CRITICAL ANALYSIS OF THE POST-APARTHEID SOUTH AFRICAN GOVERNMENT'S DISCOURSE ON INFORMATION AND COMMUNICATION TECHNOLOGIES (ICTs), POVERTY AND DEVELOPMENT

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Declaration

I, the undersigned, hereby declare that the work contained in this dissertation is my own original work and that I have not previously in its entirety or in part submitted it at any university for a degree.

Signature:…………………………..

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Abstract

This study comprises a discursive analysis of the underlying assumptions, rhetorical devices and the latent agendas masked within: (i) the burgeoning international ICT, poverty and development literature; (ii) the policy agendas of the major players in international development; and (iii) the ICT, poverty and development discourse of the post-apartheid South African government.

The aim of the study is to move beyond the current enthusiasm for derivative description and technological determinism, and to introduce a deeper, more balanced understanding of the relationship between ICT, poverty and development. The critique of the prevailing approach is rooted in the understanding of power, knowledge and discourse as outlined in the theory and methodology of Michel Foucault, and engages with theoretical debates about development, the 'information society' and the social implications of technology. The study draws upon approaches from critical theory and social studies of technology, but is undertaken from within the cross-disciplinary school of development studies.

Careful attention is paid to particular narratives, themes and issues, and how they are articulated in the ICT, poverty and development discourse. The aim is to map out how a particular model of development, with a focus on ICTs, has been constructed by the post-apartheid South African government. This model of development serves a normative purpose, both in terms of the types of interventions required and the desired outcomes. It is concluded that government seeks to present state ICT initiatives as neutral, scientific and outside of political conflicts. This discourse masks class interests and does not take account of elite groups and their interests in importing development schemes. Furthermore, ICTs are strongly associated with modernisation and Western rationalism, and are part of a technically-rational and technologically-determinist agenda that focuses on the 'digital divide' and the 'information society'. ICTs are seen as a technical solution to underdevelopment, one in which development is reduced to solving the information deficit of the poor. The net result is that the complex and deeply embedded political and economic factors which structure and shape poverty and inequality are made invisible and are therefore unquestioned.

South African ICT policy is entering a state of considerable flux with a wide range of ICT-related projects, programmes, policies and strategies underway by a number of national government departments. The post-apartheid South African government has embraced the ideology that ICT represents modernisation and is seen as a key technology for alleviating poverty. In much of government technicist rhetoric we find an implicit belief in an unproblematic causal progression from ICT innovations to social change.   Technological complexities, complex social processes and independent human agents are not seriously considered. The study offers guidelines for policy-makers to assist in re-conceptualising ICT, poverty and development and for devising national pro-poor ICT strategies that will be effective and responsive to development priorities. The work of Amartya Sen is a useful basis for considering capabilities in a much broader developmental context than the traditional conception of development. It is also used for examining whether the dominant configurations of ICTs are consistent with the social goal of empowering the poor.

Opsomming

Hierdie studie behels 'n diskoersanalise van die onderliggende aannames, retoriese instrumente en die latente agendas wat verskuil is in (i) die ontluikende internasionale IKT, armoede en ontwikkelingsliteratuur; (ii) die beleidsagendas van die hoofspelers in internasionale ontwikkeling; en (iii) die IKT, armoede en ontwikkelingsdiskoers van die post-apartheid Suid-Afrikaanse regering.

Die doel van die studie is om verby die bestaande entoesiasme vir afgeleide beskrywing en tegnologiese determinisme te beweeg en 'n dieper, meer gebalanseerde begrip vir die verhouding tussen IKT, armoede en ontwikkeling daar te stel. Die kritiek teenoor die heersende benadering is gewortel in die insigte oor mag, kennis en diskoers soos uitgebeeld in die teorie en metodologie van Michel Foucault en betrek teoretiese debatte oor ontwikkeling, die 'inligtingsgemeenskap' en die sosiale implikasies van tegnologie. Die studie steun op perspektiewe oor kritiese teorie asook sosiale studies oor tegnologie, maar word onderneem vanuit die inter-dissiplinêre skool van ontwikkelingstudies.

Daar word noukeurig aandag gegee aan spesifieke relase, temas en vraagstukke en die artikulering daarvan in die IKT, armoede en ontwikkelingsdiskoers met die doel om aan te dui hoe 'n bepaalde model vir ontwikkeling, met 'n fokus op IKT's, deur die Suid-Afrikaanse regering gekonstrueer is. Hierdie ontwikkelingsmodel dien 'n normatiewe doel ten opsigte van beide die tipe intervensies wat vereis word en die gewenste uitkomste. Dit blyk dat die regering poog om die IKT-inisiatiewe aan te bied as neutraal, wetenskaplik en losstaande van politieke konflik. Hierdie diskoers versluier klassebelange, en neem nie elitegroepe en hulle belange in die invoering van ontwikkelingskemas in ag nie. Daarbenewens word IKT's sterk geassosieer met modernisasie en Westerse rasionalisme en is deel van 'n tegnies-rasionele en tegnologies-gedetermineerde agenda gefokus op die 'digitale skeiding' en die 'inligtingsgemeenskap'. IKT's word gesien as 'n tegniese oplossing vir onderontwikkeling, met ontwikkeling dan gereduseer tot 'n oplossing vir die inligtingsagterstand by die armes. Die netto resultaat daarvan is dat die komplekse en diepgewortelde politieke en ekonomiese oorsaaklike faktore wat onderliggend aan armoede en ongelykheid is, onsigbaar is en derhalwe onbevraagtekend gelaat word.

Die Suid-Afrikaanse IKT-beleid is besig om 'n baie vloeibare fase te betree met 'n wye reeks van IKT-verwante projekte, programme, beleide en strategieë aan die gang by 'n aantal nasionale regeringsdepartemente. Die ideologie dat IKT verteenwoordigend is van modernisasie en gesien word as 'n sleuteltegnologie vir armoedeverligting is deur die Suid-Afrikaanse regering aangegryp en baie van die regering se tegnicistiese retoriek reflekteer 'n implisiete geloof in 'n onproblematiese oorsaaklike progressie vanaf IKT-vernuwings tot sosiale verandering. Geen ernstige oorweging word geskenk aan tegnologiese kompleksiteite, komplekse sosiale prosesse en onafhanklike menslike agente nie. Die studie stel riglyne voor om beleidmakers behulpsaam te wees in die rekonseptualisering van IKT, armoede en ontwikkeling en die ontwerp van nasionale IKT-strategieë wat effektief vir en reponsief op ontwikkelingsprioriteite vir die armes sal wees. Die werk van Amartya Sen word gebruik as 'n nuttige basis vir die oorweging van vermoëns in 'n baie breër ontwikkelingskonteks as die tradisionele seining van ontwikkeling. Dit word ook aangewend vir 'n ondersoek na die vraag of die dominante konfigurasies van IKT's in ooreenstemming is met die sosiale doelwit van bemagtiging van die armes.

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List of Abbreviations

ADB	African Development Bank
AISI	African Information Society Initiative
ANC	African National Congress
ATU	African Telecommunications Union
B2C	Business-to-Consumer
B2B	Business-to-Business
BWIs	Bretton Woods Institutions
CIDA	Canadian International Development Agency
COMTASK	Task Group on Government Communications
COSATU	Congress of South African Trade Unions
CPSI	Centre for Public Service Innovation
DACST	Department of Arts, Culture, Science and Technology
DFID	UK Department for International Development
DoC	Department of Communications
DoF	Department of Finance
DoH	Department of Health
DOT Force	Digital Opportunity Task Force
DBSA	Development Bank of Southern Africa
DPSA	Department of Public Services and Administration
DPTB	Department of Posts, Telecommunications and Broadcasting
DST	Department of Science and Technology
DTI	Department of Trade and Industry
ECA	Economic Commission for Africa
ECLA	Economic Commission for Latin America
ECOSOC	UN Economic and Social Council
EOI	Export-Oriented Industrialisation
EPU	Education Policy Unit
EU	European Union
FAO	Food and Agriculture Organisation
FDI	Foreign Direct Investment
G-8	Group of Eight

GATT	General Agreement on Tariffs and Trade
GCIS	Government Communication and Information System
GDDI	Global Digital Divide Initiative
GDOI	Global Digital Opportunity Initiative
GDoE	Gauteng Department of Education
GDP	Gross Domestic Product
GEAR	Growth, Employment and Redistribution policy
GICT	Global Information and Communication Technologies Department
GIIC	Global Information Infrastructure Commission
GILC	Global Internet Liberty Campaign
GITOC	Government Information Technology Officers' Council
GKD	Global Knowledge for Development
GKP	Global Knowledge Partnership
GSCs	Gateway Service Centres
GTZ	Gesellschaft fur Technische Zusammenarbeit
HANIS	Home Affairs National Identification System
HDI	Human Development Index
HPI	Human Poverty Index
HSRC	Human Sciences Research Council
ICANN	Internet Corporation for Assigned Names and Numbers
ICASA	Independent Communications Authority of South Africa
ICT	Information and Communication Technologies
ICT SWG	ICT Sector Working Group
IDRC	International Development Research Centre
ILO	International Labour Organisation
IMF	International Monetary Fund
InfoDev	Information for Development, World Bank
IPO	Initial Public Offering
IS	Information System/s
ISAD	Information Society and Development
ISDN	Integrated Services Digital Network
ISI	Import Substituting Industrialisation
ISPs	Internet Service Providers

