sales rhetoric and by politicians as ideologically based and in their electoral interest. Several delegates expressed outright anger at the ignorance displayed of the realities of working with inadequate regional and remote telecommunication infrastructures. However, most of the criticisms and anger were reserved for Telstra. Examples included the frustrating experience in taking four hours to send an email with one black and white photograph from Crookwell to Canberra due to constant line drop outs,

poor quality connections with inadequate line speeds and bandwidth. Indeed, one person quipped that regional Australia was protected from the potential evils of the Internet and the wilds of cyber space by precarious connections, abysmal speed and lack of bandwidth. The anger generated by the statement made by DoCITA's Minister that a line speed of 19.2 kilobytes per second (Kbps) was fast enough for most Internet uses, when 56Kbps was common in many urban areas, echoed for weeks in the Regional Forum network. (See Appendix H: Extracts from the Regional Forum group.) While much of the forum's communications focused on the political, economic or technical natures of problems in rural regions, they provided insights into the social uses of Information Technology for everyday life in the country areas. They also reveal the many different interests, views and priorities in networking the nation. It was purportedly the high volume of unsolicited emails or 'spam' received by subscribers to the Regional Forum that finally forced the Commonwealth Department of Communications, Information Technology and the Arts to close the group down, effectively silencing regional voices. Although the Regional Forum network has now reopened, few people have been willing to subscribe to it again.

While Simon had hoped the Bemeringal Call Centre could have obtained more business he realised that the creation of the Centre was purely a political move. He insisted that this sort of activity was not restricted to any one particular political spectrum in the Bemeringal region. In support of his argument, Simon related a tale of a Councillor with links to the Australian Labor Party, who had rejected a Regional Transaction Centre in his community because of perceptions that it would benefit the National Party candidate's chances of re-election to the Federal Parliament. As part of Simon's move towards the development of e-commerce in the region, he applied for and received a grant of $76,000 from the Department of

Transport and Regional Services (DoTRS) to facilitate a regional Rural Transaction Centre Technology Review. This review was in preparation for a project Simon was proposing that would provide the regional infrastructure for a Virtual Private Network of Regional Transaction Centres. It was proposed that the Regional Transaction Centres would not duplicate existing or planned community services but ensure access to financial, government and tourist facilities. Simon was proposing to have multimedia and video conferencing facilities based in the Clearwater Shire with the Private Network operating in conjunction with the Bemeringal Technology Centre. However, among the major problems that remained to be overcome were the target audiences to be clearly defined and the multimedia contents to be formulated. This left open questions of where the regional customer-base would come from, whose interests would determine the content and purpose of the facilities, and what organisation would supply the required products and at what cost. Preliminary enquiries about Simon's idea to involve universities in providing a virtual campus foundered on commercial aspects and the closure of the Bemeringal Development Centre.

Whereas Simon envisaged that some universities, the region's local government authorities or state and federal governments might initially make use of the facilities, in the long-term it was hoped that the tourism and conference industries would eventually utilise the services. However, the region's population density, topography and geographic size pose major economic viability and technical problems. (See Appendix F: Bemeringal Region demographics and distances.) According to Simon, given the rugged topography and dispersed population of the region, the only viable telecommunications infrastructure is satellite communications. However, the Director recognises that he must rely on government grants for infrastructure costs, with governments, universities and private

organisations providing the majority of content and usage to sustain the service. He was aware of the difficulties of relying on private sector investment and was aware of public resistance to connecting fibre-optic cable networks because of the initial and ongoing cost. As an example, Simon pointed to a local private company's attempt to connect the whole town of Creeks Crossing to a broadband network of fibre optic cables, widely heralded in the local press. The scheme failed to attract sufficient private investment or potential customers and has now quietly gone into receivership. For many of those involved with the Bemeringal Technology Centre project, it was just one more example of the media's tendency to herald new technology with a fanfare and its demise with the virtual silence of an announcement in a hidden paragraph. In Simon's opinion, the scheme was never a viable business option, judging by the slow take up of high-speed broadband networks that occurred in the ACT and Tasmania. From comments made by Terry and others, it is evident that not everyone in the region perceived any community benefits in the provision of multimedia or videoconference facilities that mainly be utilised by the upper stratum of rural society, which given the size of the local population and state of the economy would mean very few people. There was also criticisms from Terry and Jack, supported by many of the attendees at the regional forum, that Regional Transaction Centres were in reality substitutes for the community-based businesses and services already lost and therefore, not sustainable within a shrinking community. Neither was there support for the view that Regional Transaction Centres would provide local farming families with sufficient employment opportunities for off-farm income. This is a factor which local councils, community organisations, financial advisers and farming families had noted as an essential component of the symbiotic relationship between rural towns, smaller settlements and scattered locations, which were overlooked or ignored in most, if not all, federal, state and territory policy initiatives.

A Regional Online Service

A large regional economic development association of Local Government Authorities created a centralised Regional Online Service to provide e-commerce initiatives based in a central metropolitan centre. The three shire councils of the Bemeringal region are members of this association and have provided the service with a copy of the data from the Bemeringal region's database to update its wider regional database. According to Simon, there are a number of overlapping databases throughout the region, each one containing similar data with an uncertain degree of currency. However, at the time of the study, only the Bemeringal Technology Centre's database provided complete, accurate and current information on the Bemeringal region, by regularly using the Bemeringal Call Centre to verify and update the accuracy of entries. This cohesion was placed at risk by the Bemeringal Call Centre's loss of contracts and lack of profit generation, which threatened its closure and also left the Industry Development Division without a sufficient source of funds to continue. The failure to obtain larger and longer-term contracts was attributed by some people to Larry's lack of knowledge of the call service industry and by others to his lack of marketing qualifications and experience. One person pointed to Larry's narrow network of connections, while others believed that an urban perception of the low technical skill levels of rural people is likely to have contributed. Simon, the Industry Development Director took unpaid leave for an indefinite period to look after his rural property on a full-time basis while he awaited the result of an application for further funds. In the meantime, he continues to be involved in the membership activities and committee work of the town's business networks and community service organisations.

Conclusion

The term 'region' suggests a homogeneous picture that tends to disguise the socioeconomic disparities, heterogeneity of interests and competition between the constituent actors and organisations in non-urban areas. In the Bemeringal region each of the three surviving local government authorities is a portal to the New South Wales State Government and the arena of local influence and political interactions for those actors that are positioned near or at the top of the regional hierarchical social strata. At the apex of the hierarchy are the established rural and town strata of people who inherited or are generally considered by members of the local communities to have attained high levels of status. On the level below are the Chambers of Commerce and Industry, dominated by the community service organisation, Rotary International, whose members are drawn from local businesses, institutions and organisations. The Business Enterprise Centre as a product of Rotary attempts to convert the competition between the communities, councils and chambers of commerce to a cooperative regional network approach. These business networks are primarily concerned with sustaining their community's socioeconomic position while, at the same time, searching for initiatives to further develop community and regional prosperity.

The Bemeringal region's structure arises out of the post-World War II boom years of the 1950s and 1960s when a new category of inhabitant, the migrant worker, was added to the existing social dichotomy of farm and town people. The arrival of migrant workers employed on large civil engineering projects brought economic prosperity, social changes and cultural challenges to the mainly pastoral region. Many of the structures and agencies formed in that period endure in a much weakened and modified form to this day. As the major centre of regional post-war

development, Creeks Crossing in the One Tree Shire remains the main business and administration centre of the predominantly pastoral Bemeringal region. Some of the region's inhabitants maintain its dominance is being challenged by the growth and wealth of Clearwater Shire as a lifestyle and tourist area. At the other end of the scale of prosperity stands the Forest Shire, which is in social and economic decline while it attempts to develop new enterprises to replace the loss of its hardwood timber industry to environmental concerns and closure of its woollen mill attributed to global interests. The gradual erosion of employment opportunities has continued unabated over the last three decades with the region's socioeconomic sustainability now seriously threatened by a drought and the lack of available off-farm income.

The low density of its population, its demographics, distances and topography, compounds the problems of the Bemeringal region, particularly in regard to its telecommunications infrastructure. The development of a community technology centre at Creeks Crossing in the One Tree Shire reflects the hierarchy of social networks in the Bemeringal region. The major networks and community organisations interacting with the regional pilot project are primarily those of the Creeks Crossing Chamber of Commerce and Industry, the One Tree Shire Council and the Rotary Club. These networks are not mutually exclusive but intersect with other similar networks across the region through links forged by the Bemeringal Business Enterprise Centre. While the initial community technology project was centred on One Tree Shire, a wider regional focus is proposed through the development of a Virtual Private Network using satellite communications based in the Clearwater Shire, operated by the Bemeringal Technology Centre and linking all three neighbouring shires of the region. However, this development is dependent on further government

grant monies, technological developments, and the availability of multimedia content.

Other community networks linked to the community technology project through the many actors involved include church, charity and corporate organisations and the wider intersecting regional networks of agricultural, educational, and professional associations. The strongest and most pervasive regional network, however, is the heterogeneous, informal women's network, which provides much of the diversity, motivation and administration for the Bemeringal region's family businesses and small enterprises, local organisations and institutions. These women have adapted to changing technologies and social conditions, while recognising the benefits and new forms of exploitation that the introduction of information and communication technology brings to the Bemeringal region. In many cases, women are now the advocates, teachers and primary operators of a new technology that has the potential to save and sustain or accelerate the demise of their communities. Many women in the region have generated new rural employment initiatives for tourism, farming diversity and off-farm income while, in some cases, providing essential family duties of care. There is every reason to believe that based on recent history, women will continue to play an even greater role as the power of rural patriarchy diminishes, with the wider of adoption of information and communication technology and the advent of new generations of inhabitants that will occur in the passage of time.

Despite denials of class divisions they do exist, even though social status appears to play a major part in social interactions for those in the higher strata of the Bemeringal region. Class can be discerned in the expressive language used to describe notions of movers and shakers, dress-for-dinner farmers, ordinary cow-cockies and in the perception of people 'in the

gutter'. More frequently a 'blaming the victim' attitude can be observed in the approaches and language used to describe the marginalised inhabitants as the cause of their own demise and subsequent poverty. The degree of poverty in the Bemeringal region is reflected in the number of local charity organisations that regularly run short of volunteers in a region with a constantly diminishing population. While religion seems to play a lesser role in rural social life than it did in the past, volunteering is strong in the community, albeit practised by a small group of people. Community service organisations also contribute to those in need, although, in some cases membership and activities may be motivated more by business network opportunities or status attainment rather than from a sense of community benefit. There is, however, an ideology of localism that was evident in the community solidarity behind protests against the closure of a state institution and in the support for a community technology centre. Community resilience can be found in making the best of a situation with a sense of trust, social responsibility and obligation even if it is only towards fellow members of a particular network. This can be found in the activities of Rotary, councils and the chambers of commerce and industry, in enjoying moderate successes, learning from failures and continuing to develop new endeavours. Such activities were displayed by the two directors of the Technology Centre recognising that the funds were being exhausted by its 'top heavy' structure, which could not continue if the Centre was to survive, and their decisions to take unpaid leave or to temporarily step down. It can be seen in the women's network, where they are willing to take on menial work in the local tourist industry to support their families or to sometimes drive 250 kilometres each day to work in urban Telecentres. On the downside, there is the social exclusion or sanctioning of those who are considered to have breached acceptable community norms or have offended the values of a particular network or influential individual. This seems to have been the case with the

Development Officer when there appeared to be resentment in his attaining the position, which led to his marginalisation as an outsider without a local support network. His subsequent departure was to have a detrimental affect on the Technology Centre initiative.

Given the problems of climate and trade, farming communities in the Bemeringal region have increasingly relied on off-farm incomes to support their families. Rural centres are declining under the urban focused State and Federal policies of competition, centralisation and restructuring, which are often referred to as the policies of neoliberalism or neoconservatism. Under these policies the opportunities for off-farm incomes are decreasing and many of the areas that provided employment opportunities in the past are no longer locally available today. The amalgamation of Shire and Municipal Councils, while reducing the number of employment positions, enabled commercial and farming elites to join forces in local networks providing greater power in negotiations with state and federal governments. The networking of local governments, commerce and industry under the Business Enterprise Centre has provided a focus on the Bemeringal region. At the same time, the Bemeringal region has joined with other similar local networks in an economic development council clustered around a major metropolitan centre. In the first instance these network activities have involved the cooperation of stakeholders but, as with any commercial or economic joint enterprise, the potential is present for the relationships to become increasingly competitive. If or when that happens, local small enterprises that are facing competition from larger enterprises in regional and metropolitan centres will eventually be reduced in number. Local commerce and industry enterprises are aware of this potential threat in advancing the use of information and communication technology even while recognising they may initially benefit from its implementation. The acceptance of personal computers and telecommunications in farming

enterprises, for business administration and personal use has outstripped expectations, particularly in the use of email. Nevertheless, in rural centres such as Creeks Crossing those who manage heterogeneous small business enterprises are knowledgeable people. While many have accepted the benefits of computers and telecommunications some in retail remain reluctant to take up e-commerce, although there have been attempts to access the limited global market for specialised farm engineering products. Indeed, suggestions that information and communication technologies will be unconditionally accepted and drastically change society do not appear to be the case in the Bemeringal region at this time. However, while there is continuity in local interpretations of social history there are also subtle changes in the reproduction of social life from parochial to regional interests. A focus on tourism and commodification of the environment with the introduction of microcomputers, telecommunications and the concept of e-commerce, has provided greater scope for new business opportunities for some sectors of the local economy. On the downside, there is an undercurrent of distrust for the bureaucracies of federal, state and local governments with sometimes a seemingly cynical recognition of political interests solely because of the role of marginal electorates in determining the outcome of elections, rather than any concern about the wellbeing of fellow Australians in an area of regional decline.