IT	Information Technology
ITU	International Telecommunications Union
KIM	Knowledge and Information Management
LANs	Local Area Networks
MCTs	Multipurpose Community Telecentres
MDGs	Millennium Development Goals
MNCs	Multi-National Corporations
MPCCs	Multi-Purpose Community Centres
MPTB	Ministry of Posts, Telecommunications and Broadcasting
NEPAD	New Partnership for Africa's Development
NGOs	Non-Governmental Organisations
NHIS	National Health Information System
NICs	Newly Industrialising Countries
NII	National Information Infrastructure
NRTF	National Research and Technology Foresight
NSI	National System of Innovation
OECD	Organisation for Economic Co-operation and Development
OEM	Original Equipment Manufacture
PCs	Personal Computers
PIAC on ISAD	Presidential International Advisory Council on the Information Society and Development
PITs	Public Internet Terminals
PNC on ISAD	Presidential National Commission on the Information Society and Development
POTWA	Post Office and Telecommunications Workers Association
PPP	Purchasing Power Parity
PTT	Posts, Telephone and Telegraphy
R&D	Research and Development
RDP	Reconstruction and Development Programme
RSA	Republic of South Africa
SACP	South African Communist Party
SACS	South African Communication Services
SADC	Southern African Development Community
SAITIS	South African Information Technology Industrial Strategy

SAPs	Structural Adjustment Programmes
SAPO	South African Post Office
SAPT	South African Posts and Telecommunications
SATRA	South African Telecommunications Regulatory Authority
SITA	State Information Technology Agency
SMMEs	Small, Medium and Micro-Enterprises
Stats SA	Statistics South Africa
TELI	Technology Enhanced Learning Investigation
TRASA	Telecommunications Regulatory Association of Southern Africa
UK	United Kingdom
UN	United Nations
UNCED	UN Conference on Environment and Development
UNCEPA	UN Committee of Experts on Public Administration
UNCSTD	UN Commission on Science and Technology for Development
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNICEF	United Nations Children's Fund
UNRISD	UN Research Institute for Social Development
UNWCED	UN World Commission on Environment and Development
US	United States of America
USA	Universal Service Agency
USAID	United States Agency for International Development
USF	Universal Service Fund
WANs	Wide Area Networks
WCDoE	Western Cape Department of Education
WEF	World Economic Forum
WSIS	World Summit on the Information Society
WSSD	World Summit on Sustainable Development
WTDC	World Telecommunication Development Conference
WTO	World Trade Organisation

WWII   World War II

WWW   World Wide Web

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Chapter 1
Introduction and Methodology

1.1   Background

Efforts to harness the power of information technologies to foster poverty alleviation and socio-economic development in general long predate the advent of the Internet and the World Wide Web (Dutton, 1996; Hudson, 1984; Shields & Servaes, 1989). In areas as diverse as public sector reform, private sector development, education, health, the environment and agriculture, developing countries have sought to use radio, television, computers and related technologies to increase access to information, to build skills, to share knowledge and to make institutions and markets more transparent and effective (Avgerou & Walsham, 2000; Bhatnagar & Bjørn-Andersen, 1990). Yet it was the technological developments (i.e. Internet-mediated global connectivity; advances in the power and speed of computers; innovations in software and applications; and the spread of affordable mobile telecommunications) of the final decade of the 20th century which seemed to hold out the hope that information and communication technologies (ICTs)[1] could have a truly transformative effect on the development process and on the hopes of millions of the world's poorest.

In contrast to critics who have said in effect that the poor "can't eat computers" (Schwab, 2001:3), the UNDP (2001) and the World Bank (1999) have taken the position that ICTs can and should be enlisted in the pursuit of growth and poverty alleviation in the Third World. The UNDP, for example, states unequivocally:

> "This [Human Development] Report is about how people can create and use technology to improve human lives, especially to reduce global poverty" (UNDP, 2001:27).

This position summarises a new consensus in both national and international development circles, and demonstrates the widespread recognition of ICTs for development as a field of activity. The response from the development community

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[1] The term information and communication technologies (ICTs) reflects the technological convergence between digital computing, telecommunications and broadcasting. Whereas computers were largely focused on the processing of information, ICTs undertake *both* processing and communication of information.

has been that, while there are many challenges, ICTs can be tools for development (FAO, 2002; GTZ, 2002). They can directly improve the quality of human life in areas such as health, nutrition, education, culture and community. They can also support human development indirectly by stimulating economic growth, with applications in areas such as commerce and finance (UNDP, 2001). ICTs are perceived as revolutionary tools that are transforming society in all aspects of social, economic and cultural life. The question then becomes, how can governments leverage the potential of ICTs as a force for development?

As the UN Secretary-General, Kofi Annan, states:

> "A technological revolution is transforming society in a profound way. If harnessed and directed properly, information and communication technologies (ICTs) have the potential to improve all aspects of our social, economic and cultural life. ICTs can serve as an engine for development in the 21st century, and as an effective instrument to help us achieve all the goals of the Millennium Declaration…Yet the majority of the world's population has yet to benefit from the new technology" (Annan, 2003:n.p.).

By and large this view has been inspired by the conviction that the acquisition and distribution of information is essential to human empowerment and that, if people have better access to this basic resource, this would greatly benefit their standard of living. Because of the perceived critical importance of information, the development community has repeatedly expressed its concern about the unequal access to information and its related technologies around the world (James, 2002).

Evidence shows that new 'digital' sources of information and knowledge, while benefiting the minority of the well-off and the educated, are bypassing the less educated and the poor (Moodley *et al*., 2002; UNDP, 1999). Is the widening gap in the access to and provision of ICTs reason for concern? And is it relevant for the poor? The poor suffer from material deprivation, as well as low levels of education and health; they are often powerless *vis-à-vis* political and social institutions; and they have a limited ability to make choices and to lead the life that they value (Chambers, 1999). Lack of access to ICTs in developing countries has not traditionally been viewed as a deprivation in the way that lack of food, basic health care and shelter have been. However, several authors (Grace *et al*., 2001; Spence, 2003) and international donor agencies (World Bank, 1999; UNDP, 2001) have claimed that

access to ICTs can have a *direct impact* on raising living standards and the quality of life of the poor, and an *indirect impact* on poverty alleviation through growth and productivity.

Poverty is considered to be more than a lack of material well-being. It also reflects poor health and education, deprivation in knowledge and communication, inability to exercise human and political rights and the absence of confidence, dignity and self-respect. Human development implies that poor people's capabilities are enhanced, their choices expanded and their lives enriched. This is achieved by expanding human capabilities, freedoms and 'functionings' (Sen, 1999). It would seem logical to conclude that better access to a resource as basic as information would greatly improve standards of living. It is, however, very difficult to provide solid empirical evidence to support this conclusion. As Roche and Blaine (1996:2) aver, "the long-term impact of IT on developing countries remains highly speculative".

From the mid-1990s some commentators (see Panagariya, 2000; Negroponte, 1996) predicted that developing countries could 'leapfrog' several stages of technological and economic development, benefiting from the new ICTs to build a new sector of economic opportunity, tackle their education and health challenges in new ways, and give their leaders and citizens instant access to global knowledge and best practice. Further, many analysts (see, for example, Talero & Gaudette, 1996; Bhatnagar, 2000; Giovannetti, Kagami & Tsuji, 2003) believe that ICTs could have a major impact on the intractable problems of poverty, and that the power of these new technologies offer previously unimaginable opportunities for economic and social development, even in the poorest countries.

International organisations and national governments (such as South Africa) reflected this optimism in their programmes, with a surge of interest in ICTs throughout the development community. For example, many international initiatives have been launched recently, including the World Economic Forum's (WEF) Global Digital Divide Initiative (GDDI); the G8's Digital Opportunity Task (DOT) Force; the UN ICT Task Force; the World Summit on the Information Society (WSIS) under the auspices of the International Telecommunications Union (ITU) and the UN; the

Global Knowledge Partnership (GKP)[2]; and the Development Gateway project initiated by the World Bank. These coalitions are providing a substantial global push for ICT diffusion. Further, all of these initiatives aim to: (i) reduce the 'digital divide'; (ii) strengthen existing efforts in traditional development sectors from health and education to agriculture and the environment; and (iii) enable developing countries to create new economic opportunities through the innovative deployment of ICTs. Programmes proliferated to help developing countries: (i) assess their readiness for the new technologies and networks; and (ii) develop strategies to deploy ICTs and to adapt the technology to their specific needs. However, the multiplication of initiatives coupled with excessive enthusiasm and unrealistic expectations by Third World governments (including South Africa) and the international donor community, have resulted in some confusion on the role that ICTs can play in the development process and a general feeling that not enough evidence yet exists of the positive impact of ICT in tackling poverty-related issues (Heeks, 2002a, 2002b).

1.2 Problem Statement

Those who enthusiastically embrace ICTs for development tend to operate within a *modernisation discourse* (Cohen, DeLong & Zysman, 2000; Negroponte, 1996), while sceptics are influenced by *dependency and post-colonial discourses* of development (Hamelink, 1996, 1997; Main, 2001; Wade, 2002).[3] Both perspectives operate with a liberal notion of knowledge as separate from power. We argue that a more fruitful approach is to analyse the role ICTs play in the power-knowledge nexus of Foucauldian discourse analysis (Foucault, 1980). An ongoing tension exists within development theory between the desire to formulate universally valid principles and formal models (based on a stylised version of the development theory of the West) and the need to understand the great variety of actual experiences and potential alternatives for development in different societies. This is clearly encapsulated in the ICT, poverty and development debate. The fact remains that solutions to

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[2] The GKP is a 'network of networks' with a diverse membership base comprising public, private and not-for-profit organisations from both developed and developing countries. The partnership was born as a result of the 1997 Global Knowledge Conference, and the secretariat is hosted by the government of Malaysia.

[3] The 'dependency' scholars argue that developing countries are in danger of locking themselves into a new form of electronic dependency on the West as they introduce increasingly complex software and hardware systems that they have little or no capacity to maintain for themselves and that become crucial to the very functioning of their corporate and public sectors.

development problems must be found in the 'contextuality' of development as a product of particular historical processes.

A major blind spot in the international development literature on ICT, poverty and development has been the articulation of the knowledge-power nexus. Yet we know from the work of Dutch (Frissen, 2000a; Snellen, 1994; Snellen & Van De Donk, 1998; Zuurmond & Snellen, 1997) and German (Lenk, 1994, 1997; Brinckmann & Kuhlmann, 1990) public administration and public policy scholars that technology, power and politics are inextricably interwoven. Further, there is a gap in the critical understanding of the pro-poor potential of ICTs, imbued by the principles of participation and social and economic justice, and geared to expanding human capabilities (Sen, 1999). The idea that we are now living in an 'information society' has become widely accepted by the South African government, certainly within policy debates (see Chapters 5 and 6). Yet, what exactly this term means is not always clear. There is debate about whether we have entered a 'new' Information Age, or are simply witnessing the effects of a new and powerful technology on historically determined social structures (Webster, 1995; Thomas, 1995; Edge, 1995; Lyon, 1995). Both strands in the debate do accord information a special place in understanding contemporary society, but differ with respect to their perception of the relationship between technology and social change.

A number of problematic assumptions pervade the discourse on ICTs for development. The first is that it seems to be assumed that technology issues are apolitical, that ICTs represent "the march of progress and that the only downside is the absence of the ticket for the journey" (Loader, 1998:6). Yet, we cannot assume that technologies are value-neutral, since all technologies have both beneficial and damaging effects (Webster, 1995; Loader, 1998; Burkett, 2000; Thomas, 1995; Muller, 2000). There also appears to be a technological determinist assumption that technology is separate from society and acts to define social structures and human interaction (Heeks, 2002a). Moreover, international development has had to recognise that models of progress based on the developed world do not transfer directly to the developing world, yet it seems that in the realm of ICTs for development this lesson is largely forgotten.

The post-apartheid South African government has placed ICTs at the centre of the national agenda for social and economic development (Mbeki, 1996; PNC on ISAD, 2003). The question of whether the application of technologies to improve information and communication access can increase the capabilities of disadvantaged and poor people is central to whether the new ICTs (particularly the Internet) will support or undermine real development. Technology appears in the ICT for development discourse as a politically neutral force with the power to develop, and without which people are classified as 'information-poor'. One effect of this discourse is to render poor people passive and dependent, as objects to be developed, rather than as active agents of development.

The real test of the success of ICTs in development efforts is whether they ultimately contribute to reducing poverty and inequality, thereby improving the lives and livelihoods of the poor. Two important questions emerge from the debate: (i) Who will have access to ICTs and the networks formed? and (ii) Who will have control not only of the technology and its application, but of data gathered and processed, and of information exchanged via different modes?

1.3   Goals, Assumptions, Premises and Research Questions

The notions that ICTs lead to the 'death of distance', create a 'level playing field' in which the small and the new compete on equal terms with the large and the well-established, and permit leapfrogging to a 'knowledge economy' and an 'information society' have been receiving wide currency in the development arena (World Bank, 1999; UNDP, 2001; Panagariya, 2000; UNCTAD, 2002). The aim of this study is to move beyond the current enthusiasm for derivative description and technological determinism that characterises much of the ICT, poverty and development literature, and to introduce a deeper and more balanced understanding of the relationship between ICT, poverty and development.

The purpose of this dissertation is to scrutinise the ICTs for development discourse of the South African government, focusing on the common assumptions that are made and their implications. Problematising this discourse and its assumptions should not be seen as a negation of the potential role of ICTs for development initiatives, but

instead a critique of the apolitical technological determinism underlying this discourse. The two main objectives of this dissertation are to: (i) critically analyse the post-apartheid South African government's discourse on ICTs in order to unmask submerged assumptions and interests regarding the nature and role of ICTs for poverty reduction; and (ii) to propose an alternative rethinking of ICTs for poverty alleviation. The dissertation will argue that assumptions of technological determinism and a view of technology as a neutral tool for development underlie the dominant ICTs for development discourse. The use of technology as an index of development reproduces the binary between the developed and the underdeveloped that has been critiqued within the field of development. The challenge is to reorient this technology to socially embedded and locally-led development that affirms and makes use of the information, knowledge and experience that poor people have, and so to restore the agency to those rendered passive in ICTs for development efforts.

The dissertation rises to meet the challenge put forth by Robert Wade:

> "The current campaign to promote the uptake of information and communication technologies (ICTs) in developing countries and to get aid donors to redirect their aid budgets needs devil's advocates to challenge what John Stuart Mill once called 'the deep slumber of a decided opinion'" (Wade, 2002:443).

The dissertation will draw on this line of critique and apply it to the focus on ICTs for development that is becoming increasingly important in debates about development at the international, national and local levels. The critique will be rooted in the understandings of power, knowledge and discourse as outlined in the theory and methodology of Michel Foucault (1980, 1982, 1991). In this dissertation we aim to problematise and critique the dominant model of development. But this critique alone is not sufficient; we will also ask how ICTs can be used for development rather than simply technologically-driven modernisation.

The dissertation aims to explore the potential of ICTs to enhance development and reduce poverty in South Africa. The argument will be situated within a power-knowledge framework and in broader critiques of development as catching up to an ideal represented by the advanced, highly industrialised countries of the North. We aim to show that the ICTs for development discourse draws on catch-up models of

development and defines a category of people as 'information-poor' because they do not have access to this technology. The dissertation will be guided by three primary, yet inter-related, research questions. These are:

1. What is the relationship between ICT, poverty and development?
2. Can ICTs contribute to poverty alleviation and social equity?
3. What is the nature of the South African government's discourse on ICTs for development, and what are the ways in which it operates in society?

The goals of this study are to:

• Highlight the complexity and contested nature of the notion of ICT, poverty and development;
• Situate rapid advances in ICTs in a broader debate about development and the role of information in development and poverty alleviation;
• Critically analyse the South African government's ICTs for development discourse, with a particular focus on the impact of state discourse on poor and marginalised communities; and
• Propose an alternative, pro-poor conceptualisation of ICTs for development that is built on the foundation of Sen's (1999) 'capability' approach.

The study is premised on the belief that: (i) technology, in and of itself, is neither positive nor negative (Kranzberg, 1985), what Heidegger (1977:33) refers to as "the ambiguous essence of technology"; and (ii) the deployment of ICTs is the consequence of human choices which are themselves constrained and shaped by social context. Simply put, ICTs are context-dependent, i.e. they are contingent on uses and applications in particular contexts. The ICT socio-technical system (i.e. people, context, processes and technology) provides both a set of possibilities as well as an array of risks and challenges. Social factors shape the technology, which in turn shapes the social environment and there are complicated feedback loops between the two. Further, the changes that are brought about through the introduction of a technology are not inevitable.

As Freeman (1992:224) states, all innovations are "social and not natural phenomena; all of them are the result of human actions, human decisions, human expectations, human institutions". The position of this study is that any technological innovation that is claimed to support development and which disempowers the already poor, no matter its technical elegance or economic rationality, is usually harmful. We do, however, acknowledge the inherent 'messiness' of the empirical reality of development and the fact that contradictory outcomes are an essential part of social reality. Concepts such as modernisation and technological progress have recently come under criticism from a variety of theoretical viewpoints (Ferguson, 1990; Escobar, 1995a; DuBois, 1991; Munck & O'Hearn, 1999). Post-structural theorists have deconstructed notions of progress and modernisation calling for a focus on context and culture-specific knowledge and technologies.

The study makes the following assumptions: (i) technology is socially 'shaped'; and (ii) the direction and nature of technological development does not necessarily follow some inevitable trajectory, but rather is a component of a complex, multi-dimensional system of social, cultural, political and economic change. The dissertation will engage with theoretical debates about the 'information society' and technology as socially embedded. The common theme running through the dissertation will be the problematic nature of apparently neutral assumptions about technological development and the emergence of a 'new' information society. Failure to address these assumptions may lead social scientists to become complicit in distracting attention away from the very 'real' global economic, social and cultural inequalities, to 'virtual' inequalities, which merely hide an unwillingness to address the core failings of the 'development' paradigm.

Our concern is with the development industry's, and more specifically the South African government's, discourse on ICT for development and ICT for poverty reduction and not the grand issues of development and poverty in their entirety. The *sine qua non* of the dissertation is the *interconnectivity* between ICTs, poverty and development in the South African government's discourse and <u>not</u> government's poverty and development policies *tout court*. The focus, therefore, is on ICTs and in particular its interweaving in the poverty and development policies and vision of the South African government.

In sum, this study sets out a discursive analysis of the underlying assumptions, rhetorical devices and the latent agendas masked within the ICT, poverty and development discourse. We pay careful attention to particular narratives, themes and issues, and how they are articulated in the discourse. The aim is to map out how a particular model of development, with a focus on ICTs, has been constructed by the post-apartheid South African government. This model of development serves a normative function, both in terms of the types of interventions required and the desired outcome. The starting point of this discourse analysis is the assumption that power is productive of subjects and models of the social world (Foucault, 1982; Billig, 1987). By analysing discourses and the subject positions produced, identities (such as that of being 'information-poor') can be challenged and new possibilities imagined when a topic is approached with a political and theoretical agenda (Parker *et al.*,1997; Potter & Gergen, 1989).

1.4   Personal Motivation for the Study

As the Section Head of the ICT component of the Knowledge Management Research Programme at the Human Sciences Research Council (HSRC), the researcher is responsible for assessing the analytical and evaluative claims of the ICT for development advocates and, more generally, the 'information society' thesis. The researcher's job entails managing and leading ICT projects with the objective of generating evidence-based, policy-relevant findings for government and international development agencies. The researcher, therefore, has a profound intellectual interest in the topic under investigation. It is within this context that his PhD topic has emerged and indeed been sustained.