In the Bemeringal region, the positive perspective of technology ranges from an essential tool in saving family farms from financial ruin, a more immediate way to communicate with family and friends, and the means to discuss problems with peers and gain advice. Many see information technology as changing rural society by eliminating the tyranny of distance and providing access to wider educational resources or a global marketplace. Some see a further reduction of off-farm employment opportunities in the continuing restructuring of telecommunications in the

One Tree Shire while others see information technology providing the sort of employment ideally suitable for farmers' families as casual call centre agents. Whether the use of information and communications technology for e-commerce provides potential benefits for the local economy or accelerates its decline through access to a global marketplace depends on the commentator's hierarchical perspective. Current proposals for the use of informational and telecommunication technology continue to reproduce a centralisation of services, economic restructuring and further loss of local employment opportunities under the dominant social values of neoliberalism. The implementation of informational and communication technology to provide access to e-commerce and a global economy may appear to offer an attractive solution, although it may also hide many unforseen and detrimental consequences. Indeed, given the dominance of global financial interests in major metropolitan regions and the inequality inherent in the capitalist market systems, information and telecommunications technology may turn out to be somewhat of a Trojan horse for rural regions. Why, therefore, do regional communities continue to accept the view that information and communications technology is the panacea to their socioeconomic woes when promoted by others with urban or global interests? As one rural forum commentator noted, perhaps it is because that is where the grant money is.

There are many indications that high levels of the aggregate concept of social capital exist within agencies of the higher strata networks of the Bemeringal region in general and One Tree Shire in particular. However, the downside of social capital is also very much in evidence in social exclusion and closure. More importantly, if the criteria for social capital include trust, cooperation and reciprocity then the level of social capital that inheres in interactions between the three levels of government, regional communities and telecommunication carriers must remain in doubt. How

the theories of sociology and technology studies in the literature reviews of chapters two and three might provide an explanation and understanding of the wider issues of information and communication technology, social structures and agency for this study forms part of the analyses in the next chapter.

CHAPTER 6: REGIONAL SURVIVORS

Introduction

The field study examined the socioeconomic decline of a rural region by questioning some of the inhabitants who, while detrimentally affected by the regional changes that have happened over the last few years, have decided to remain and attempt community development. The preceding chapter is based on some of the stories these survivors of regional restructure have to tell of their perceptions and experiences with implementing information and communication technology for community developments. This chapter analyses the research data gathered in the case study of the Bemeringal Technology Centre project described in the previous chapter through the theoretical perspective derived from literature reviews of chapters 2 and 3. Analyses begin with that of the region's social stratification and the complex social differentiation and inequality. An examination of the source and exercise of power enables the identification of the region's networks and analyses of the interactions within these networks from a mainly higher social strata perspective through the concept of social capital. Rural employment opportunities and information and telecommunication technology are examined through a combination of sociological, technological and political theoretical analyses. Focus is then drawn to the central themes of the thesis in the duality of structure, the adaptation of information and communications technology and the reproduction of social systems and practices before the drawing of conclusions about the study.

Stratification

Many of the findings and conclusions of extensive community studies over the last three decades continue to apply to contemporary rural, regional and remote communities and remain visible in the social structures and agencies of the Bemeringal region. These include the social stratification of Australian rural regions (Dempsey 1990), elitism in the arena of local government (Gray 1991) and the pervasive conservatism of rural ideology (Poiner 1990). Many family farms in the Bemeringal region primarily rely on the labour of family members, are mainly income poor and only considered asset rich by their bank in cases where debt levels have been contained. In addition, families in the rural communities and townships engaged in small non-farm business enterprises are also likely to employ members of the immediate family and be affected by the productive capacity, income levels and spending patterns of the local farming community. To be sure, employment opportunities for town residents and the potential off-farm income for farming families are mainly in the service industries with local authorities and the remaining offices of state or federal government agencies. Opportunities also exist with the private sector in 'retail and wholesale trade, transport and storage, finance and machinery repairs', which remain largely dependent on local farmers' spending patterns (Levantis 2001 p.38). Therefore, to apply Marxian concepts of class determined by economic relationships to the means of production, levels of income and property ownership remains problematic (Crompton 2000). On the other hand, Weber's pluralistic conception of classes in a complex topology distinguishing between 'ownership classes' (*Besitzklassn*) and 'acquisition classes' (*Erwerbklassen*) provides a more realistic picture of rural society in the Bemeringal region (Weber 1978 (original 1922); cited in Giddens 1981). The general reticence to acknowledge the existence of class differentiation among the small number

of local people interviewed in the Bemeringal region can be attributed to Marx's original conception of class-consciousness in moving from an objective class-in-itself to a subjective class-for-itself (cited in Morrison 1995; Weber et al. 1922; Weber et al. 1978). Indeed the lack of class-consciousness could be attributed to the possibility that many of the people involved in the studies and associated with the pilot regional development project were from the middle to higher levels of the region's business hierarchy. As members of such groups their belief in the premium of individual responsibility and achievement might be how their class interests are expressed through 'denial of the existence or reality of classes' in subjective class awareness (Cassell 1993 p.240). However, Weber insists that class 'always refers to market interests, which exist independently of whether men [*sic*] are aware of them' (Giddens 1981 p.43).

In contrast, Bourdieu's approach to class is as a dialectic that seeks to emphasise the structure of social relationships between properties rather than a mere collection of properties (Bourdieu 1977; Bourdieu 1984; Bourdieu 1999; Bourdieu and Thompson 1991). For Bourdieu, this social relationship between properties gives 'specific value to each of them and to the effects they exert on practices' (Wilkes 1990 pp. 129-30). The concept of Bourdieu's class *habitus* as the disposition towards a social practice of class limited by divisions of labour provides an explanation for the oppositional perspective of social classes (Wilkes 1990 p.123). For example, class *habitus* may explain how many ordinary people in the Bemeringal see the use of personal networks for financial gain or influence, as cronyism, nepotism or purely self-interest. However, those people near the middle or the top of the community hierarchy see such networking as an essential component of socioeconomic life. Indeed, examples of Bourdieu's *habitus* can be found in the classification of Bemeringal graziers and long established farming families as "dress-for-dinner"

farmers rather than those classed as "cow-cockies". Many of this last classification are in many ways rural entrepreneurs, having worked on family farms or as employees on farms and grazing properties and have now purchased their own rural property in attainment of a commonly shared rural dream. These are the farming families, the rural petite bourgeoisie, that are most at risk of being trapped in poverty in rural communities with their high debt commitments and, in many cases, poor access to socioeconomic support networks. However, the causes and measurement of the widening socioeconomic gap between the rich and poor in the Bemeringal region relies on many more dimensions than simply the inequality of incomes and membership of a particular social class. Indeed, there are some contemporary social analysts who claim the contested conception of class and a fragmented society are caused by the rise of individualism in New Right movements and neo-liberalist values in the advent of an age of information (Crompton 2000; Perelman 1998).

In contrast, the inhabitants of the Bemeringal region find no problem in allocating status to others in their community. The attainment and retention of status in rural regional networks is one of the main motivations for joining local service clubs, seeking a seat on a committee or board and, for those more politically focused, gaining election to the local council (James 1981; Lin 1999; Lin 2001). While caution should be exercised in attempts to assign motives, particularly to a group, there is some evidence to suggest that such networking is the use of social capital for instrumental action (Giddens 1984; Lin 2001). Even so, casual observations of day-to-day activities in the Bemeringal region clearly confirmed evidence of social inequality and actual wealth and poverty.

Regional poverty

Some inhabitants acknowledged the presence of poverty in the Bemeringal region, with Robyn, Brian, Tom, Norman and Terry all stating that many farmers, young families and elderly people experience varying degrees of relative or actual income poverty. Certainly, most people were only too pleased to acknowledge, attribute and rank the status of individuals in the region. In doing so, many were also positioning themselves and their families in the local social hierarchy. In conversations with the less advantaged people in the community it was found that, while some supported visions of a future classless rural society, most felt that there were still significant social and economic differences to be found in the local community. Many of these people believed that the local government authorities are controlled by a small number of people from influential families in the town and the surrounding countryside and that Council mainly served the interests of this elite minority. The persistent and at times strident criticisms of the bureaucratic processes and work performances of Council's office-holders and staffs by the general public were reflected in the defensive attitudes of those people interviewed at the council offices. Experience suggested that these attitudes of the general public towards local government authorities were not restricted to the Bemeringal region, but are common throughout Australia. Gray's conclusion that the local arenas of power in rural communities reside in the local government authority was in accordance with the general public's perception of the practices in the chambers of the One Tree Shire Council (Gray 1991). However, One Tree Shire Council is just one node of local government in the Bemeringal region's governance and economic networks connecting local business, community organisations and service networks. The other two shire councils that form the region's governance network, while cooperating with each other in regional activities, were in

competition for state and federal government funds for development. Gray's deduction that local government authorities had no role of advocacy in state and federal governments in the late 1980s and early 1990s was not the case in One Tree Shire at the turn of the twenty-first century, where the Council played a major role in negotiations with both state and federal departments and organisations, at least in the case of funding community development. This may reflect the increased rural militancy that originally attracted the federal government's attention to the problems of rural regions and may contribute to the marginal nature of the electorate that provides the community networks with political advantage.

Networks and power

By identifying the contemporary networks and the nested networks within networks of the Bemeringal region it becomes possible to analyse the construction of the community's development initiatives and reveal the complex hierarchies of power (Wellman and Berkowitz 1988). From the social networks identified in the Bemeringal region, (see Appendix I: Bemeringal Research Network) it can be seen that the three networks most actively involved with the Technology Centre project are Rotary, Local Government and the Chamber of Commerce and Industry. Each member of the Bemeringal Technology Centre's Board of Management is also a member of Council or the Chamber of Commerce and, with the exception of the sole woman on the Board are active members of Rotary. The Director of the Industry Development Division of the Technology Centre is also a member of Rotary along with the most respected and influential men and women from the rural districts and townships in the region (albeit only four women). Rotary membership consequently conveys a high social status, which is essential for tapping into the disparate resources throughout the Bemeringal region and reaching to organisations in the capital cities.

For example, the high social status afforded by membership of Rotary enabled the manager of the Bemeringal Business Enterprise Centre to overcome difficulties from the vested interests in local districts and to succeed in organising a large number of committees in the region's disparate and competing communities. He then melded those committees, local government authorities and state institutions into organisations with a regional focus. Therefore, while the public arena of local power may appear to be in the chambers of shire councils, members of Rotary and the Chambers of Commerce and Industry are the primary actors.

The 'Movers and Shakers'

Initially, the path and pace of developments in local communities appeared to rest with a limited number of significant individuals, or in current local terminology the 'movers and shakers'. Most of the residents can readily identify influential individuals in the region's Councils, among the established grazing families and in successful local commercial and corporate enterprises. Many of these individuals form part of the higher stratum of the region's hierarchy, however their influence over local community and regional activities comes from the community networks and organisations of which they are members. While Connell and Irving (Connell and Irving 1980) expect the blurring of social stratification to some extent when no social crisis is eminent, in the Bemeringal region, many local crises over the last decade have involved government policy that has a tendency towards social solidarity in protests and lobbying activities. Indeed these actions are evidence of the recursive nature of social practices in which the ideology of localism is a contributing factor in the mobilisation of community action. The ideas and motivation necessary to generate these protest actions have come from leading members of the local community who are active in the local government, commercial and

professional organisations rather than those from the disadvantaged socioeconomic strata. Others have tended to move away to coastal lifestyle regions or dispersed metropolitan regions to find employment rather than remain and engage in protest and demonstrations.

On the other hand, those who have invested in local property and are now unemployed often find they are unable to realise sufficient capital in a depressed economy and weak housing market to move away and reinvest in a new life elsewhere. Likewise, many mature residents in professional occupations say that their networks and friends are in the Bemeringal region and they have no wish to start building new networks elsewhere at this time in their lives. These are the people who tend to remain in the community and experience the hardships of declining services and, in some cases, poverty of income (Fincher and Wulff 1998). The lobbying and group protests that eventually led to a mass demonstration in opposition to the closure of the local correctional institution included those from the town's legal profession, councillors and commercial interests as well as those contracted by the NSW correctional services. For many of the 'movers and shakers', the hallmark of their success is this ability to use social capital for the creation of community solidarity and mobilise community action to gain funding and assistance from both state and federal governments. However, it should be recognised that this power flows, to a large extent, from the marginal nature of the political balance in the electorate of which the Bemeringal region forms a part. The 'movers and shakers' have successfully employed this source of power in lobbying the Commonwealth and New South Wales State Governments for economic development since the middle of the last century. However, there is the question of whether such social action will continue to be able to produce or reproduce similar outcomes in an emerging structure of tacit

global rules, changing demographics and the level of regional resources available in an informational economy?

Social capital and gender in rural networks

Coleman's concept of social capital facilitating human capital (Coleman 1988; Coleman 1990) were observed in the emphasis on education within the Bemeringal region and recognition of the need for lifelong learning. While there appeared to be a weakening of human capital in the declining enrolments in the Bemeringal region's TAFE colleges, among the networks of unemployed youth the sense of trust and reciprocity appear to be strong. The rural community's commitment to their children's education and adult enrolments at TAFE for further education may rest on the social conditions in which many of the regions' structures and practices were acquired and can be explained in Bourdieu's theory of *habitus* (Bourdieu 1999). Indeed, in discussions and some of the informal interviews held with people from European and Mediterranean backgrounds, many expressed pride in their ethnic background and the hardships they have endured, both before and after coming to Australia. Most noticeable however, was the immense pride they felt in their adoption of what they perceived as Australian norms, with an emphasis on the importance of trust, obligations and reciprocity within the local communities. Most of the individuals have links to others sharing similar experiences of post-war migration and bond with those who shared in their privations and hardships.