Over the last 10 years the researcher has noticed (i) the increasing inclusion of ICTs as important elements of developmental strategies and interventions; (ii) unprecedented levels of investment in ICTs by major aid agencies and governments, often at the expense of alternative forms of initiative; and (iii) that technological determinism is hegemonic in the ICT for development discourse. Discourses are the public or outward expression of (usually) unstated or implied ideological positions. Discourses connote values and these values are often assumed to reflect general endorsement. It is characteristic of discourses that they occur as self-evident truths or

facts and therefore act to occlude oppositional or resistant discourses. The occlusion of counter-discourses is largely true of the evolution of the state ICT for development discourse in South Africa. There appears to be no space, for example, for a discourse that advances the idea that the introduction of ICT for poverty reduction may not necessarily be shared by some, or all, of the people they are meant to reach.

Problematising government's ICT for development discourse should not be seen as a denial of the potential benefits of ICTs to contribute to development, but rather it (i) is a critique of the apolitical technological determinism and the modernisation induced idea of technical progress as a linear 'stages of growth' trajectory; and (ii) serves to underline the fact that discourses rest on ideologies, that ideologies are values and that values are not always shared automatically by all stakeholders in an enterprise. In a situation where critical choices must be made regarding the allocation of scarce resources, the importance being accorded to ICTs needs to be interrogated. Exclusive emphasis on ICT projects, at the expense of careful analysis and consideration of the broader economic, social and political elements that interact to improve the lives of individuals, is likely to result in unanticipated failures and wasted resources. Moreover, the absence of 'power' from explicit discussion of ICT for development results in faulty analysis and poor policy.

Developing at the end of the 19th Century in an era of rapid capitalist industrial expansion and the rise of powerfully intrusive states, Touraine (1988: Chapter 1) maintains that the social sciences have been overly preoccupied with positivistic explanation and unduly shaped by an emphasis on order and control. This has left little room for human agency and on the individual actor in social science theories. To regain relevance, applicability and validity in the social sciences, Touraine (1988) urges social scientists to become *participant-observers*. As Section Head for the ICT thrust at the HSRC the researcher has been a participant-observer in numerous government ICT forums, e.g. the Government Information Technology Officers' Council (GITOC), the Knowledge and Information Management (KIM) sub-committee, the Universal Services Agency (USA), the Presidential National Commission on the Information Society and Development (PNC on ISAD), the Department of Communication's electronic commerce discussion process and various discussion colloquia on telecommunications, ICT convergence policy, etc.

In respect of the Presidential Commission, the author was the lead researcher as well as Project Manager of a large-scale ICT, poverty and development project for the PNC. The PNC is a high-level policy think-tank in government and reports directly to the President. Moreover, as a representative of the HSRC the researcher was recently part of a Department of Science and Technology delegation to Italy and Switzerland which looked at the challenges of state policy-making at the interface between science, technology and society. Collectively, these experiences have been a rich source of data gathering for the dissertation.

This study thus draws on the researcher's wealth of experience as a 'participant-observer' in numerous national government led and international donor agency driven discussion forums on ICT for development. By attending and participating in government and aid agency led committees, round table conferences, meetings and other forums for discussing ICTs in a development context, the researcher has been exposed to the currents of thinking in government and in international aid agencies on ICT *vis-à-vis* poverty and development. By operating as a reflexive critic and a participant-observer the researcher is well positioned to (i) question the highly problematic set of assumptions underpinning government's ICT for development discourse; (ii) enrich the ICT for development debate; and (iii) offer a profound interrogation of government's ICT for development discourse.

1.5   Approach

1.5.1   Critical Theory

In critical research more generally it has been suggested that there are several major weaknesses in social theory (Boje, 2001). Two key themes in particular are emphasised. They are emancipation and power relations (Valero-Silva, 2001:1). Traditionally, critical theory has been described as a form of historical materialism and is much influenced by issues of class, ethnicity and gender. Critical theory tends to view situations through a lens of local domination by powers-that-be, with the potential for localised resistance. Hegemony is a characteristic, with conflict and contradictory tensions featuring in the analysis. It is generally agreed that critical theory has substantial (though not exclusive) roots in the Frankfurt School of the late 1920s (Valero-Silva, 1996:63-65). This intellectual movement was a reaction to the

perceived domination of thinking at the time by positivism and can be understood against a backdrop of a post-Enlightenment, Modernist social context. Key thinkers include Theodor Adorno, Erich Fromm, Max Horkheimer, Jürgen Habermas and Herbert Marcuse (Tully, 1999; Walsham, 1993).

The Frankfurt School identified taken-for-granted assumptions about aspects of their contemporary society and argued that their form and nature were shaped by existing social and historical contexts (Lyytinen & Klein, 1985). They also highlighted that the very ways in which such shaping was recorded and represented were themselves the product of their time, and could (and should) be called into question (Boje, 2001). This has given rise to critical theory's claim to be able to mount a self-critique of its own knowledge claims as well as offer a critique of social conditions. Underlying the focus of the Frankfurt School was the desire not only to expose inadequacies in society, but also to encourage reflection upon and *emancipation* from such inadequacies as were identified (Ashenden & Owen, 1999).

It has been said that critical research has grown in popularity as a response to disillusionment with traditional forms of inquiry (Alvesson & Willmott, 1992:3). Critical research in practice has developed over time into a broad church that extends beyond traditional forms of critical theory. Consequently, we need a broader definition of what it means to be 'critical' (Alvesson & Deetz, 2000). If all this should sound daunting, even inconsistent, Alvesson and Willmott (1992:3) draw attention to the fact that critical theory has always encouraged the creative borrowing of ideas from different schools of theory and practice. The common thread is usually the emancipatory interest rather than the detailed following of any one particular theorist. The language of critical theory emphasises 'emancipatory intent' because it acknowledges that an emancipatory outcome cannot be guaranteed. Hence, the focus is on process rather than outcomes. Any approach that claims an emancipatory intent should be able to promote participation and take account of unequal power relations.

Foucault's work has been variously labelled as post-structuralist (Boje, 2001) and post-modern (Walsham, 1993). One explanation for this could be the way in which his ideas tend to be applied within philosophical contexts at variance with Foucault's own original roots. This may especially apply to translation of his ideas into contexts

involving material technology. Foucault challenged an idea central to critical theory, *viz*. that relations of power are not something negative in themselves and something from which one must be emancipated. Rather he argues that there are often aspects of power that are beneficial for the stakeholders involved (Foucault, 1972). Indeed, he does not believe that there can be a society without relations of power, by which he means power in the sense of trying to conduct or influence the behaviour of others. He also argued that any production of knowledge contains within itself the potential for contradictory outcomes (Foucault, 1972). For instance, generating insights into a set of power relationships with the intention of opening up the relationships can actually result in their becoming more entrenched and inscribed. Thus, emancipatory intentions do not always lead to desired outcomes. It is partly for this reason that many researchers have emphasized the usefulness of Foucault's approach in conducting critical inquiry (Boje, 2001).

We argue that Foucault's thinking, especially its self-critical capacity, and his recognition of the role of unequal power relations and the potential for contradictory outcomes is particularly salient for this study. We focus particularly on Foucault's analyses of power relations and the forces of domination that result from inequalities in power.

1.5.2 Discourse Analysis

The approach taken in this study can be described as discursive, in the sense that it stems from the recognition of the importance of the dynamics of discourse and power to any study of development. Discourse analysis creates the possibility of:

> "stand[ing] detached from [the ICT, poverty and development discourse], bracketing its familiarity, in order to analyze the theoretical and practical context with which it has been associated" (Foucault, 1986:3).

This is the task that the present study seeks to accomplish. Discourse can be defined as an ensemble of ideas, concepts and categories through which meaning is given to phenomena (Gasper & Apthorpe, 1996). Discourse analysis requires explicit and systematic attention to texts, policies, strategies, projects, programmes as well as social and historical contexts (Fairclough, 1992; Backhouse, Henderson & Dudley-Evans, 1993; Watts, 1993). That every truth is a claim to power and every power is a

centre of truth is the point of discourse analysis and part of a post-modern understanding of knowledge.

For Foucault the importance of discourse is its position at the interface of power and knowledge. Following Foucault (1972; Rabinow, 1991), discourse refers to a complex relationship between power and knowledge and a radical reading of subjectivity in the sense that through discourses individuals become 'subjects'. Discourse, then, is "the interplay of the rules that make possible the appearance of objects during a given period of time" (Foucault, 1972:33). Discourse analysis seeks to reveal the power relations which enable and are enabled by the discourses themselves. This is where Foucault's contribution is important, because he explored the ways in which discursive orders come into being and thereby 'normalise' certain forms of subjectivity through a dualistic process of 'Othering'.[4]

Following Foucault (1984:100), power-knowledge relationships are transmitted and produced through the medium of discourse. Foucault (1990) points out that we should not imagine a world of dominant and dominated, or accepted and excluded, discourses. Using the notion of the "tactical polyvalence of discourses", Foucault argues that we should think instead of a:

> "complex and unstable process whereby discourse can be both an instrument and an effect of power, but also a hindrance, a stumbling-block, a point of resistance and a starting point for an opposing strategy" (Foucault, 1990:100-101).

Discourses produce power-knowledge relations that are characterised by inequality. There are two tasks the intellectual in the narrow sense can perform. The first is to provide an analysis of the "specificity of the mechanisms of power" and to examine the intellectual assumptions and power structures which constitute the nexus within which the contending parties stake their claims (Foucault, 1980:145). The second task for the intellectual in the narrower sense is to develop an analysis and critique of what Foucault calls the "regime of truth". Shiner explains:

> "In Western societies, for example, 'truth' is centred in scientific discourse and institutions; it is central to economic production and political power; it is widely circulated; it is produced and disseminated by great economic and

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[4] Said's (1995) *Orientalism*, for example, explicitly used Foucauldian discourse analysis to explore the ways in which imperial power and literary representations were bound together.

political apparatuses like the university, the media, or the army. In this system of truth there are many forms of excluded and subjected knowledge. Those who occupy the lowest status in various institutions or conditions of life – the patient, inmate, prisoner, welfare mother, labourer, student – all find their knowledge discounted. They are part of a system of power which invalidates their discourse, occasionally by blatant denial, but continuously by a set of implicit rules concerning what sorts of concepts and vocabulary are acceptable and what credentials and status are requisite for one's discourse to count as knowledge" (Shiner, 1982:384; adapted from Foucault, 1977:207).

Every society, Foucault claims, has a kind of political economy of truth which says what kinds of discourse are true, what the mechanisms and sanctions are for distinguishing true from false, the techniques for acquiring truth and the status of those who are empowered to say what is true (Foucault, 1980:131). In *The Archaeology of Knowledge and the Discourse on Language*, Foucault (1972) describes not only the way intellectual rules exclude some kinds of discourse and validate others, but also suggests how this order becomes an institutional exercise of power. For Foucault (1980:115), a discourse allows for certain ways of thinking about something and thereby excludes others. It is thus *discourse*, and not the individual subject, that produces knowledge – indeed the subject is the product of discourse. The discursive formations that transmit and produce power relations are potentially reversible:

> "Discourse transmits and produces power, it reinforces it, but also undermines and exposes it, renders it fragile and makes it possible to thwart it" (Foucault, 1990:101).

In the post-apartheid era the new ICTs have come to acquire great power and dominance in the South African government's development and poverty discourse. This dissertation seeks to explore, through discourse analysis, the ways in which ICTs have come to dominate the development agenda by analysing the rise of the power of ICTs, its nature and the ways in which it operates in society. The study attempts to analyse in Foucauldian terms the manner in which the power of ICTs operates and to problematise the ways in which this informs the development agenda globally, but more specifically of the South African government in the post-apartheid era. The theoretical framework revolves around Michel Foucault's path-breaking work on the exploration of the relationship between power and knowledge, and the discursive practices linked to these.

Discourse is not just words, and words are not "wind, an external whisper, a beating of wings that one has difficulty in hearing in the serious matter of history" (Foucault, 1972:209). Discourse is not the expression of thought; it is a practice, with conditions, rules and historical transformations. To analyse ICT, poverty and development as a discourse is to "show that to speak is to do something – something other than to express what one thinks" (Foucault, 1972:209). Changing the order of the discourse is a political question that entails the collective practice of social actors and the restructuring of existing political economies of truth. In the conclusion of his most complex work, *The Archaeology of Knowledge* (1972), Foucault wrote:

> "A change in the order of discourse does not presuppose 'new ideas', a little invention and creativity, a different mentality, but transformations in a practice, perhaps also in neighbouring practices, and in their common articulation. I have not denied – far from it – the possibility of changing discourse" (Foucault, 1972:209).

This transformation demands not only a change in ideas and statements, but the formation of nuclei around which new forms of power and knowledge might converge. The central requirement for a more lasting transformation in the order of discourse is the breakdown of the basic organisation of the discourse, that is the appearance of new rules of formation of statements.

1.6 Methodology

1.6.1 Discourse Analysis

Discourses are, according to Foucault (1972:49), "practices that systematically form the objects of which they speak".[5] Foucault (1980) observes that citizens of democratic states are controlled less by violence or the economic power of the boss or the landlord than by the pronouncements of expert discourse, organised in what he calls 'regimes of truth', i.e. sets of understandings which legitimate particular social attitudes and practices. The term 'discourse' has gained wide contemporary currency and is perhaps in danger of becoming all things to all people. The crucial issue is to avoid the idea that it is a purely linguistic term, as in most incarnations of 'discourse analysis' (Van Dijk, 1985). Henriques *et al*. explain discourse as follows:

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[5] During his career Foucault covered an astonishing range of topics, characterised by shifting methods and purposes. This study focuses only on his theorising about discourse, particularly the central idea of the power-knowledge complex operating in discourse. For a critical assessment of Foucault's oeuvre see Hoy (1986), Rabinow (1991) and Dean (1994).

> "[Discourse] is regulated and systematic. The systematic character of a discourse includes its systematic articulation with other discourses. In practice, discourses delimit what can be said, while providing the spaces – the concepts, metaphors, models, analogies, for making new statements within any specific discourse…The analysis which we propose regards every discourse as the result of a practice of production which is at once material, discursive and complex, always inscribed in relation to other practices of production of discourse. Every discourse is part of a discursive complex; it is linked in an intricate web of practices, bearing in mind that every practice is by definition both discursive and material" (Henriques *et al.*, 1984:105-106).

Discourse can be defined as a systematically organised set of statements which give expression to meaning and "organizes and gives structure to the manner in which a particular topic, object, process is to be talked about" (Kress, 1985:7). Discourse is socially constituted both in the sense that it helps sustain and reproduce the social *status quo*, and in the sense that it contributes to transforming it (Wodak, 1996). Discourse analysis from a wide range of disciplines has shown how, for example, gender is constructed and women are silenced (Mohanty, 1991; Butler, 1992), how colonial visions of those outside the West are elaborated in language as the 'other' (Said, 1985) and how notions of class are connected in the ways we speak (Andersen, 1988).

Discourse is shaped by relations of power and invested with ideologies. Jaworski and Coupland argue that:

> "discourse analysis offers a means of exposing or deconstructing the social practices which constitute 'social structure'…It is a sort of forensic activity, with a libertarian political slant. The motivation for doing discourse analysis is very often a concern about social inequality and the perpetuation of power relationships, either between individuals or between social groups, difficult though it is to pre-judge moral correctness in many cases" (Jaworski & Coupland, 1999:6).

Key issues of discourse analysis include its questioning of objectivity and its interest in the practices which produce apparent objectivity, normality and factuality. Probing texts in order to discover hidden meaning and value structures is of prime importance. Critical discourse analysis aims at uncovering the ways in which ideology and discourse are intertwined (Johnstone, 2002).

Fairclough's (1995b) method of discourse analysis is based on three components, *viz.* *description, interpretation* and *explanation*. Linguistic properties are described, the relationship between the productive and interpretative processes of discursive practice and the text is interpreted, and the relationship between discursive and social practice is explained (Fairclough, 1995a:97). Fairclough (1992) advances four arguments in favour of text analysis: *theoretical, methodological, historical* and *political*. His theoretical foundation is that social structures such as class relations are in a dialectical relationship with social activities and the texts are a significant form of social activity. As a methodological justification for the great importance of text analysis, Fairclough (1992) points to the increasing use of texts as sources of data. His historical foundation is that texts are good indicators of social change. This consideration refers to intertextuality and the linguistic heterogeneity of texts: texts give evidence of lasting processes such as the redefinition of social relationships and the reconstruction of identities and of knowledge (Fairclough, 1995a). For Fairclough (1995a), an understanding of text analysis, that is the analysis of content and texture, provides a counterbalance to strongly schematic types of social analysis which take too little account of the mechanisms of change. His fourth foundation is political and relates to the critical orientation in discourse analysis: social control and power are exercised with increasing frequency by means of texts, so text analysis becomes an important part of critical discourse analysis.

As Fowler (1996:10) suggests, discourse analysis goes "beyond the formal structure of language as an abstract system, toward the practical interaction of language and context", along the lines of ideology, power and inequality (Caldas-Coulthard & Coulthard, 1996). In this sense language is seen as a social practice, as a mode of action that is always socially situated "in a dialectical relationship with other facets of 'the social'…it is socially shaped, but it is also socially shaping, or constitutive" (Fairclough, 1995a:131). From this viewpoint discourse is seen as constitutive of social reality in a general sense. The critical component of discourse analysis denotes a concern with critiquing the manner in which the 'social' is produced and sustained through language. This concern places an emphasis on identifying power relations and demystifying the processes that produce and reproduce these relations and eventually lead to significant social changes. Discourse analysis argues that there is a degree of 'distortion' in language that functions to create and maintain power

imbalances. The discourse analyst seeks to expose these misrepresentations via the examination of discursive events. Discourse can be seen as an opaque power object which discourse analysis aims to make more transparent. Through examining discourse, power inequalities are exposed. However, it is important to note that the focus on misrepresentation does not simply assume that there is a problem of having something be represented as distorted: "there is not necessarily any true reality that can be unveiled by critical practice, there are simply relatively varying representations" (Fowler, 1996:4).

State discourse, or "rational, legitimate…practices which are authoritatively backed" by government (Roberts & Sarangi, 1999:15), provides a set of possible statements about how a particular topic, object or process is talked about. These discourses are then mobilised to justify institutional decisions about resource and task allocation. As part of a critical project, this study focuses on the interpretation of power relations and other expressions of dominance that entail the privileging of certain interests over others. Critical interpretation requires scrutinising representations which appear self-evident, natural and unproblematic. Legitimated discourses dominate and thus interventions on the part of government carry an aura of 'truth'. Discourse analysis, therefore, demystifies what is taken to be 'common sense' by defamiliarising it and signalling its functions and consequences in sustaining the social order. The demystification sets the conditions for possible emancipation and social change. Discourse analysis, thus, sees itself as politically involved research with an emancipatory requirement: it seeks to have an effect on social practice and social relationships (Van Dijk, 1997). Jaworski and Coupland (1999:35), for instance, urge discourse analysts "to see themselves as politically engaged, working alongside disenfranchised social groups".