Economic and social standing

Some social networks construct social capital and status attainment for two main rewards or ultimate payoffs. These two rewards are the economic and social standing, which translates to wealth and reputation and are

complementary in enhancing an individual's power and influence in the social structure (Lin 2001). This suggests that actors access resources embedded in social relations to bring about better outcomes (Lin 2001). Indeed, virtually everyone belongs to a social network of one kind or another with bridges to other networks of varying strengths and numbers. In the Bemeringal, the attainment of economic and social standing is recognised by one or more of the following community actions. An invitation to become a member of Rotary, acceptance as a professional by gaining at least a bachelor degree level of human capital, membership of a community board or committee such as the Chambers of Commerce, or election to the Shire Council. Carol's attainment of the call centre manager's position and gaining direct access to the Board may appear to exemplify Lin's claim that women need to access male contacts rather than use female contacts to attain a higher status level in a hierarchical social structure (Lin 1999). Lin claims that the socially disadvantaged are restricted to low levels of social capital because they do not have access to higher contacts (Lin 2001). In my study, I found that the marginalised still enjoy the benefits of trust and reciprocity inherent in their social interactions within their own networks, although without expecting a return on their investment.

The field study revealed many examples of the socially marginalised reaping the benefits of trust and reciprocity in accessing their own social networks. The community's youth 'pipeline' advising the availability of employment and the relevant education courses to obtain employment is one example. The networks of volunteers that include the retired and semi-retired, the casual worker and the unemployed are the lifeblood of church and charity organisations while providing support to each other is another example. The camaraderie among daytime regulars in the bars of the Return Services League Club or the local hotel provides a degree of trust

and reciprocity. The pervasive, informal women's network provides a similar, though more active, social support role extending outside the immediate area to other Australian regions, states and countries. These are just a few of the social networks available to the marginalised and the disadvantaged in the general community. While some in the upper strata of the social structure may seek economic gain and higher status from their networks, those who use social networks for personal wealth and influence without reciprocity alienate and lose the trust of many in the wider community. This alienation and exclusion can be found in the pejorative epithet 'user'. The aggregate concept of social capital when used as an analytical device may help to explain the economic and social motivations of the more advantaged members of networks in a hierarchical society. However, the economic imperative of restructuring, informationalism and globalisation are presented in the conservative media as inevitable, because from a neoliberal perspective there is no alternative (Castells 1998). Indeed, such neoliberal policies encourage the individualisation of society, the removal of welfare provisions and the polarisation of wealth, all of which results in inequality, poverty and 'the spatial logic of social exclusion' (Castells 1998 pp.161-165). Hence, a prescriptive use of social capital endeavours to create the necessary social structure and action to clear away obstructions to the acceptance of the neoliberal policies with an emphasis on the dominance of the economic imperative.

A privileged perspective of social capital

From Putnam's perspective (Putnam 1995; Putnam 2000), the touchstone of social capital is the norm of generalised reciprocity. The background stress of daily interactions is alleviated by honesty in daily transactions reducing the transaction cost of social interactions. As Putnam states, 'honesty and trust lubricate the inevitable frictions of social life' (Putnam

2000 p.135). Within the nested or overlapping networks involved in creating the Bemeringal Technology Centre there were many frictions. Those in the Business Enterprise Centre afforded the Development Officer, Paul, a degree of trust as a newcomer. However, this 'thin' trust was withdrawn for an apparent nondisclosure of the source of his information on call centres and a dispute over whether his contract was as an employee or a consultant. While his plagiarism and contract were given as grounds for the tensions the reciprocity and closure that inheres in the interactions of the Business Enterprise Centre prevented me finding out the precise reason for that loss of trust. Paul did not renew his contract or take up the directorship of the technology centre. On the other hand, the success of the Business Enterprise Centre can be attributed to the 'thick' trust inherent in the strong ties between the dense networks of the Bemeringal region's Chambers of Commerce, local authorities and Rotary Clubs. At the same time, it has bridged networks in the three levels of government and the wider community, including the women's network. Acting as a brokerage in and between networks, has enabled the centre to enhance their client's abilities - human capital - through training while providing greater opportunities to access ideas and contacts in other fields (Burt 1998).

Each of the Bemeringal region's major townships has a Chamber of Commerce and Industry, which links local commercial enterprises in a dense cooperative network. Each Chamber provides mutual economic benefits for its members and their communities, ensuring adherence to established community norms and general consensus on future economic developments (Banks 1997). The norms and reciprocal activities of the members of the Chamber include voluntary membership of special committees with returns on investment of symbolic capital rather than financial capital (Bourdieu and Thompson 1991). The creation of the Bemeringal Technology Centre as a company from nominal shareholders

of the Chamber of Commerce and the subsequent formation of the seven-member Board of Management were never envisaged as accruing financial capital. Its intended role was to manage the grant of public monies and provide direction for regional industrial development that would be self-funded by the operations of the Bemeringal Call Centre Division and therefore, be sustainable. The Industry Development Director at the Community Technology Centre is a Rotarian and had strong links with the Bemeringal region's Rotary clubs, the many Chambers of Commerce and two of the three Councils. He also had the strength of weak ties in that the relationships built through his previous career and his long-term residency enabled him to span structural holes between networks of businesses and organisations across the Bemeringal region and beyond. With these higher strata network connections it is easy to see why Simon is widely recognised as an excellent facilitator with access to high levels of social capital. Coming from a semi-retirement, he retained his high social status by standing aside in his position as the Industry Development Director, while keeping his options open as to whether he will take up the position again should additional funds become available.

Social capital in networks

The Call Centre Director in contrast, needed to apply for his position and was therefore unable to draw on as high a number or strength of high strata connections in the community as those available to Simon. While Larry has weak ties to government organisations and the corporate authority in which he had been employed, his membership of the Australian Computer Society provides links to the Australian computer industry and he has bonds to a local church organisation with strong links to charity organisations and choral groups. Many of the people that attributed high levels of status to Larry in the past have now left the Bemeringal region.

While he remains widely recognised for his information technology skills and respected for his contributions to community activities, his level of status in the community has now diminished. On the other hand, Carol as the Call Centre Manager is a woman with ties to a member of the Board through membership of the informal women's network and with weak links to the wider customer service or call centre industry. While the two directors and the manager attended Board of Management meetings at the time of the field study, in the beginning only the two directors reported to the Board. The relationship of the Board with the customer service staff is hierarchical with communications and representations between the staff and the Board was normally initiated through its Director who then conferred with the Call Centre Manager. The director's marketing roles meant he was frequently absent from the call centre and therefore required updating by the Call Centre Manager before he could effectively contribute to Board meetings. In agreement with the manager, the Call Centre Director suggested to the Board that the Call Centre Manager attend each meeting and report directly to them. Therefore, when the Call Centre Manager began to report directly to the Board of Management it was from the access to a male contact, the Call Centre Director, which advanced her personal social capital (Lin 1999; Lin 2000; Lin 2001). In the opinion of the manager of the Bemeringal Enterprise Centre, the failure of the major aims of the project appears to be a combination of poor initial project analysis and planning, the unfulfilled promise of a major government contract and, finally, the loss of the collective state projects. On the other hand, a reliance on government contracts often involves a heterogeneity of hierarchical networks in public service bureaucracies in which social capital can have unintended consequences (Mizruchi and Stearns 2001).

Social capital at the bureaucratic level

The inter-departmental network of the Commonwealth Government's all-of-government approach to regional issues involves the Department of Transport and Regional Services (DOTARS) for administration of the *Networking the Nation* fund and policy review to ensure regional relevance. E-commerce policies are the responsibility of the National Office for the Information Economy (NOIE), with informational technologies and telecommunications strategies and policies deferred to the Department of Communications, Information Technology and the Arts (DoCITA). These organisations form the bureaucratic networks that rural regional communities must consult to obtain policy advice and for federal government approval of projects requiring funding. The functional specialisation and financial competitiveness of Commonwealth Departments, form disparate work cultures each with separate priorities and agenda, each with their own networks of trust and reciprocity (Martin 1996; Mizruchi and Stearns 2001). The demarcation of responsibilities constrains the availability of alternative views and promotes redundant information and, from the perspective of the Bemeringal project, it also restricts the channels of communication between the Ministers, Ministerial advisers and departmental staff.

Gender in network exclusion and closure

The dark side of social capital emerges in network exclusion and closure. The strong ties that benefit members of a group also enable it to exclude others (Portes 1998). One example is that men are now excluded from the reconstructed network of agents at the Bemeringal Call Centre, with the claim that in rural communities, the division of labour means that men work outdoors while women work in the office. Exclusion from the

women's network almost certainly restricts access to call centre employment for the Bemeringal male and reinforces the traditional norms of gender division in rural communities. There are arguments that women, in particular married women, are more often employed in the casual lower-paid indoor service positions (Crompton 2000). The other side of the coin however, is that unemployed men may find the only work available to them is casual lower paid indoor service positions, however they are often excluded from such employment and are forced to look for outdoor work outside the region or to remain unemployed. The use of a capitalist and arguably a patriarchal device for excluding women from certain fields of employment by a division of labour has now enabled a small group of women to create closure to male employment within the Bemeringal Call Centre. The research data agrees with Burt's 1998 study, which found that most women were more comfortable working in small supportive groups while only the more successful had a tendency to build larger networks (Burt 1998). The strength of weak ties in the women's networks provides wider connections to available employment opportunities particularly for those who have access to the Internet for interaction with dispersed networks and imagined or virtual communities (Brint 2001; Granovetter 1983; Granovetter 1973). The widespread use of information and communications technology particularly in service and business administration is thus empowering women to move from today's second sex to tomorrow's first (Webster 2000b). Although evidence from the case study suggests that women have a long way to go to penetrate existing power structures.

Rural employment of informational technology

Telecommunication centres have been promoted as a global panacea to reduce the level of unemployment in many depressed regions throughout

the world, which includes Australia. However, this simplistic view is based on a technological determinism that fails to recognise the changes in social structures and agencies required for the implementation and adaptation of convergent technological systems (Grint and Woolgar 1997; MacKenzie 1999b). Such a determinist view also fails to allow for basic economics such as the cost of labour, capital resources and the need for a viable market to maintain employment in the call-centre industry. Most people working in Australian call centres today are fully aware of reports critical of 'galley slave' computer paced work and many have experienced the pressures of a workplace with a high turnover of staff. In the more benign environment of the Bemeringal Call Centre, however, the agents are happy to rationalise the constant monitoring of performance and regular counselling sessions as personal improvement strategies rather than another form of labour control, exploitation and surveillance. For most of these women, call centre work is no more controlling than the patriarchal dominance they have experienced for most of their lives in rural Australia. It is no more exploitative than their work in the family home, on the family farm or in the family business. Indeed they accept the monitoring and surveillance of work in one form or another as normal practice when in hourly-paid casual or part-time employment.

Skill levels

Analysis of work involving information and communication technologies is often informed by Braverman's theories of the de-skilling of work and control of the labour processes (Braverman 1974). In call centre work, or more accurately customer service management, it is argued that the work involves a combination of different sets of skills rather than a simplistic notion of deskilling of labour. Essential skills in communication, conflict management and learning ability combined with good diction, an alert and

disciplined mind means that far more is required in the position than simply computer literacy and keyboard dexterity. However, control of working pace, monitoring of quantitative production and surveillance of personal qualitative performance are an integral part of the work processes of all call centres, with most installations employing staff on the basis of on-call-when-needed casual-hours, similar to some fast-food franchises. The constraints placed on the behaviour of both call centre staff and the clients' customers by the call flow processes and procedures are therefore better informed by the extension of Weber's bureaucratic rationality in Ritzer's *McDonaldization* thesis (Ritzer 1998). In Creeks Crossing, these considerations are far from the minds of those working as customer service representatives who are simply grateful to be employed. While they are employed in what is considered to be women's work in a rural patriarchal society, few consider it to be menial or low paid in contrast to the casual or part-time work normally that most of the customer service agents have experienced as women in rural Australia. Indeed, many men and women in the community expressed an envy of the customer service representatives' employment conditions and their work with computers and communication technology, or simply the fact that they are employed and are thus are able to retain or enhance their status in the local community. The level of cooperation, trust and reciprocity between the Bemeringal Call Centre's staff indicates a high level of social capital within the small group of women that extends to the wider women's network.

Business development

Nearly half of the businesses and organisations of the Bemeringal region now have an email address and appear on a regional database, even though most do not have their own website. *The Current State of Play*, which reports on Australia's international ranking in the e-commerce stakes, 48%

of Australians over 14 years of age with access to the Internet use it for email, only 21% for banking and 15% for purchasing goods online (NOIE 2002). The value of goods traded online is a comparatively small percentage of Australia's GDP with 1.1% of GDP in business-to-business e-commerce and only 0.172% of GDP in business-to-consumer. Even so, Australian was ranked third in e-government with 50.7 points out of a possible maximum 100 points and behind the U.S. with 57.2 points. The US-based Economist Intelligence Unit, in its estimate of e-commerce readiness, ranked Australia second with 82.8 points behind the U.S. on 87.3 points (NOIE 2002). While these measures of e-commerce may look promising, the value of goods traded means that there is a long way to go before the claim of an information economy can be realised. An acceptance of microcomputers and connection to the Internet is gradually becoming more widespread among the mature members of rural and regional communities, which may be attributed to the media attention and number of educational projects now targeting this demographic group. Farming families increasingly rely on personal computers and software packages for farm management, market information and personal communications, with wives and children leading the way in justifying the need.

It has been variously argued that computer technology with access to telecommunications is an extension of the telephone, has the same effects in reducing the feeling of isolation in Australian rural families and provides access to wider information, peer networks and communities without propinquity. There are however, major differences between the use of telephony and email. On the one hand, the telephone is more personal, convenient and familiar although with possible problems experienced by the caller in reaching and speaking to the intended recipient at a convenient time on the first call. This aspect is particularly relevant when calling other time zones and may contribute significantly to the cost of the interaction.

On the other hand, while email cannot replace the intimacy of a telephone conversation, it escapes the time / space problem inherent in telephony and provides a record of the contact. Personal contact is not restricted by the absence of the intended recipient or constrained by time of day. In rural regions, customers of telecommunication carriers complain that in some areas the telephone lines are frequently affected by noise, the lines are occasionally unavailable and it often takes a long time for damage to be repaired. It is not surprising therefore, that making a simple telephone call as well as the receiving and sending of e-mails can be inordinately time consuming and frustrating in many regions of Australia, even in those regions that could never be classed as remote by road travel.