1.6.2 The Foucauldian Power-Knowledge Complex

For Foucault (1991:Chapter 1) the practices of power are judged more by the effectiveness with which subjects internalise their effects than by the extent to which they conform or comply with them. In that sense power is not so much above us, as around and among us. It is an immanent not an external force; or put another way, it is conceived as inseparable from its effects. In Foucault's (1980, 1982) writings power is said to work through indirect techniques of self-regulation which make it

difficult to constitute oneself in ways other than those directed. Foucault (1991:Chapter 1) suggests that power is concerned with the techniques which govern the possible limits of action. Power for Foucault (1991:6) is best understood as a form of 'government' which works through a multiplicity of actions and reactions, rather than through a simple domination/resistance binary. On this understanding, power reaches deep inside an institution in an immanent rather than a hierarchical fashion, composing and recomposing all manner of arrangements in space and time, although not in any direction orchestrated by a centralised power. Power, in this sense, may be loosely considered to be everywhere, but it is more accurately described as diffuse and embedded in particular institutionalised spaces. Foucault's (1982:1) notion of power is one of a normalising rather than a subjugating force which works on, not over, subjects.

According to Foucault (1980, 1982), power produces, among other things, knowledge, and the two concepts are welded together in a single entity: 'power-knowledge'. The exercising of power opens new relations of power and creates new objects of understanding or rational inquiry, whereas knowledge immediately presupposes and constitutes power relations. Moreover, in producing knowledge, power produces truth. Truth denotes an abstract "system of ordered procedures for the production, regulation, distribution, circulation and operation of statements" (Foucault, 1980:133). One example of this sort of truth is the scientific method, which is of fundamental importance in contemporary Western society. DuBois explains:

> "At the discursive level, this 'episteme' distinguishes not truths from falsehoods but 'what may from what may not be characterised as scientific'. The episteme, in turn, is connected to the power relations that define and maintain it and to the grid of power that it gives rise to and legitimises, forming a 'regime' of truth. Knowledge, then, arrives in consciousness following a filtering: not only must particular statements submit to the regime of truth, but only they, from a multiplicity of possible statements, are constructed by it…When these discourses conform with the regime of truth – when the latter validates or approves the former – then certain discourses or bodies of knowledge are admitted into the category of 'true knowledge'. In this process a 'whole set of knowledges' is rendered suspect, discredited, excluded, and 'disqualified' while another, in the case of development, becomes the basis for policy formation" (DuBois, 1991:7).

Foucault uses the phrases "archaeology of knowledge" (Foucault, 1972:4) and "genealogy of power" (Foucault, 1980:23). Genealogy is the analysis of how one constellation of power-knowledge relations is displaced by another. Foucault's analysis is a critique of the liberal-humanist separation of power and knowledge, and simultaneously a critique of the Marxist view of power as economic exploitation and class domination. Foucault (1980:Chapter 1) rejects both the liberal tradition and the totalising discourse of Marxism because they imply that there can ultimately be a knowledge untainted by relations of power. Foucault is concerned with three key questions relating to power: (i) Who has power? (ii) How is it exercised? and (iii) What are its effects?

The relationship of power and knowledge is neither unidirectional nor exterior. For Foucault (1979:194) there is "no power relation without the correlative constitution of a field of knowledge, nor any knowledge that does not presuppose and constitute at the same time power relations". Foucault (1982) has shown that what we most readily recognise as 'power' is the more or less stable, yet continually renegotiated, ossification of sets of relations, or lines of force, in Deleuze's (1986, 1992) terminology. Power is, in other words, a complex strategic situation (Foucault, 1982). In Foucault's (1987:12) schema, repression and domination represent extreme versions and limiting cases of the operation of power – they involve a fixing of power relations in such "a way that they are perpetually asymmetrical".

In Foucault's (1982) terms power is relational and contingent. What we typically recognise as 'power' is the ossification of sets of relations forming a complex strategic situation. Foucault is not concerned with normative judgements about whether or not the operation of power is 'good' or 'bad'. Power effects may be judged as positive or negative, but these do not automatically flow from Foucault's understanding. Foucault merely provides a framework for sharpening our understanding of contemporary relations of power. These power relations are frequently cast in terms of binary oppositions such as 'developed-underdeveloped', and they are largely grounded in the logic of exclusion. Individuals are inserted into systems of knowledge which judge their capacities and which justify and require both outside intervention and the actions of the individuals on themselves (Foucault, 1979:185).

Knowledge is inseparable from power (Foucault, 1977:27). All forms of knowledge are intimately connected to power relations and therefore truth:

> "isn't outside power…Each society has its regime of truth, its 'general politics' of truth; that is, the types of discourses which it accepts and make function as true" (Foucault, 1980:131).

Foucault systematised power in a way which distinguishes him from much post-modern thinking. Unlike post-modernists such as Rorty (1992) and Lyotard (1984), he does not see power as having a locus of sovereignty, but posits the alternative thesis that "power is exercised from innumerable points" (Foucault, 1990:94). Modern power, for Foucault, is insidious, its relations of power not visibly emanating from a sovereign source, but masked as forms of truth and knowledge:

> "[A] moving substrate of force relations which, by virtue of their inequality, constantly engender states of power, but the latter are always local and unstable…Power is everywhere, not because it embraces everything, but because it comes from everywhere" (Foucault, 1990:93).

Foucault is concerned with an oppositional "struggle against power, a struggle aimed at revealing and undermining power when it is most invisible and insidious" (Foucault, 1977:208). The insights offered by Foucault appear to be very germane to our understanding of issues of exclusion, power and knowledge – all fundamental to development theory and practice. Taylor (in Hoy, 1986:92), however, argues that Foucault's model lacks the "idea of liberation", that it offers no real hope of resisting or overturning domination. This criticism is only valid "if the world does indeed operate according to the universal values and abstract model implicit in the reformist, liberal political strategy" espoused by Walzer and others (Racevskis, 1993:103). Racevskis argues that:

> "talk of freedom is meaningless unless thought is freed from its philosophically, politically, and ethically imposed confinement and thus is given the opportunity to realize the historical contingency of the real" (Racevskis, 1993:103).

Foucault's great accomplishment, according to Bernauer, has been to:

> "free thought from a search for formal structures and place it in an historical field where it must confront the singular, contingent, and arbitrary that operate in what is put forward as universal, necessary, and obligatory" (Bernauer, 1990:19).

Foucault's discourse cannot claim to impose a programme or to recommend a correct line of action. The value of his work is attributable to its manner of questioning itself, of questioning the very tradition that has given rise to it. For Foucault there are two kinds of operations of knowledge: (i) one conscious, rational, visible but superficial, serving to promote official goals and programmes; and (ii) the other unconscious, unobtrusive but most influential, determining moral norms and legitimating epistemological principles and standards (Rabinow, 1991; Morris & Patton, 1979; Scott, 1990). What makes Foucault's theorising effective is his ability to avoid ontological or essentialising notions of power. Foucault's work may be seen as a "testament to sustained critical rationality with political intent" (Rabinow, 1991:13). An important point to consider is that Foucault was never prescriptive. He aimed to provide the tools for opposition but did not suggest who should use them, or to what ends. Nevertheless, his work consistently developed and argued a theory of knowledge and power in discourse.

Foucault's (1977, 1979, 1980) political problematic centres on the interlinking of the practices and techniques of power with the production of knowledge. As Dean puts it:

> "[O]ne finds in Foucault less the thesis of the mutual superimposition of knowledge onto power than an operating method that can pick out the fine stitching of many different forms of knowledge within the threads of power relations and organised systems of practices. If one was to put this into a more general thesis it would be of the interconnection and irreducibility of knowledge to power and power to knowledge" (Dean, 1994:162).

Foucault (1977:26-28; 1979:82-83) maintains that power is to be analysed at multiple points of its exercise rather than simply in terms of the historical development of state institutions and the language of legitimacy, law and sovereignty. He refers to this as the 'microphysics of power' which emphasises *practices* of government[6], and should be seen as productive of forces, relations and identities, rather than as manifest in interdiction and operating by repression and deduction (Bernauer & Rasmussen, 1988). Foucault's thoughts on power and government make possible a differentiated analysis of forms of power relations, and an analytic of resistance to power relations. Rather than a theory of the state, Foucault (1980) proposes to analyse the operation of

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[6] Governmental practices problematise certain objects of knowledge (e.g. poverty) in so far as they are implicated in the exercise of power.

governmental power, the techniques and practices by which it works, and the rationalities and strategies invested in it. Foucault is concerned with the question of how particular types of power relations enable the state to act as a centralised, unified locale, and the implications of this for the conduct of life of the governed (Burchell, Gordon & Miller, 1991).

Knowledge can be said to be dominated by the primacy of discourse. Discursive relations are relations of power. Power relations serve to make the connections between the visible and the 'sayable' (the two poles of knowledge), yet they exist outside these poles. Deleuze summarises Foucault's treatment of power in the following terms:

> "Power is a relation between forces, or rather every relation between forces is a power relation…Force is never singular but essentially exists in relation with other forces, such that any force is already a relation, that is to say power: force has no other subject or object than force…It is 'an action upon an action, on existing actions, or on those which may arise in the present or in the future'; it is 'a set of actions upon other actions'. We can therefore conceive of a necessarily open list of variables expressing a relation between forces or power relation, constituting actions upon actions: to incite, to induce, to seduce, to make easy or difficult, to enlarge or limit, to make more or less probable, and so on" (Deleuze, 1986:70).

Power, then, is not essentially repressive; it is not possessed, but is practised. In Foucauldian terms, we should think of power not as an attribute (and ask 'what is it?'), but as an exercise (and ask 'how does it work?'). In addition, forces have a capacity for resistance such that power is only exercised in relation to a resistance, each force having the power to affect and be affected by other forces. For Foucault, resistance to power is part of the exercise of power.