Unreliable and slow telephone lines that are unable to provide sufficient bandwidth for adequate Internet access or email services are commonly reported from rural regions, even in those townships close to major metropolitan areas. The more remote the community from metropolitan regions the worse the telecommunication problems become. When talking to those people effected by the poor telecommunications services in rural regions of Australia about a global networked society, the emergence of electronic commerce or entry into cyber space, they might accuse you of reading too much science fiction or too many government reports. Accompanying the discontent and frustration with the incumbent telecommunication provider is a distrust of the Howard Government's promises of an improvement in services by those working with regional community information and communication technologies. However, the total privatisation of Telstra may only exacerbate the problems given current reports on Telstra's installation and maintenance problems (Webster 2000a) and the fractal pattern of disparities in the telecommunications infrastructures found in Europe (Cornford and Gillespie 1999). The Development Director's discontent with Telstra's

current performance and his willingness to wait for improved technology to eventuate is by no means a unique occurrence in rural regions and reveals a continuing faith in technological autonomy.

A degree of certainty

The pattern of certainty in technology discerned by MacKenzie is again evident in the implementation of community technology (MacKenzie 1999a). Those working closely with the implementation of technology in rural communities, including some public servants, exhibit doubts on the certainty that information and communication technologies will resolve the problems of rural discontent and socioeconomic decline. On the other side of the certainty trough are those rural residents who have invested in the technology only to find that it falls far short of its promise of a networked society or in providing an immediate access to information. In the trough between these high levels of uncertainty, are those who have a greater degree of certainty or faith in the technology. Many of these people are politicians, control policy formulation and decision-making in government bureaucracies, or they are in the management of large business and corporate organisations, particularly the information technology and telecommunications industries. While small business regional networks may have confidence that high tech will benefit them in the long term, many question whether it will provide sufficient security for their transactions or merely create an additional risk for regional business already threatened by neoliberal economic restructuring under a rural competition policy. The unproblematic acceptance of information and communication technologies and over-confidence in their ability to create a networked society and provide access to a global information economy, may lead to disastrous and unintentional consequences for the socio-economic wellbeing of rural Australia. Indeed, there is a pervasive

undercurrent of technological determinism to be found in many reports of the implementation of ICT leading to an unquestioned assumption that the implementation of informational and communications technology will change society for the better (MacKenzie and Wajcman 1999). These simplistic assumptions fail to acknowledge the reciprocal social shaping of technology and the structures and agencies involved. More importantly, few recognise the recursive nature of changes to technology and society. As society influences technological development and technology influences social development each change is applied to the result of previous changes. Therefore the risk of unforeseen developments in any technology creating unintended social consequences and, likewise, social changes influencing unforseen changes in the direction of technological developments are always present. Equally unquestioned are the ways in which informational and communication technology enhances the power, authority and privilege of the few over the many by enabling a new form of manipulation and social control (Winner 1985). In many ways information and telecommunication technology aids and abets political interests, while highlighting the social inequality inherent in any dependence on its implementation (Street 1992).

Regional practices and social reproduction

Historically, the Bemeringal region has consistently been able to rely on State or Commonwealth Governments to provide socioeconomic support and financial assistance throughout the 20th century. This recursive process has occurred whether the request for government support has been for the reopening of a state institution, the establishment of large infrastructure engineering schemes or to subsidise transport or rural industries. The duality of structure of cultural schemas or (in Giddens' terminology) 'rules', and resources has reproduced these practices over time and space

across the Bemeringal region. Giddens maintains that rules 'cannot be conceptualised apart from resources, which refer to the modes whereby transformative relations are actually incorporated into the production and reproduction of social practices' (Giddens 1984 p.18). These structural properties and social practices express the forms of dominance and power that can be found in the Bemeringal region's tendency to rely on government funding and intervention to provide the necessary economic developments to sustain the region's communities, townships and institutions. The process appeared to change with the employment of a development officer from a different, albeit similar, social structure and agency outside of the region. He attempted to transpose a schema that introduced a self-sustaining community development of business clusters. However, the high level of funding necessary for such a large community development was only available from government sources and was dependent on satisfying specific bureaucratic conditions. As one contributor to the Regional Forum argues in 'Appendix H: Extracts from the Regional Forum group', the reason so many community development projects adopt an informational technology and telecommunication strategy, despite its potentially detrimental effects on local retail and farm businesses, is because that is where the funding is.

Past social practices

Once the development officer was no longer involved in the project and unanticipated activity affected the availability of resources, the call centre committee attempted to modify the schema to reproduce past successful social practices and called for direction from a local accountancy firm. The local accountancy firm failed to take full account of the new rationale in establishing the call-centre staffed by local people to provide support for regional development. The accountancy firm's 'unconscious motives'

assumed that the importation of jobs would have the same effect as generating employment for local people (Giddens 1993a). To assume a multiplier effect of economic benefits from government intervention can be seen as an attempt to reproduce practices from a different time and structure of rules and resources, and to enact them under a contemporary structure of recursively modified schema and resources. In effect, it is a transposition or extension of schemas from one social structure to another, which means that the consequences of enactment can never be entirely predictable (Sewell 1992 p.18). The federal government's transfer of an outsourced departmental function, as well as the people to work on that project, displaced local people committed to living and working in the region with transient workers who rarely seek long-term or supporting relationships within local communities. While the Commonwealth Department outsourced project has brought additional income into the town; the department's call centre remains vulnerable to the vagaries of policy change and has therefore done little to provide a sustainable source of income for the region. To be sure, the Government call centre does provide some potential for local employment and off-farm income, it is not however a core business enterprise and does not support the development of industry and business clusters. Therefore it does not contribute to the concept of a self-sustaining region.

Conclusion

Attempts to establish a community technology centre in Creeks Crossing have had unintended consequences. Whereas the project has failed to provide the required level of income intended to support regional industrial development, the attempt has reproduced a reliance on federal government resources rather than a regional self-reliance. The Bemeringal region appears to already have a high level of social capital to be found in its

many social networks. Indeed the level of social capital appeared to grow substantially across most regional networks when many of the young people engaged in the processes of training for the establishment of a call centre. Indeed, many people had hoped for a new self-sustainable source of employment in the region rather than a reliance on government support. With local industry development that would employ the region's youth looking more remote, hope for employment and the level of trust in the benefit of further education has rapidly diminished. The social capital that emerged during the Industrial Development Director's involvement with the region's small businesses shows no sign of diminishing in those networks. However, there was distrust and cynicism expressed by many in the community at the federal government's announcement that improvements in essential telecommunications services would finally occur in the Bemeringal region. Continuing media reports and advertisements about the need for improved security over telecommunication networks exacerbate the doubts and fears of the Internet and have prevented a rapid take up of e-commerce.

Many of the civic features of the aggregate concept of social capital espoused by recent overseas advisors cannot be adapted or applied in Australia because of political, structural and geographic differences between Australia and the USA. However, similar concepts of trust, reciprocity, voluntarism, cooperation and enforcement of norms already apply in regional Australian community networks and are essential if those regional communities are to survive or prosper. While many of these concepts have arisen from the rural ideologies of countrymindedness, agrarianism and localism, rural communities remain vulnerable to the destruction of so-called social capital in the neoliberal processes of economic competition, restructuring, centralisation, globalisation and informational capital. Communities in the Bemeringal region of Australia

are already conscious of the need for business enterprise diversity, although they may need to examine wider or alternative technological development options and focus on solutions that will provide greater employment opportunities for all in a particular region rather than for a narrow stratum in a specific location. While visions of global, national or wider regional economic engagements are enticing, regional self-reliance for funding, job creation and enterprise development should be examined first. Many rural industries may continue to suffer under present trade, weather and polity conditions, the high level of social capital between the community structures and agencies that are already in place the Bemeringal region's sustainability is not in question. However, the Bemeringal region remains vulnerable to further restructuring under neoliberal policies and the potential of information and communications technology to become the Trojan horse of a global economic hegemony. While presented as the funding of information and communications technology towards providing regional access to national e-commerce networks and the global economy, *Networking the Nation* hides the threat of a neoliberal agenda providing an unfettered global access to the Bemeringal region, thus accelerating its demise.

CHAPTER 7: SUMMARY AND CONCLUSIONS

Introduction

This chapter the summarises the background and key arguments in the thesis that contribute towards answering the research question of what gets in the way of communities trying to use ICT to develop their region. The study of the Bemeringal region examines a rural community project proposed as a pilot for the federal government's strategies to develop regional communities. The thesis topic was constructed from questioning the socioeconomic role of information and communications technology in sustaining rural communities and the author's lived experiences guided by an intellectual transition from a philosophy of knowledge to a philosophy of wisdom (Maxwell 1984). Through an examination of international and national factors that influence regional activity, the study answers the wider question of whether a community can promote its own development.

National and international economic and political activities have contributed to the emergence of rural and regional issues onto Australia's political agenda. Nationally, the endemic socioeconomic decline of many rural communities has led to high levels of social discontent and to the emergence of far right political movements that have often attracted a substantial minority of votes in traditionally conservative electorates. An international agenda on information and communications technology was introduced by the Organisation for Economic Co-operation and Development (OECD) when a meeting of the OECD proposed that its member states enact measures to implement a Global Information Society (GIS). The federal government's agreement with the World Trade Organisation's (WTO) demands to open national markets to global

competition from foreign electronic equipment manufacturers and telecommunication carriers has committed Australia to removing the government monopoly of telecommunications infrastructure that existed under Telstra. Such political and economic activities attempt to remove impediments to the use of ICT and abrogate government control of national telecommunications infrastructures, handing it instead to market forces and multinational corporate interests. These actions will at least inhibit the ways in which local communities might promote their own development using ICT. Indeed, it will almost certainly prevent further development of rural telecommunications infrastructure if it is not in the political and economic interests of the multinational corporations.

The federal government's initial part-privatisation of Telstra was the first step in honouring the Global Telecommunication Agreement to introduce global competition into the provision of telecommunication services. The *Networking the Nation* fund, which followed the sale of the second tranche of Telstra shares was purported to assist community organisations to provide telecommunication access to the Internet for sustainable regional development (DoCITA 2000). However, the provision of funding was dependent on projects having a regional focus rather than a community base. No matter how regions are defined, whether administrative, geographic or economic, most are not homogeneous social entities because they encompass a myriad of disparate communities. Such heterogeneity means that without the commitment and agreement of all the region's communities the application of ICT is unlikely to successfully contribute to sustainable regional development. It would therefore have been more effective to provide funding to regionally focused organisations like the Bemeringal Business Enterprise Centre rather than to local government authorities. Rural shire councils are bureaucratic organisations whose primary interest is the welfare of their own shire, often in direct

competition with other shires in the region for government largesse and economic opportunities. The absence of a comprehensive audit report supports assumptions that successful strategic applications of the *Networking the Nation* fund have been at best sporadic and limited for most non-metropolitan regions. Indeed, contemporary studies suggest that there has been a further decline outside metropolitan regions in the timely installation and maintenance of services and a further degradation of rural telecommunication performance since the decision to privatise Telstra (Webster 2000a). At the time of writing, the full sale of Telstra remains on the Government's agenda and continues to provoke controversy and community anxiety, particularly in rural regions.

The regional forums that were organised by the Commonwealth Government to explore sustainable options for non-metropolitan community developments rejected the imposition of a one-size-fits-all solution. Rather than canvassing a wider range of alternatives for community development, many of the ideas presented at the forums simply promoted the use of ICT. Indeed, there were calls for the federal government to provide further funds to improve telecommunications infrastructure and support a bottom-up approach to regional and community developments. The global extent of rural regional decline has meant that a range of possible solutions can be exemplified by other western economies with similar social and economic structures to Australia. However, most of these countries have much larger populations and, with the exception of North America, significantly smaller geographic regions. A low population density and continued reliance on public sector finance therefore severely impacts on the viability of these overseas models of community development for Australia. Therefore the answer to the question of whether a community can promote its own development is that it is highly unlikely. Communities will continue to be dependent on the

unequal partnerships with governments, national and multinational companies for socioeconomic development.

Summary of key arguments

Technological perspectives

Science, Technology and Studies (STS) have contributed to social inquiry in providing a more coherent understanding of technology in society by seeing it as a complex social phenomenon. Among the corpus of work on technology in society there are many that recognise the propensity for technological determinism and a continued belief in technological autonomy in one form or another. Technological determinism is implicit in the idea that information technology and telecommunications will change and sustain rural economies and levels of population. Belief in technological autonomy is found in many political and economic assumptions that progress in information and communications technology will inevitably provide a seamless and cost effective network access to commercial and government information throughout Australia and the western world. Government funding of information and communication technology developments to sustain regional communities implies an uncritical faith in technological progress. It also reveals a belief in technology's ability to solve many of the social and economic problems of society without regard to structure and agency, a belief in a technological panacea that dominates many government social and economic political initiatives.

The conflation of human and technological progress ignores how human progress encompasses less tangible fundamental social goals and values than those of technological progress. Many reports on the application of contemporary technologies attempt to reveal how they are in accord with

contemporary social values, visions and aspirations. However, the full import of those changes for society are rarely recognised or analysed. While there are doubts raised about the benefits for human beings of some biological, environmental and pharmaceutical technologies, ICT invariably escapes criticism. One of the reasons is the tendency for ICT proponents to report only the positive results of implementing technology while ignoring any negative outcomes (Warschauer 2002). Social experiments such as the 'hole-in-the-wall' computer kiosk, provided by the New Delhi Institute of Information Technology with funds from the IFC, a World Bank subsidiary; the Information Age Town of Ennis in County Clare, Western Ireland, promoted by the telecommunications company Eircom; and USAID to an Egyptian university are just three examples of this trend. The problems in gaining a balanced picture of the effects of implementing ICT are compounded by media reports heralding community projects in headlines and minimising reports of their demise in carefully hidden by-lines, if they report it at all. While perceptions of technology constructing a new society are hardly recent additions to social theory, the construction of an information society remains controversial for many social analysts, in its technological determinism, vagueness in the measurement of its diffusion and point on the scale of adoption of information technology that society is judged to be informational. Similar criticisms apply to the concept of an information economy and the quantitative homogenisation of information workers in which the precise nature of statistical percentages hides the processes of taxonomical allocation or what is classed as ICT work.