Power is a series of relations between *forces* and knowledge is a series of relations between *forms*. Power and knowledge are mutually dependent and exist in a relation of interiority to each other (Foucault, 1977). Although Foucault accords power a kind of primacy, power would exist without knowledge, whereas knowledge would have nothing to integrate without differential power relations. Another critical aspect of power, and one implicated in the power-knowledge nexus, concerns subjectivity. This is crucial because in Foucault's account of power the formation of subjects is 'part and parcel' of power's productivity. Foucault (1982:208) writes: "My

objective…has been to create a history of the different modes by which, in our culture, human beings are made subjects". Subjects' actions take place in discourse, and subjects themselves are produced through discourse. The interrelationships between power, knowledge and the subject are so systematic that it makes little sense to consider each component separately; they all condition, and form the conditions for, each other.

The Foucauldian account of power makes sense of the emphasis in 20th century social theory upon ideology as the key means through which social relations of power and domination are sustained (Gramsci, 1971; Althusser, 1971; Hall, 1982), and the commonsense normalcy of mundane practices as the basis for the continuity and reproduction of relations of power. Foucault has shown how modern 'biopower' rests upon technologies and techniques of power which are embedded within the mundane practices of social institutions (e.g. schools, asylums or prisons) and are productive of social subjects.

A central problematic that this study grapples with is how a variety of strategies of power and knowledge apply themselves to the field of ICT, poverty and development. It is a central thesis of the present study that discourse analysis adopting the Foucauldian power-knowledge framework is effective because it calls for permanent criticism and is able to exercise perpetual vigilance and scepticism toward the claims of government to prescribe the meaning of ICT, poverty and development.

1.6.3 Methodological Framework

In this study the analytical framework of Foucauldian discourse analysis is used consistently for both the theoretical and empirical components of the research. Discourse analysis methodology is used to explore and unpack the discourse reflected in: (i) the burgeoning international ICT, poverty and development literature; (ii) the policy agenda of the major players in international development; and (iii) the ICT, poverty and development discourse of the South African government that is currently becoming increasingly prevalent in the national political arena. The discourse analysis methodology employed in this study does not focus on purely linguistic approaches to discourse analysis which might, for example, focus in the first instance on constructions such as phonology, morphology, syntax, semantics and pragmatics

(*vide* Van Dijk, 1985). Rather, the analysis presented in this study is grounded in a Foucauldian power-knowledge framework. Moreover, the study draws upon approaches from critical theory[7] and social studies of technology, and locates itself within the cross-disciplinary school of development studies.[8]

Crush (1995:5) notes that "the texts of development have always been avowedly strategic and tactical – promoting, licensing and justifying certain interventions and practices, delegitimising and excluding others". In this study the focus is on an ensemble of ICT, poverty and development texts generated by government in an attempt to understand how the category of the 'information-poor' is produced and how this category of subjects become embedded in a particular model of development. Discourse analysis involves detailed reading and rereading of the selected texts (i.e. government statements, speeches, policy and discussion documents and interview transcripts). Two interrelated stages will be followed. First, the search for patterns in the texts[9], both in terms of difference and consistency; and second, analysing and interpreting the functions and effects of the categories identified. To do this a careful coding procedure will be followed (Potter & Wetherell, 1992; Parker, 1992; Kendall & Wickham, 1999). In line with Billig *et al*. (1988), a sample of extracts will be presented as the clearest exemplars of the themes identified in the larger qualitative data set. Recurrent themes were identified and then for each theme a number of extracts illustrating the theme were selected by the researcher. In selecting sections of a text for analysis, the analyst looks for identifiable configurations of discursive practice consisting of discrete, unique utterances, or phrases within a particular 'order of discourse'[10], i.e. ICTs for poverty reduction. *Order of discourse* refers to a relatively stabilised configuration of discourse practices (Fairclough, 1993:138). The aim here is to organise an unwieldy body of discourse into manageable passages of text on the basis of the following themes:

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[7] The term critical theory is used here in a generic sense for any theory concerned with critique of ideology and the effects of domination, and not specifically for the critical theory of the Frankfurt School.
[8] Development studies is concerned with policy-relevant research and is cross-disciplinary in nature, the core disciplines of which are economics, anthropology, sociology, geography and political science. In essence, development studies is dedicated to understanding problems of poverty and inequality within local communities, national political and economic systems and in the international system.
[9] The term 'text' is used here to refer to both written texts and transcripts of spoken interaction (Fairclough, 1995a).
[10] To use Fairclough's (1995a:10) phrase.

- The types of information and knowledge that are valued in the ICT, poverty and development discourse;
- The expected benefits of ICTs for reducing poverty and inequality;
- The subjects of development in the ICT for development discourse; these subjects are usually referred to as the 'information-poor' in the discourse; and
- The model of development advocated as well as the developmental outcome of the ICT policies.

The discourse analysis literature points to certain issues of validation that need to be considered when conducting such an analysis. First, the analysis should provide a sense of the coherence of the texts, letting the reader see how the discourse fits together and how it functions and produces effects (Potter & Wetherell, 1992). Second, the focus should be on the definitions or meanings of terms as used within the texts, rather than assuming standard dictionary definitions. This allows the analysis to make evident the categories that are being produced within the discourse itself. Third, the analysis should not only solve problems, but also create new ones as new ways of understanding an issue emerge. As such, the analysis should attempt to form a base for the generation of novel explanations and understandings (Potter, 1996; Potter & Wetherell, 1992; Parker, 1989, 1992; Potter & Gergen,1989).

Crush (1995:3) notes that the "discourse of development, the forms in which it makes its arguments and establishes authority, the manner in which it constructs the world, are usually seen as self-evident and unworthy of attention". Similarly, Ferguson (1990:xiv) states that, "like 'goodness' itself, 'development' in our time is a value so firmly entrenched that it seems almost impossible to question it, or to refer it to any standard beyond its own". The methodological gain of approaching such issues from a power-knowledge framework, using discourse analysis, is to add a level of reflexivity to development studies, and in this way to open the politics of development to a more profound engagement, and potentially to reopen alternatives to the current development paradigm (Banuri, 1990a, b; Nederveen-Pieterse, 1998, 2001).

However, based as it is on an ontology of the social world as discursively constructed, such an approach risks an avoidance of real issues of power and exploitation. It may divert attention from relations 'on the ground'. In that case, we risk slipping from

determinism into *discursivism*, i.e. reading too much into texts and overrating the importance of discourse analysis. Such critiques have also been advanced against Foucault's theory itself, not only when used in the more applied field of development studies (Titscher *et al*., 2000). If we assume, following Foucault, that all social relations are power relations producing various regimes of truth, how are we to choose between one form of society and another? (Sarup, 1992). Foucault claims that, rather than attempting to provide 'solutions' or simply another regime of truth, we should direct our attentions at deconstructing what is and make evident the conditions of possibility for the present organisation and understandings of society. He states that:

> "critique doesn't have to be the premise of a deduction which concludes: this then is what needs to be done. It should be an instrument for those who fight, those who resist and refuse what is. Its use should be in processes of conflict and confrontation, essays in refusal. It doesn't have to lay down the law for the law. It isn't a stage in programming. It is a challenge directed to what is" (Foucault, 1991:84).

We may wonder how such a stance could facilitate the emergence of an alternative imaginary of development to that of the dominant Western, developed-world cultural parochialism. From the perspective of development studies, or perhaps we should say a concern about relations of exploitation and for those living in poverty, it becomes increasingly difficult to argue for the value of such a discursive approach when taken to its logical conclusion as exemplified in Foucault's quote above. However, it is still possible to make use of the methodology to challenge what is given, to problematise development practices, which have failed to improve the lives of the world's poor. Nicos Poulantzas (described by Sarup, 1992) does this by arguing for an understanding of Foucault's work as offering theories of specific techniques of power operating in specific circumstances, but he rejects the more general theoretical project and the problems of extreme discursivism that Foucault's work embodies. Similarly, Nederveen-Pieterse (2001) argues that we need to employ a variety of approaches in an attempt to understand development and to propose alternatives to the dominant binary model:

> "Development is too complex to allow partial approaches to have their way…to be precise, development is struggle over the shapes of futures, a dramatic and complex struggle" (Nederveen-Pieterse, 2001:xii).

This is the position that will be adopted in the dissertation. Foucault's methodology will be used to problematise the ICT, poverty and development discourse as a means of understanding the production of particular types of subjects and the development models into which they are inserted. Following Nederveen-Pieterse (2001), it has been assumed that the reflexivity facilitated through this methodology must be politically enabling and so *reconstruction* must accompany *deconstruction*[11]:

> "Reconstructions are ways ahead, contextual and time bound, forward options. In time they will yield another set of deconstructions and by then other reconstructions will emerge, which is the way of things" (Nederveen-Pieterse, 2001:xii).

The argument presented in the dissertation will draw on the theoretical work of Michel Foucault, but will resist the extreme focus on textuality that this position can imply. As such the argument will embody both deconstructions *and* reconstructions. The radical challenge is to rethink the categories of the ICT, poverty and development discourse, in order that ICTs might be appropriated in ways capable of subverting the current hierarchical structure and to allow, *pace* Tucker (1999:1), the "alternatives that human ingenuity is capable of imagining and implementing" to emerge. This is an open-ended political agenda, involving both action and inquiry and implies a shift in focus away from simple unlinear development processes, to an embracing of complexity, diversity and development as a multifaceted process with a variety of potential outcomes.

The texts for the discourse analysis were drawn from two sources: (i) government media releases, speeches by government officials, and policy and discussion documents relating to the theme of ICT, poverty and development (see Appendix 2); and (ii) interview transcripts. For the latter the researcher conducted 18 semi-structured, one-on-one personal interviews with senior government officials (see Appendix 1 for the questionnaire that was used). Three interviews were conducted with senior civil servants from each of the following six national government departments: (i) Department of Communications (DoC); (ii) Department of Trade and Industry (DTI); (iii) Department of Public Services and Administration (DPSA); (iv)

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[11] Deconstruction emerged from structuralism as part of the post-structuralist package of critical work on texts (Derrida, 1976, 1983). Deconstruction is used to reframe (even subversively) the dominant concepts in a discourse (*vide* Parker, 1988; Sampson, 1989; Shotter & Gergen, 1989; Parker & Shotter, 1990).