The positive promotion of technology ignores men's domination of technology, the politics embedded in technological artefacts and the ideology of the relentless rationalisation of technological strategies to solve economic as well as social problems. Such rationality becomes an ideology in which not only the application of technology but technology

itself dominates society by removing consideration of social interests from the concept of technical reason (Habermas 1971 p.82). However, there is a polarised divergence of confidence in technology that depends to a large extent on the social distance of the actor from the technology in question. Those closest to the design and implementation of the technology are often less certain that a particular technology will achieve its stated outcomes than are many of those who just promote its use and have a commitment to implementing the technology in question. There can be no doubt that the person not closely working with computer and communication technology is vulnerable to the rhapsodic rhetoric or *cyberbole* of ICT marketing. Indeed, advocacy may not require any knowledge of the technology other than a perception of possible political or economic advantage in its promotion. This does not escape the observations of those with knowledge of the technology and would almost certainly get in the way of using such technology.

Many of the abilities of information technology and telecommunications are primarily shaped by the needs of corporate capitalism to provide global financial, industrial and informational networks for remote control of overseas operations (Castells 1996). Developments in the nature of work through the introduction of information and communications technology are claimed to reduce the cost of labour by deskilling the worker and reducing the need for human intervention. The fact that each new generation of computers requires fewer specialist skills and less technical literacy in its operation appears to confirm this claim, although each new technology historically tends to follow a similar development trajectory towards a simplification of use. While new applications of information and communications technology frequently require a different set of skills, a new range of knowledge and significant changes in work practices, each application continues to require, even if it does not initially provide, an

even greater degree of management control of labour and access to information. Those with previous experience of similar or earlier versions of such technology would almost certainly be cautious in its use.

Feminist studies confirm that women are employed mainly in the more numerous and comparatively low-paid, low-skilled and casual positions that dominate the emergent service-based ICT economy. The preference to employ women in telecommunication-based services has been the case since the late Victorian era when telephony began and women adapted the telephone for domestic purposes. In the fast growing teleservice industries, information and telecommunication technology's ability to automate, inform and network has provided new employment opportunities in customer service or teleservice centres, commonly known as call-centres. This type of work is considered as particularly suitable for the high level of dexterity and discourse abilities possessed by most women (Yeuk-Mui 2001). Employing predominantly women agents, the call centre industry is considered by many commentators as another example of patriarchal exploitation. Indeed, it has been argued that social inequality has deepened under neoliberal policies and, with the widening polarisation of society, has taken on digital aspects with unequal social access to telecommunications, microcomputers and the Internet in the contested notion of a simplistic digital divide. The digital divide concept disguises regional dimensions of inequality by subsuming geographic competition, disparities in household income, occupational status, educational attainment and differences in gender, demographics and resources.

Social dimensions

The literature reviews of the social dimensions of rural regions have outlined many of the social issues involved in regional community

development projects, providing an understanding of the structure and agency involved in the creation, implementation and development of endogenous initiatives in rural regions (Bowman 1981; Dempsey 1990; Gray 1991; Poiner 1990). The constructed images of what is rural and urban are used to define contemporary Australian society and are constantly reproduced in entertainment and advertising media invoking stereotypical images of simplistic rural communities contrasting with more complex urban communities. The images imply differing characteristics of social relationships that occur to varying extents in both types of communities, therefore it is argued that the rural/urban divide is a social construction of space symbolising a separation of lifestyles and values. It is this urban centred symbolic construction of *rural* that provides an identity for those people living outside of metropolitan regions as a form of resistance against the city's hegemony. The power of symbols lies in their 'flexible interpretations that allow the retention and sharing of a common form without imposing a common meaning' (Cohen, 1985 p.21). This flexibility in the symbolic construction of community has allowed a new topology to be conceived with the advent of the Internet. It is an online electronic community, which does not rely on closeness of locations but provides an impersonal or contractual process of interaction rather than face-to-face communications. While it cannot replace the human dimensions of a traditional conversation or even the vocal tones and inflections in a telephone call, for many rural people it is an acceptable alternative to the isolation many experience. However, the proliferation of spam and the treadmill of continual obsolescence inhibit its implementation and ongoing use.

While a strong sense of localism is found across all strata in rural regions creating visions of homogeneity, heterogeneity is the norm in most rural regions today just as it is in metropolitan regions, in cultural perspective, in

educational attainment and economic advantage (Dempsey 1990; Gray 1991). However, significant differences remain between rural and metropolitan regions and to a lesser extent between farm and town, particularly in political and social dimensions. While rural politics tends to be conservative it can swiftly mobilise community solidarity and turn to radical resistance as was evidenced by the rapid rise in the influence of far right political values. There are many differences between the perceptions of rural women and their metropolitan counterparts, with rural women now emerging as a powerful force for change (Grace and Lennie 1998). Most countrywomen refuse the feminist label espoused by many of those in urban regions, preferring to see themselves as business partners or administrators. The activities of countrywomen's networks have enhanced women's status and many are now recognised in a growing number of rural organisations and communities as effective business managers, active partners and efficient administrators. These social changes are similar to those detected in the U.S., transforming women's conditions, weakening patriarchy and redefining gender relationships, which is seen as accompanying the processes of transforming technology and economics to create a network society (Castells 1996). A network concept is crucial for the study of rural and other regional social interactions, actors' perception and community development. In the social sphere of a rural community where class divisions are indistinct, social status is the paramount measure of an individual's power and influence.

There are two major problems facing rural regions of Australia today that are causing concerns for many rural inhabitants and social analysts. The first problem is finding a secure role for rural populations in a global economic system. The second problem is to counter the detrimental effects of neoliberalist policies that, in conjunction with global economic strategies, are driving rural regions of Australia into further economic,

environmental and social decay. The transformation of farming enterprises through a trend towards the industrialisation, concentration and control of agriculture and grazing enterprises becomes just one link in an agribusiness food system of global production in which ICT plays such an important role. However, there are alternatives emerging in local food production and marketing practises that resist corporate models of agriculture through organic farming and farmers markets. At this time it is too early to gauge the effectiveness of these strategies in countering the dominant economic discourse and pervasive values of neoliberalist policies.

Social capital

Many policy-makers believe that a community's possession of a high level of the aggregate concept of social capital, with stakeholders of sufficient levels of human capital, is the predominant social model prescribed for the successful implementation of community technology. One criticism of the political perspective of social capital is that its simplistic focus on associational membership with its inherence in individual characteristics not social relations ignores context specifics and adds moral and ethical values (Edwards and Foley 1998). This contrasts with the sociological emphasis on social capital as socially embedded, context-specific resource possessing moral and ethical neutrality inhering in the relations and interactions between individuals. Social capital also enhances human capital, which is to be found in the individual's possession of education and skills and tends to promote higher levels of social capital (Coleman 1988; Coleman 1990). While social capital is regarded as an aggregate concept of most sociological theories presented in a more attractive garb, it might be better advanced were it to revert to an individual level analysis and incorporate negative as well as positive social impacts (Portes 1998; Skocpol 1996). Another approach regards the current policy focus on

social capital as a means of reintroducing 'social' aspects into contemporary social policy, which have become subordinated to the primacy of political and economic values (Cox 2000). However, some contemporary sociological studies conclude that social capital is an elitist ideology that invites claims of a neoliberal perspective in overlooking material factors in creating inequalities of socioeconomic status (Greig et al. 2003).

A research design

Current academic social inquiry under a philosophy of knowledge seeks to learn from scientific progress how social progress might be achieved, whereas the transition to a philosophy of wisdom questions first what is of value in life for oneself and others, particularly when endeavouring to solve the problems of living in the rural community of this case study. What this means in practice is that a philosophy of knowledge requires an objective analysis of society, excluding all subjective views, emotions and experiences, only examining objective facts to expand on the accepted knowledge of the time. In the case of the Bemeringal region, such a study would have collected numerical data such as population statistics and the levels of human, social and financial capital. The study would have noted the type and number of ICT facilities available in the region, the economic structures and agencies and possibly the geographic dimensions would have also been collected and analysed. However, without questioning the history of the region, what are the needs of people in the region or what the community was trying to achieve by implementing ICT in the development project, the conclusion might have been that successful outcomes were unproblematically achieved. Indeed, many would argue that the political objectives were indeed achieved at the federal level of government. By adopting a philosophy of wisdom for this thesis the social inquiry primarily

explores the history, needs and problems of the rural communities, examining social structures and interactions, experiences and values before questioning the past and current roles of technology in the region and posing possible resolutions to its current problems.

The research design constructed in Chapter 4 follows an *abductive* research strategy to explore, describe and understand the recursive role of social structures and agencies that might obstruct community technology developments in rural regions. Data selection was from the case study of a community initiative for a pilot model of self-sustaining development. Data collection was primarily by a qualitative methodology that was complemented by the use of secondary and tertiary quantitative data, which, in conjunction with the researcher's critical reflexivity and a multiplicity of informants' accounts, provided validation of the data. Recognising the informants as active, knowledgeable and reflexive individuals, encouraged them to tell their stories and enabled the recursive character of social life in the Bemeringal region to be revealed.

Sustaining the Bemeringal region

The exploration of a community technological project to sustain the Bemeringal region found a hierarchy of social networks. The major organisational networks involved in the project are the local government authorities and chambers of commerce and industry, dominated by influential members of the community service network, Rotary International. These networks are primarily focused on a search for initiatives to sustain and develop the region's prosperity in a national and international competitive marketplace, assisting established local businesses while incubating new ones. The region's recent historical experience of utilising advanced technologies and the recursive character of

social life have provided the town of Creeks Crossing at least with the capacity to take advantage of the new ICT strategies. The creation of a community technology centre utilising informational and communication technologies and funded by the *Networking the Nation* scheme, appeared to address all the criteria to gain, sustain and develop economic advantages for the region. Invisible to traditionally male networks is the strongest and most pervasive regional network, the informal rural women's network that provides much of the administration for the region's businesses, organisations and institutions. Women in the region have generated new rural employment initiatives for tourism, farming diversity and off-farm income while, in many cases, continuing to provide essential family duties of care. As the traditional providers of regional administration services, rural women were empowered by the utilisation of information and telecommunication technology at work or at home, on the farm or in the town.

Given the problems of climate and trade, farming communities in the Bemeringal region have traditionally relied on off-farm incomes to support their families. As local townships decline under urban focused, neo-conservative public policies and private sector economic imperatives, opportunities for off-farm incomes are being diminished by the centralisation of services to larger urban centres and increased competition from exogenous companies. It is therefore in the farming community's interests that rural service centres such as Creeks Crossing continue to prosper. The region's Shire Councils and many of the larger businesses have used computers for at least two decades so ICT is not a new concept, in spite of the urban-centric assumptions implicit in government computer programs. While the acceptance of personal computers and telecommunications for farming enterprises and personal uses in rural centres has outstripped many expectations, small business enterprises are

still slow to go online and take up e-commerce opportunities. Many regional commentators believe that the introduction of e-commerce, however slow in coming; will provide farming communities with alternatives to local commercial centres and enable them to access wholesalers in national and global markets. However, a recent national economic report has argued that access to national and global markets works both ways. Most global enterprises in North America, Europe and Japan are far more advanced in e-commerce than Australian enterprises. Therefore, access to a global and less regulated market will introduce wider and more powerful competition, which may adversely affect local retail and service businesses and, in many cases, accelerate the further decline of Australian rural centres. The knowledgeable inhabitants of the Bemeringal region are aware that such competition would place at risk the viability of many rural commercial and service enterprises and the continued existence of some rural communities, indirectly challenging the future of Australian farming enterprises by removing sources of off-farm income. The recursive nature of social practices in Creeks Crossing have seen the same basic techniques applied in community development that were repeatedly used before the introduction of microcomputers, the Internet and e-commerce concepts. The political power inherent in a marginal electorate and the litmus of wider state and federal voting intentions, have historically encouraged community practices to ensure the continued availability of government support. The resources of electronic communication between government and public authorities, commerce, industry and the private individual have merely assisted in these practices.

The initial conception of the community technology centre was a call centre division contracted to a government department, supporting a regional industry development division and thus providing a self-sustaining core business for regional satellite enterprises. The flexible nature of call

centre employment was seen as providing ideal opportunities in rural towns for off-farm employment, just as it had provided employment opportunities for depressed urban regions. Lower labour costs and overheads of rural areas were however, limited by access to a smaller labour pool compared to urban centres. This factor required the minimisation of staff turnover by reducing the pace and pressures that are normally experienced by agents working in many larger commercial call-centres. However, the initial objectives of the community project became lost when the Development Officer declined the position of Director at the Technology Centre and the promised contract with a Commonwealth Department failed to accompany the federal government grant. Reputedly for security reasons, the Commonwealth Department built a separate teleservice centre staffed with its own personnel, some of which were recruited locally.

The powerful and pervasive ideology of informational and communication technology was seen as providing sustainable economic advantages by some levels of government and strata of society. However, socioeconomic research and analyses that contradict these assumptions appeared to be cynically ignored. Government projections of e-commerce opportunities for rural small business enterprises makes the attraction of access to global markets through the Internet irresistible, but frustratingly elusive in the Bemeringal region given the poor performance, unreliability and lack of contemporary telecommunications infrastructures. The initial concept of a community call centre contracted to a government department and supporting regional development appeared to be sustainable. Indeed, it would appear that the flexible nature of call centre employment would have provided ideal employment opportunities in Creeks Crossing and in the wider Bemeringal region. One of the original objectives of the community technology project was to provide local employment opportunities for off-farm income however, that objective disappeared with the departure of the

original architect of the scheme. When a local accounting firm informed the call-centre committee that importing employment and many of the people to fill those jobs would have the same effect as providing local employment for local people, nobody questioned the original project's goals of sustaining regional development. While a reliance on government grants and the lack of an adequate business plan to compete in the private sector may have placed the call-centre operations at risk from the date of its inauguration, the concept of it supporting local industry development to provide clusters of new businesses disappeared. The immediate short-term benefits of a call centre in providing additional customers and consumers for local businesses in Creeks Crossing overshadowed the longer term and more sustainable benefits in the cluster development of small to medium enterprises.

Unanticipated consequences

The attempt to establish a community technology centre in Creeks Crossing has had unanticipated consequences. The call centre division was unable to compete with established private sector teleservice centres or secure any of the large, long-term contracts available in the more populous metropolitan regions. Therefore, it failed to obtain the required level of income needed to expand its operations and to support the regional industrial development division before exhausting its government grant. However, the attempt has succeeded in establishing a government department's call centre that has brought an additional number of inhabitants to the town, injecting additional income into the local economy and providing a limited number of local employment opportunities to gain off-farm income.

In common with many other local government authorities, both urban and rural, there appears to be an almost endemic distrust of local councils in the

local community. Distrust of the federal government's interventions in the public telecommunication utility, Telstra, community doubts about the security of the Internet, the spam overload of email resources and regional economic uncertainty has prevented a rapid take up of e-commerce. Many of the measurements of social capital appear to have been adapted to Australian social policy formation, however, it should be recognised that similar concepts of trust, reciprocity, voluntarism, cooperation and enforcement of norms are already embedded in the values, ideologies and social networks of many regional communities. While rural ideologies of self-reliance, voluntary assistance to those in trouble and forthright honesty are arguably measures of social capital, the darker side of social capital is also evident. Those inhabitants who do not comply with the social norms set by the more influential members of social networks are excluded. The excluded encompass those with low socioeconomic status, the long-term unemployed, the non-conformist and newcomers with locally unacceptable ideas and practices. However, one of the most important unintended consequences of the introduction of information and communication technology has been in the empowerment of women. While this consequence is not restricted to rural regions, it has provided a major resource for farm management and a potential source of off-farm income and thus contributed to the sustainability of rural communities.

Conclusions

This study has examined several contested sociological concepts that have been implicated in answering the research question, 'What gets in the way of communities trying to use ICT to develop their region?' These concepts are firstly, the use and perception of information and communications technology to sustain rural regions, secondly the dimensions of social structure and agency in regional communities and networks, thirdly the

aggregate concept of social capital, and finally, the collective policies that are dominated by neoconservative values.

Informational and communications technology, like any other technology, is socially shaped. While information and communications technology cannot determine social development, it can influence human values and perception and thereby lead to changes in social structure and agency. The Commonwealth Government's agenda and strategies appear to utilise computer and telecommunications technologies to serve neoliberal policies of market-oriented reform, the minimisation of government expenditure in the central delivery of social services replacing the concept of public service with that of individual responsibility. In the Bemeringal region, information and communication technology has enabled the efficient administration of small commercial, industrial and farming enterprises while it has provided the means for individuals to stay in touch with dispersed family and friends. The effect of information and communications technology on the economies of rural regions has yet to be fully measured because of the resistance to taking up e-commerce. This covert resistance is partly due to the government's own ideologies in the privatisation of telecommunications and its failure to ensure a satisfactory standard performance across the national communications infrastructure. However, the failure of the Bemeringal community technology centre initiative was substantially due to a lack of social capital in interactions between government ministers, their departments and rural communities. Ministerial interests have affected the ability of departments to fully cooperate, communicate and conform to all-of-government strategies other than to provide a token rural focus in the presentation of policies. The Commonwealth Government's resolution of the socioeconomic problems in the Bemeringal region was simply to reproduce and reinforce the region's dependence on government support. It is paradoxical that the

neoliberal policies considered by many to be responsible for the decline of rural regions should be countered by federal government strategies of community developments utilising information and communications technology. The technologies in which the very same social, economic and political values are embedded that have enabled the implementation of a neoliberal agenda to restructure much of regional Australia are now being advocated to sustain those same rural communities.

The role of social capital in the networks involved with the implementation and operations of community technology would appear to galvanise community solidarity and support for a neoclassical economic model. At the same time, social capital also provides conformity of purpose and suppresses dissension and criticism. Social capital inheres in social interactions and is therefore a process that cannot be stored-up to be drawn on later. Rather it is the social obligations and responsibilities that facilitate the norms, social trust, reciprocity and cooperation within social networks that can be called on when required. These are intrinsic values in the creation, sustainability and role of social capital and while their existence can be verified and observed in action, they prove difficult to measure. What can be measured however are the outcomes, which, when taken out of context are difficult to identify as a return on any particular investment. The complex interplay of relations in the confines of rural communities, the fears and uncertainties, the ideologies and dependencies combine to form a delicate balance between success and failure, trust and distrust, faith and despair. The level of social capital in other than the upper strata networks can therefore fluctuate dramatically over short periods. Past experiences of the activities of local, state and federal government policies and their negative consequences are considered by many to have contributed to the region's decay over a number of years. Recent community activities, initiated by the more advantaged higher strata

networks, have provided some faith in the future. While public distrust of all levels of government bureaucracy is apparent, it is the impact of this distrust on the hopes and visions of the youth that is of concern for the future of regional Australia.

Answering the research question

What gets in the way of communities trying to use ICT to develop their region? Firstly, the lack of up-to-date cost effective and reliable telecommunication infrastructures suitable for the region's topography and weather conditions. Large distances and low population densities exacerbate the problems of providing viable, up to date telecommunication services. Secondly, the divergent perspectives of ICT inhibit its effective use in several ways. The most influential perspective, because it is held by many of those with the political power to determine funding levels and priorities, is that ICT is the panacea for rural regional socioeconomic problems. In many ways, this perception is a reflection of reports about the apparently unproblematic implementation of ICT that ignore issues of social disadvantage while emphasising only the economic benefits. Then there are the many inhabitants who do not see the need for ICT in their daily lives or, due to the perpetual obsolescence of microcomputer technology and rural poverty, are unable to afford such luxuries. Indeed, these people might possibly fuel the apparently urban-centric view that rural inhabitants are not technologically literate when compared to inhabitants of cities. In the case of the Bemerigal region, many inhabitants had long career histories working with advanced technologies in the region, posses high levels of human capital, are computer literate and are active, reflexive and knowledgeable people. In reality, the nature of rural life has long meant that the inhabitants have become far more adept at adopting technology and overcoming technical problems than many of their urban

counterparts who have help, repair or replacement facilities nearby. These rural practices have constructed the rural myth that fencing wire can be used to fix anything. Indeed, those working with or wishing to work with ICT in rural regions, face constant challenges and frustration in not being able to access fast and reliable telecommunications services. However, in this instance it is beyond the ability of fencing wire or apparently the influence of rural communities to fix and certainly gets in the way of the effectively use of ICT.

Thirdly, the oft-touted advantages of living in a marginal and litmus electorate can have unforeseen, detrimental consequences. Those who have little concept of what is needed to continue living in the community or the region and have little experience of a rural lifestyle make decisions for projects divorced from community or regional interests. Therefore, these projects are rarely a true bottom-up strategy and frequently follow a one-size-fits-all approach. Very often this means that the conditions and limitations placed on the funding grants and development processes are detrimental to the sustainability of the community or the region. More importantly, the development project is subjected to actions taken in networks outside of the project community. This happened with the Bemeringal Technology Centre, when decisions influencing the project outcomes in the use of ICT were made in the ontology of actor-networks extending beyond the structures and agencies of the community. In the case of marginal electorates, these nested networks and the agents involved in them generally have political interests in seeking to gain influence through the implementation of ICT without concern for the project outcomes or knowledge of the technology.

Implications of the study

Implication of this study for people in regions such as the Bemeringal who want to improve their community is to be found in the philosophy of wisdom. In following the philosophy of wisdom, primacy must be given to a social study of the history, structures and agency of each of the communities in the region. The needs, problems, strengths and aspirations of each community should be articulated before any possible resolutions are proposed, evaluated and costed. All of these cooperative and progressive steps need to be undertaken for possible alternative resolutions to be comparatively examined and before decisions on which technologies, if any, are applicable to the community's development. The source of project funds is a problem that should be investigated long before the decisions for community development. While the study reveals the problems of relying on government grants, alternative sources might be difficult although not impossible to secure due to the lack of community chests and foundations in Australia.

The problems of relying on a single local government authority for regional development are evident in the study. A committee with a regional focus along the lines of the business enterprise centre made up of members from communities in each shire in the region will be more effective. There should be recognition of the recursive nature of social practices in the actions of the reflexive and knowledgeable people of rural regions. While the levels of human, social and economic capital in the communities might play a role in deciding which developments to implement it is the actions of the region's inhabitants that will ultimately decide the project's outcomes. However, if the region is in a marginal, litmus electorate, there is a real danger that political interests will override those of the community with unanticipated consequences for sustainable development.

Possible futures and further research

While the number of small family farms and village communities will continue to decline under current neoclassical economic models and neo-conservative social policies, multinational corporations will increasingly invest in Australian agribusiness and larger tourist enterprises. Creeks Crossing will find the flexibility, resilience and perseverance to survive through the strength of its rural ideology and high levels of social capital existing in and between the community networks extant in the Bemeringal region. However, many of the smaller and more remote settlements in the Bemeringal region will continue to decline and, without some form of direct assistance or change in social values, many may eventually disappear.

It is impossible to predict future developments in technology 'which utilise or refer to physical processes of which we have no knowledge' at this time (Bloor 1976 p.15). However, it may be assumed that technological developments and the reproduction of social structures and agencies will continue to flow from existing technology and social, political and economic values, albeit mediated by national and international activities rather than the endogenous interests of regional Australia. The Bemeringal region, and Creeks Crossing in particular, will continue to enjoy its status and political advantage as a marginal electorate, at least for the foreseeable future. Indeed, if a viable national ICT network infrastructure is ever implemented, regional centres like Creeks Crossing may expand their regional economic influences by becoming 'glocal' nodes connecting local regional networks through wide-band high-speed satellite connections to global cities and subsequently the global economy. Social problems will continue to be experienced in the increased rural migration from villages to rural towns, from rural towns to regional cities, to municipalities and to

coastal lifestyle regions. Perhaps by implementing the neoliberal model, some rural regions will be demographically transformed to more efficient and effective resources for tourism and agriculture. However, the negative effects of this model will be found in the greater flexibility of labour with a higher casual and transient population producing (reproducing) geographic regions vulnerable to periodic loss of population and local economic volatility. In the meantime, women will continue to play greater roles in rural business diversity and administration, decreasing the levels of traditional patriarchy and contributing to the rural idyll of the countryside as an attractive place for families to live and work. This may, in a small measure, counter the restructure of some rural regions and might resurrect an imperative of social values in social policy.

While this study has focused on the networks inherent in a regional development, they were necessarily community networks of people advantaged by a high degree of social status. What is needed is a study focusing on the rural other, the excluded and marginalised, whether they migrate to coastal lifestyle regions, to major cities or remain in the potential ghost towns of less populated rural regions. How do they survive without access to the global network society, what problems do traversing the so-called digital divide or rural/urban continuum present for them and what kind and degree of social capital inheres in their interactions? A detailed, longitudinal study of key communities in a selected range of regions along the lines of Caplow's revisit of *Middletown* (Caplow and Bahr 1982) may then accrue a wealth of data to understand Australian regional life, create sustainable initiatives and formulate effective social policy. However, the study would only be the first step towards a philosophy of wisdom. The major difficulty lies in constructing a social inquiry that gives:

> [A]bsolute intellectual priority to our life and its problems, to the mystery of what is of value, actually and potentially, in existence, and to the problems of how what is of value is to be realised
>
> (Maxwell 1984 p.65).

An interdisciplinary approach may very well provide the means for such an inquiry. Maxwell's intellectual revolution is a tide that while it currently ebbs and flows, may eventually build to a king-tide that will clean away the detritus of humanity's mistakes and failures. The revolutionary movement of knowledge to wisdom is already under way but will require wider cooperative support than at present if the movement is to gain greater potency (Maxwell 1984). As a first step, the current focus of social, political and economic policies on economic gain rather than social values or human benefits needs to be moderated if a philosophy of wisdom is to be achieved. Given the pervasiveness of policies that have seen the ascendancy of neoconservatism, neoliberalism or the 'Washington consensus', this will be no simple or short-term task.

APPENDICES

Appendix A: Five-year allocation of funds

Funding to Australian States and Territories from the sale of Telstra shares in a $250 million general fund to be allocated over a five-year period is as follows:

State/Territory	Funds allocation*	Geographic size in square kilometres	Population 1996 census
Tasmania	$58 million	67,800	459,659
Queensland	$53.1 million	1,727,200	3,368,850
New South Wales	$37.4 million	801,600	6,038,696
Victoria	$26.5 million	227,600	4,373,520
Western Australia	$26.5 million	2,525,500	1,726,095
South Australia	$26.5 million	984,000	1,427,936
Northern Territory	$16 million	1,346,206	195,101
Australian Capital Territory	$4 million	2,352	299,243

* 2000-2001 Annual Report for the Department of Communications, Information Technology and the Arts: Appendix 15 (DoCITA 2002)

Appendix B: The Certainty Trough
(MacKenzie 1999a)

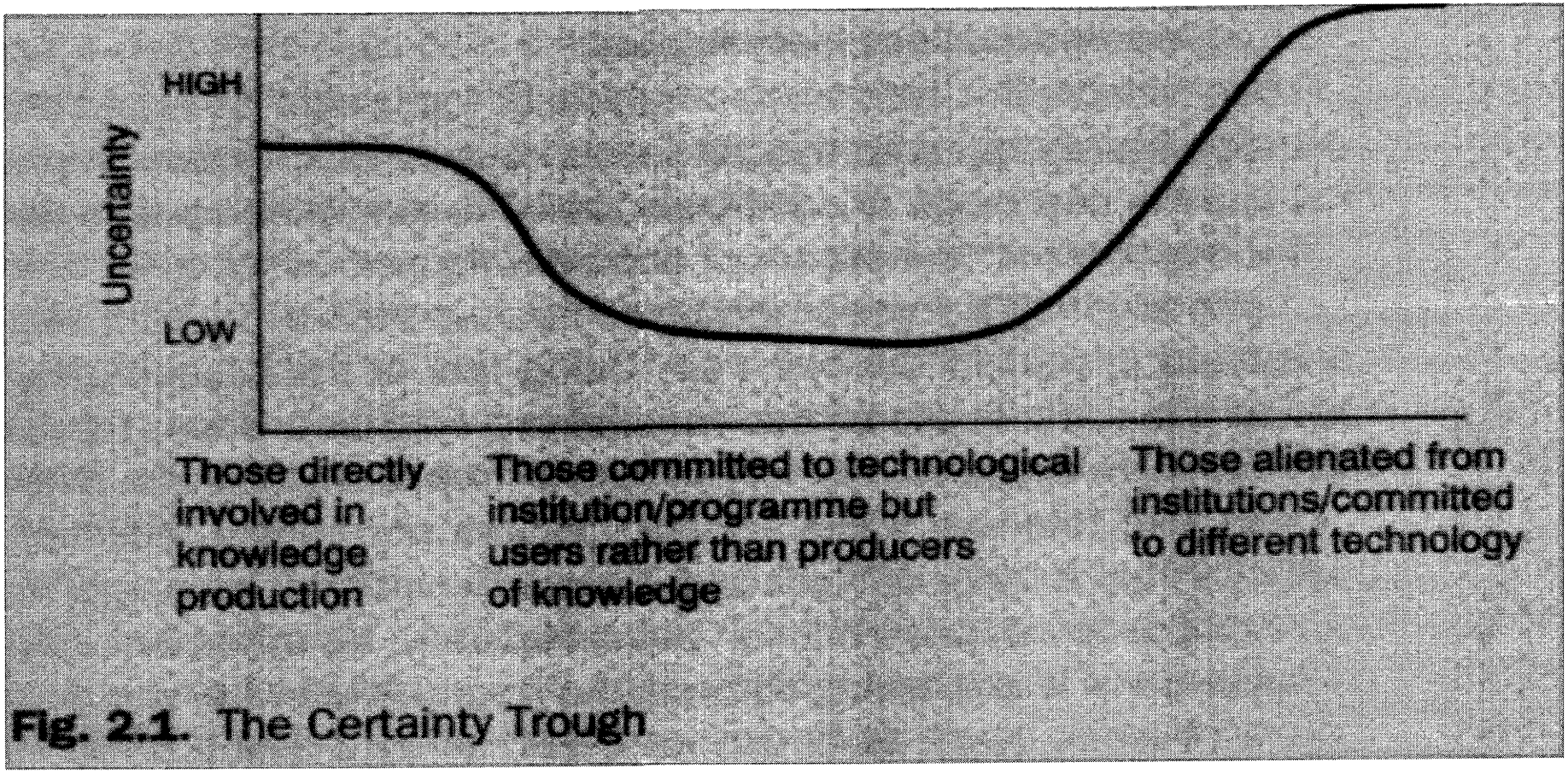


Fig. 2.1. The Certainty Trough

Appendix C: Information & Consent Form

Patrick Cox, (PhD candidate at the Australian National University), is involved in a study of community initiatives in the utilisation of telecommunications infrastructures and computer technologies in rural centres and small townships of non-metropolitan Australia. Records of interview will be kept secured in a combination locked case and in a locked room during the research process and destroyed once the thesis is completed. The true names of people, places and organisations will not appear in the thesis. To further ensure confidentiality, as far as the law allows, any material referenced in the thesis that may provide a link to a specific person, place or organisation involved in the case study will be attached in a *Confidential Appendix* with restricted access.

General questions may be directed to:
School of Social Sciences, ANU
Patrick Cox, (02) 6125 4388 Patrick.Cox@anu.edu.au
Dr. Alden Klovdahl, (02) 6125 4479 Alden.Klovdahl@anu.edu.au
Questions on ethics should be directed to:
Human Ethics Officer, Research Services Office, ANU
Sylvia Deutsch, (02) 6249 2900 Sylvia.Deutsch@anu.edu.au

I agree to contribute to this study on the understanding that all information and data will be treated in the strictest confidence, as far as the law allows, and I may withdraw consent at any time.

Name:
.....

Signature:..... Date: ___/___/_____

(To be retained by interviewee)

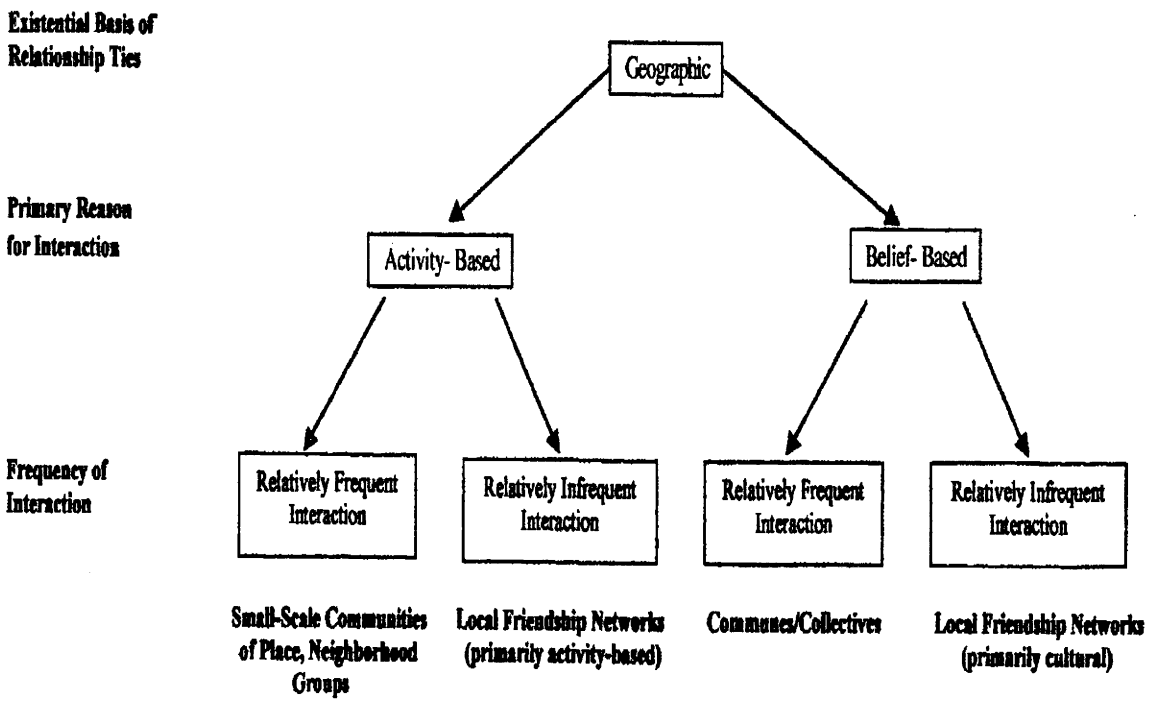
Consent Form

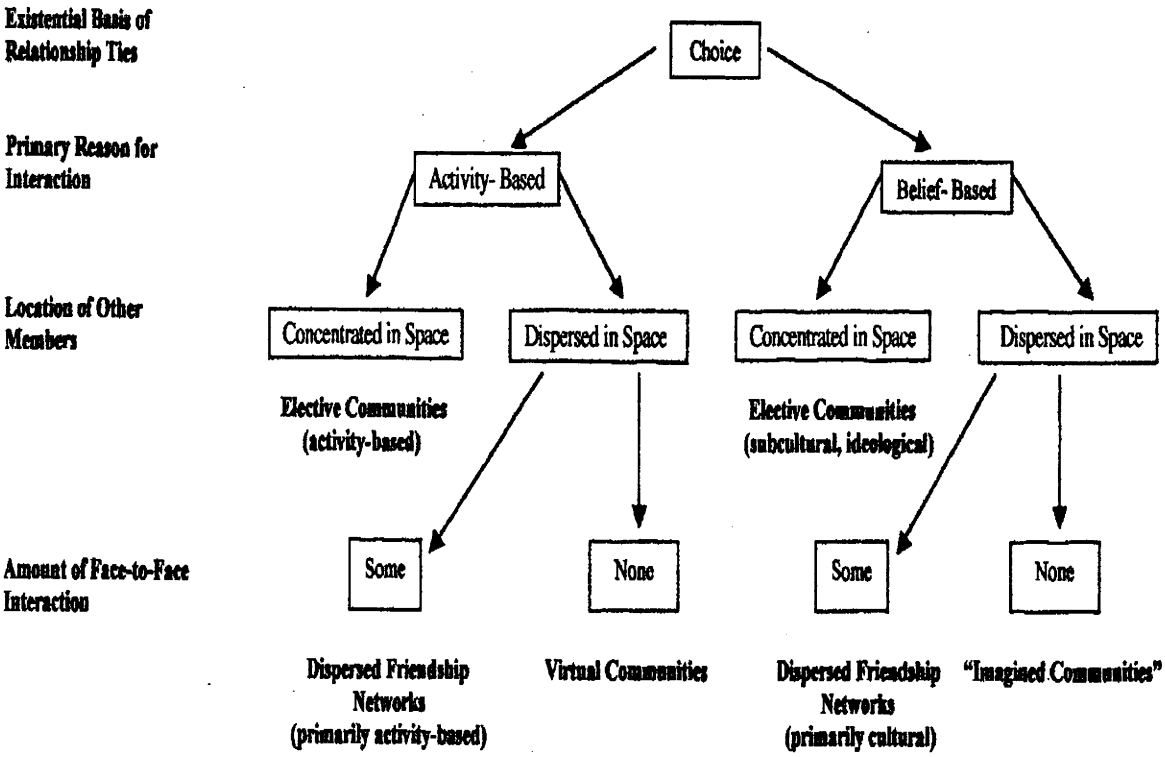
Name:
.....

Signature:..... Date: ___/___/_____

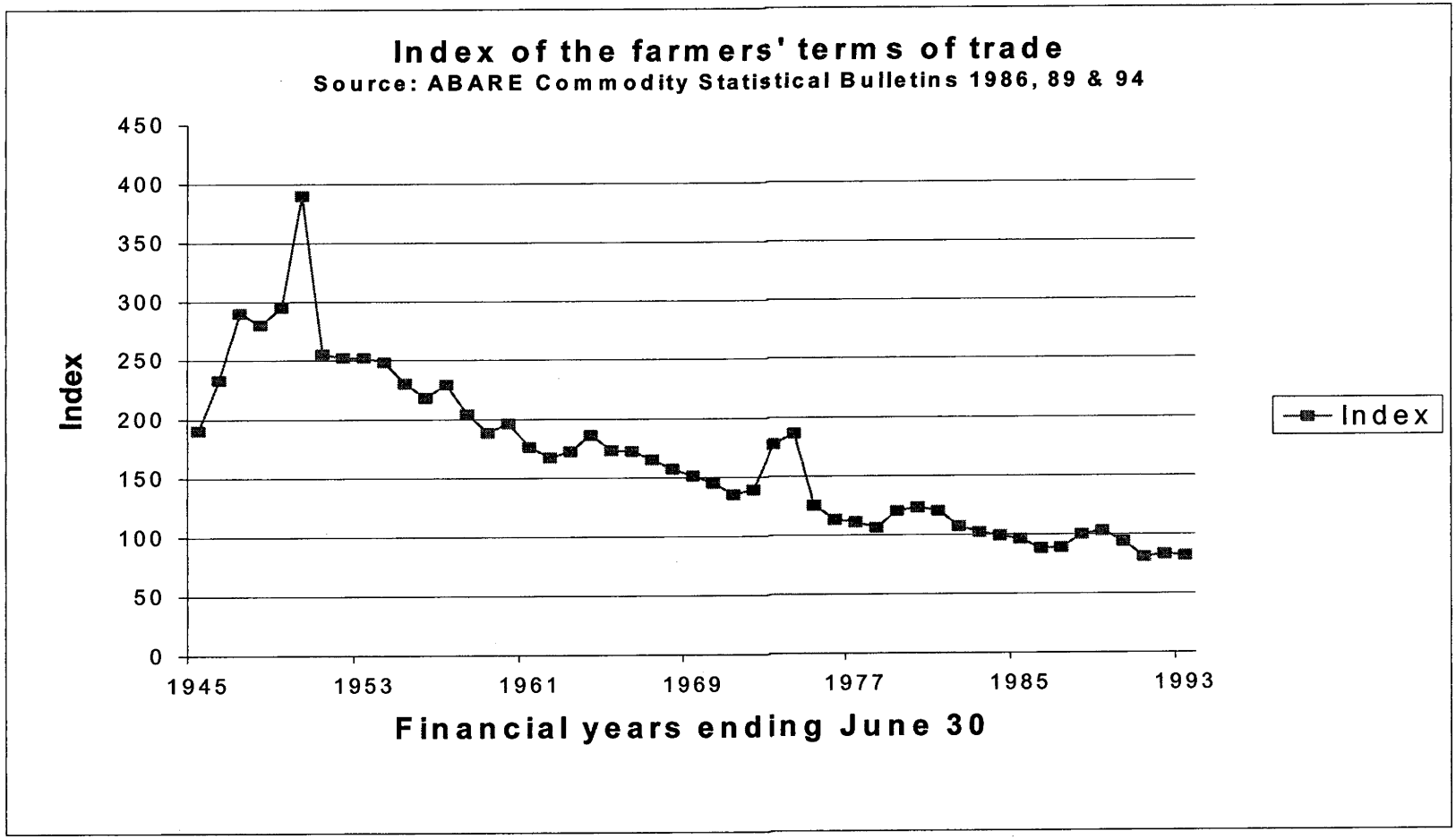
(Interviewer's copy)

Appendix D: Community types
(Brint 2001 pp.3-5)





Appendix E: Terms of Trade



Appendix F: Bemeringal Region demographics and distances

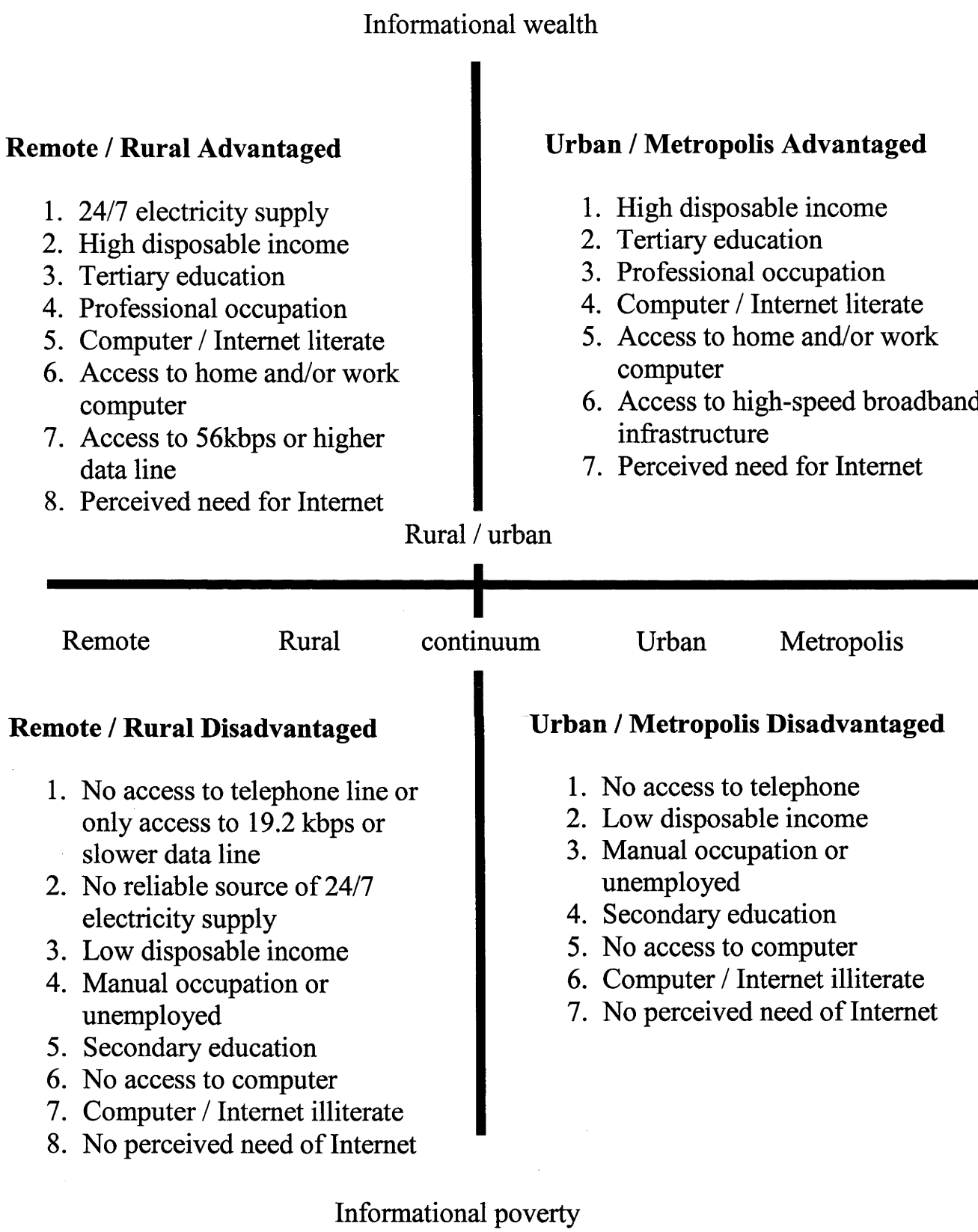
Regional population statistics – 1996 Census

Shire	Area (sq. klms.)	Pop (w/visitors)	Density (w/visitors)
Forest	3945	2788 (2911)	0.70 (0.73)
One-Tree	4926	8837 (9680)	1.79 (1.97)
Clearwater	6040	5558 (17,697)	0.92 (2.93)

Distances between shire administration centres & furthest regional villages

Town Council Admin.	Rural City	State Cap.	Forest Shire	One Tree Shire	Clear-water Shire	Border	Lake -view	Valley View
Forest	201	490	0	87	93	70	123	161
One-Tree	114	403	87	0	32	157	62	100
Clearwater	146	435	93	32	0	163	30	68
Furthest Villages								
Border	271	560	70	157	163	0	193	70
Lakeview	176	465	123	62	30	193	0	38
Valley View	214	503	193	100	68	231	38	0

Appendix G: A spatial model of digital inequality



Appendix H: Extracts from the Regional Forum group
regionalforum@lists.dcita.gov.au

Andrew's original message sent on Wednesday 16th May 2001: This morning on ABC's AM program Senator Alston asserted that a 19.2k Internet connection was acceptable for regional Australia and that this enables access to streaming audio and video as well as general Internet access. Although this is a marked improvement on the 2.5k average previously measured is this an acceptable access speed? What would you consider acceptable? What other options do regional Australians have?

Sally: We are in western Queensland ... A lot of our rural residents are on DRCS (digital radio concentrator system) and have speeds of 26k down to 9k!! Some people cannot possibly have Internet access because the phone lines are too poor (drop out more often than it is on). They want to start learning and embracing the opportunities that the technology can offer and it is not physically possible.

Angie: So, the bottom line would be that a minimum 19.2k is better than what some people already get, it's a far cry from what's available in other parts of the country, it's not adequate for up-and-coming technologies, only gives access to low-end streaming services, and personally, I think that 19.2k is pretty pathetic but I don't have any magic alternatives given the sparse population density and poor state of current telecoms infrastructure.

Elizabeth: I don't know if this is happening to other country users, but for me, my (land) line speed and quality is DROPPING. People are replacing conventional fencing with electric fencing, and guess where the phone lines are!!

Terry: The real problem with these standards is that they never quite get to the mark, and don't force a move to a standard the markets or users desire, it's more making a "standard" out of what is easily achievable. Again the rural / regional is being left behind what our metro cousins get or can expect.

Sharon: A one or two way satellite service would seem the way we should be heading – if only we could do something about reducing the costs so it becomes affordable for everyone in rural and regional areas (and probably some metro ones as well!). Stuffing around trying to get another 5 or 10kb out of an already unsatisfactory service seems to me to be a bandaid solution. Our awareness-raising project has continuously highlighted how much interest there is from regional communities in using email and the Internet. Bring on affordable two-way satellite Internet access and watch regional Australia embrace the opportunities and benefits of online services.

Geoff: I am currently looking to provision a 2-way satellite link for private use (64k up and 64k down). It costs about $40k for hardware each end and $1600 a month per 64K of bandwidth EACH WAY before you add any data to the equation. The retail 2-way sat products out there are not useful for wholesale purposes.

Geoff: My nondisclosure agreement with Telstra means that I can't give specific pricing, but I can say (I think) that their wholesale prices [to rural ISPs] on ADSL and MegaPOP … are between 2 to 5 times higher than their "retail" equivalents.

Following is the response of Ron, a regional ISP, to Chris, writing on behalf of a Regional Development Board.

Chris: Telstra are supposed to be trialling 64/400 satellite services, for announcement this year. I think this may have been pioneered by Farmwide. It may even go as far as 128/400. If it's priced like ADSL it will be far more affordable than ISDN and will be available in areas where you can't get ADSL...

Ron: Yep, got one. It's real cool, hikes along pretty well and no Telstra lines at all, catch for real regionals is 24 hour power is required.

Chris: ...As well, Telstra is supposed to be announcing ADSL with 'Static IP addressing' next month in capital cities with a countrywide roll out to follow. This will allow a small business or community organisation to host its own websites on in-house servers through ADSL (which Telstra doesn't allow now) at rates which also represent an affordable small business option...

Ron: Pipe dream. The communities and businesses don't have the skills and Telstra are working as hard as they can to wipe out any chance of rural IT industries.

Chris: ...One could complain that Telstra's priority should have been to take care of business needs first rather than protecting their ISDN revenue by delaying the availability, but at least they seem to be committed to it now...

Ron: One could complain a lot about Telstra.

Chris: ...At that point at least 99% of small businesses and communities will have more than adequate bandwidth to sustain the level of traffic they are likely to generate to / from their website...

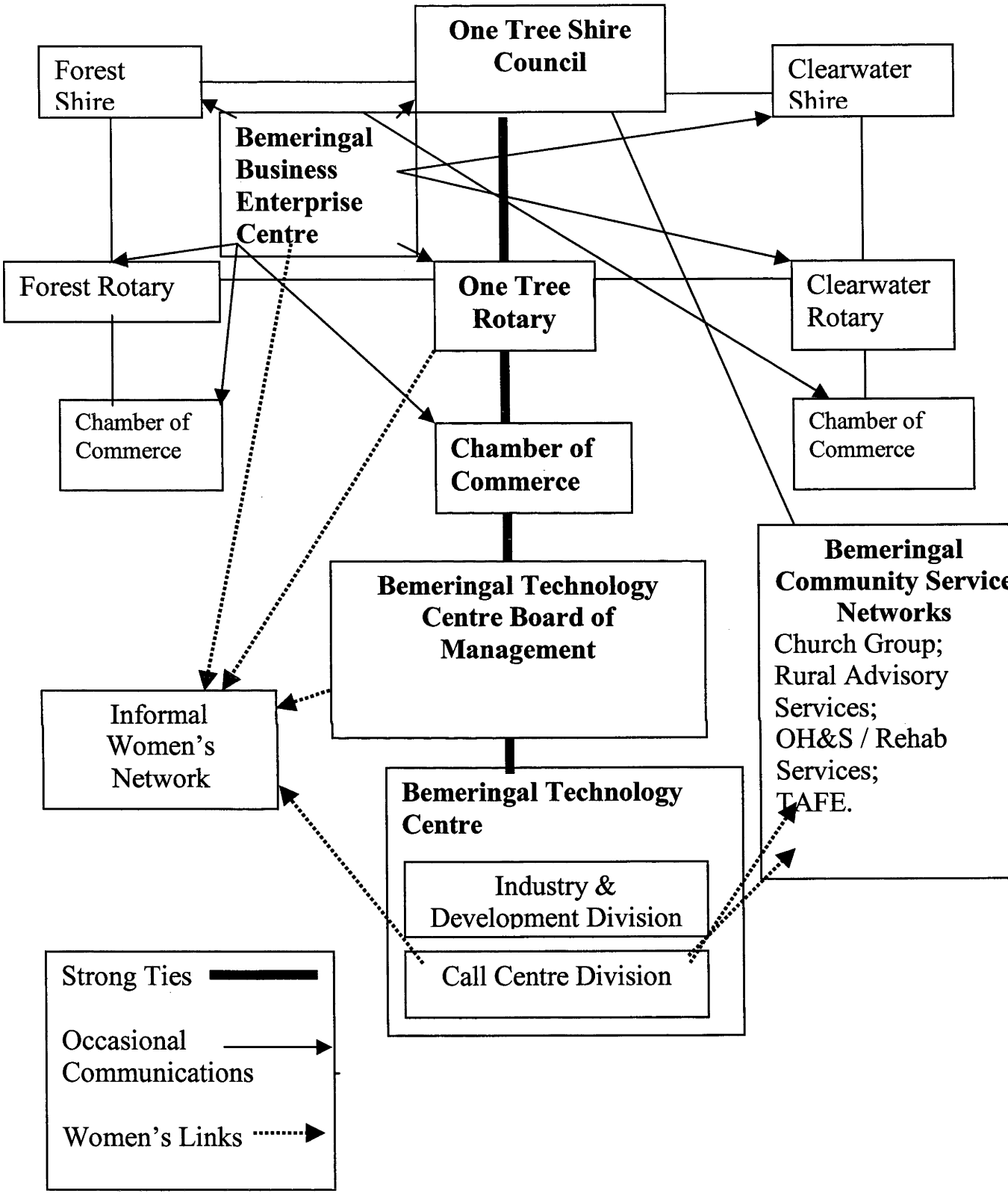
Ron: Dreaming.

Chris: ...It seems to me that what is likely to matter then is how fast small businesses can learn how to maintain an in-house server and use the technology to gain new business. This should generate considerable employment opportunities for bright young people in rural areas as well as spread the use of 'open source' software.

Ron: Not even close. The rurals tend to go to the cities for hosting and any IT work that could possibly pay the kids. Even the local govt. orgs. do this. The kids are going to the cities whilst the rural retail sector is undercut by their own wholesalers via the net. We are only bringing a new customer base to the established city and international markets. We are bringing lambs to the slaughter at the cost of our rural economies. It's time someone actually asked the question, "Why are we doing this?" Is it really because that is where the grant money is?

Evan: From being an interested reader, and sometimes contributor, of this forum for some time I have noted that there is often a small flurry (a flurrette??) of contributions on a particular topic, and then they quickly die down. Not so on this one since, like everyone else, my in-box has rapidly filled over the past couple of days. That says something in itself about this topic.

Appendix I: Bemeringal Research Network



Appendix J: List of Research Informants

Many of these informants were directly involved with the project while some were linked to the project through their membership of community networks.

Principle Informants:

Carol, Larry and Simon.

Commerce, Industry and Local Government Informants:

Jack, Katherine, Len, Norman, Terry and Van.

Community Service Informants:

Brian, Phillip, Robyn, Rosemary and Tom.

Informants directly involved with the project:

Elsie, Kate, Sarah and Susan.

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