Government Communication and Information System (GCIS) department; (v) Department of Science and Technology (DST); and (vi) State Information Technology Agency (SITA). These six departments were targeted for interviews because they have a clear stake in national ICT policy, and are regarded as the major players in the ICT, poverty and development policy debate.

The qualitative research interview was used as one method of data generation (Bewley, 2002). The appropriate style for interviewing depends to some extent on the goal of the study. For this study a less structured style was adopted with a view to allowing the interviewee the freedom to describe and explain government policy on ICT, poverty and development. Random, statistical criteria were not employed for selecting interviewees, because it was deemed to be inappropriate for a qualitative study of this kind, where the pool of potential interviewees is limited. Since the researcher has conducted research in government before and has extensive research experience in the field of ICTs and public policy, he used his experience and network of contacts to identify (and secure interviews with) senior government officials who: (i) are working in critical national government departments; and (ii) are very knowledgeable about the topic under investigation.

Since discretion was absolutely vital, interviews were not tape-recorded; instead handwritten notes were taken. A tape recorder would have seriously inhibited interviewees and would have resulted in the majority of officials refusing to participate in the study. All interviewees were promised confidentiality. Revealing the interviewees' names and positions would compromise confidentiality, and would jeopardise the reputation of the researcher. It was understood that interviewees could refuse to answer questions if they so desired.

The current of discourse theory pursued in this study makes overt use of Foucault's (1972, 1980) descriptions of discourse and the power-knowledge framework. For Fowler discourse analysis means:

> "a careful analytic interrogation of the ideological categories, and the roles and institutions…through which a society constitutes and maintains itself and the consciousness of its members…All knowledge, all objects, are constructs: criticism analyses the processes of construction and, acknowledging the

artificial quality of the categories concerned, offers the possibility that we might profitably conceive the world in some alternate way" (Fowler, 1996:3).

The purpose of the study is to identify and analyse a set of salient themes which will provide an organising framework for making sense of government's discourse on ICT, poverty and development. Essentially, the study aims to interrogate and deconstruct the intellectual and epistemological foundations of the South African government's ICTs for development discourse. In this study the texts used for analysis include: (i) already available texts, which are in the public domain; as well as (ii) texts generated during interviews with senior government officials. Policy texts can be interpreted in many different ways. Policy texts might be accepted as 'straightforward' and the messages they convey taken as facts rather than rhetorical statements. The 'preferred reading' embedded within policy texts encourages us to think of policies as generally 'good'. The goal of this study, however, is to develop a critical understanding of government's ICT policies, highlighting challenges, tensions and possible problems inherent in them.

The texts were scanned for themes and these were analysed. Sections or extracts within the collected material (the corpus of texts) were then selected for assessment, in line with the overall aims of the study. The units of analysis consisted of a textual passage or extract (which may be a single word, a phrase, a sentence or a group of sentences, or some other unit of 'talk') from one or more texts, which illustrates a particular theme (e.g. technological determinism, 'digital divide', 'information poverty', 'information society', etc.) that is central to the study. Since in text analysis it is always relevant categories within a text that are analysed, the unit of analysis is that unit which seems, to the researcher, to be relevant for the particular text as a unit to be investigated.

Discourse analysis should become a variant of action research, in which the internal system of any discourse and its relation to others is challenged. It alters, and so permits, different spaces for manoeuvre and resistance. The goal of this study is to: (i) understand and interpret the South African government's discourse on ICT, poverty and development; (ii) provide a critique of the ideology in the which the ICTs for development discourse is grounded; and (iii) identify and develop arguments

around a number of concepts, themes and theories that are germane to the South African government's ICT, poverty and development discourse. The main concern is to reveal power relations and other political and social elements of asymmetry (Wetherell, 1998; Mey, 2001). A critical orientation is not meant to be merely deconstructive; reconstructing social arrangements is also a goal.

1.7   Impact

Research on ICT, poverty and development, using the discourse analysis methodology, is uncharted territory in South Africa and internationally. There is a dearth of literature that offers critical perspectives on the underlying discourse in the 'information society' and development debate. Therefore, by tracing the links between various positions on the role of ICTs in development, and broader debates on development, knowledge and power, the dissertation makes an original contribution in the field of ICT, poverty and development. Hence, the research is likely to have an impact on government departments, aid agencies, non-governmental organisations (NGOs) and academics who are involved in work on ICT, poverty and development.

The research challenges the received wisdom of mainstream development theory and practice by arguing that the potential to use ICTs for meaningful, equitable development will not be achieved if a unlinear model of change and progress is used, which is based on the assumption that 'underdevelopment' is a function of knowledge deficiency. The recipe of development through information delivered via ICTs sits comfortably within a long tradition in Western thought that seeks the solution of the worlds ills - and ultimately, salvation - in technological breakthroughs (Noble, 1997; Wertheim, 1999). However, these usually fail to deliver because we fail to recognise that 'relations of power' tend to direct the benefits of new technologies to the already privileged. Rather, understandings of ICTs must be locally situated, the socio-technical system in which ICTs are being used clearly understood and creativity encouraged, thus allowing ICTs in context to become revealing of new possibilities. Such a focus, it is hoped, will enable us to think differently and creatively in order to make the best and most appropriate use of the ICT resources that now exist without assuming that there is necessarily a universally applicable development model for doing this.

The knowledge-power nexus employed in this research debunks development models framed by modernisation theory by arguing that simple claims about the links between ICTs and progress are not correct - and in some cases may be dangerously wrong. An important contribution of this research is that it aims to gain a reflexive understanding of the relationship between ICT, poverty and development. It is envisioned that this would make evident areas of research to be pursued in the future and thus serve to highlight certain issues that are important if we hope to make the best use of ICTs for development in South Africa. The dissertation will present an original framework for rethinking ICT, poverty and development, and will provide a set of guidelines for ICT (and for information) use in poverty alleviation work in South Africa.

The research calls into question the current static view of knowledge and power in the ICT, poverty and development debate. By employing Foucault's power-knowledge complex, we add a different dimension to the debate. By analysing the forces at work in a field of power and knowledge, we open up possibilities for re-conceptualising the potential of ICTs for social justice, distributional equity and poverty alleviation.

1.8   Structure of the Dissertation

The structure of the dissertation is organised as follows:

Chapter 2 reflexively discusses the dominant meta-theories of development and presents a schematic overview of new perspectives and middle-range theories in development. Further, we subject the notion of 'poverty' and 'development' to discursive analysis. This has been approached from the perspective of a Foucauldian power-knowledge framework. We then critically engage with the post-structuralist critique of development.

Chapter 3 focuses on theories and explanations of the concept of the 'information society', and the understanding of technology as socially located rather than a neutral tool. In addition, we provide a critique of Manuel Castells's conception of the 'Network Society' and the rise of the 'Fourth World'.

Chapter 4 provides an overview of the ICT, poverty and development literature, with a view to identifying and critiquing the main themes underlying it, as well as explaining its ideological underpinnings. Apart from exploring the complex links between ICT, poverty and development, we will also review international trends in ICTs for development.

Chapter 5 provides a historical overview of government-led ICT initiatives and policies in South Africa since 1994 and an outline of the institutional mechanisms and structures that were put in place to implement policy.

In *Chapter 6* government's ICT policies and discussion documents, as well as interview transcripts, are subjected to critical discourse analysis. The purpose of this is to deconstruct government's ICT, poverty and development discourse *apropos* a number of dominant themes, by grounding it in a Foucauldian power-knowledge framework.

Chapter 7 attempts to create a framework for re-framing the ICT, poverty and development discourse in South Africa. The challenge is to find ways of using this technology for locally-led and socially embedded learning and change processes that recognise the agency of the subjects of development. Further, we discuss the key policy issues for the South African government if it is to engage with the radical challenge of rethinking the categories of the development discourse, with a particular focus on ICTs for reducing poverty and inequality, in order that ICTs might be appropriated in ways capable of subverting the current hierarchical structure and promoting equitable, pro-poor development.

Finally, *Chapter 8* concludes the study. This chapter summarises the main empirical and theoretical results emanating from the study and recommends a number of areas for further research.

Chapter 2

Theories of Development and 'Development as Discourse'

2.1   Development Theories

In this section we briefly explore the recent historical and intellectual evolution in scholarly thinking about theories of development. We will briefly provide a historical review of the major, and often competing, theoretical approaches that have dominated development studies, starting with classic development theories informed by the 'development project' of the Cold War. The objective is neither to be comprehensive, nor is it to offer a critical assessment of the major theories of development.[12] Rather, we argue that development theories have ethical and value dimensions and can benefit from explicit discourse analysis. Indeed, as is well known, the rise of development studies in the social sciences was as much a political as a scholarly affair.

Development has long been equated with modernisation and Westernisation and studied as a straightforward economic growth issue (Escobar, 1995a). In this sense development is usually identified as the processes of economic growth, industrialisation and modernisation that result in a society achieving a high per capita GDP (Apter, 1967). Goulet explains the origins of managed Third World development as an 'industry' and the notion of the West as a blueprint or model for Third World development:

> "[D]evelopment, as a vision of a better life and a process of deliberate change to attain it, emerge[d] after World War II as a universal national goal. Europe's reconstruction with Marshall Plan aid made it seem that rapid development could also be gained in the Third World through a massive infusion of financial and technological resources, and the transfer of institutional models and dynamic ideas from rich to poor countries" (Goulet, 1996:1).

It is, therefore, not surprising when Brett (2000:4) states that "developmental programmes have failed more often than they have succeeded" primarily because of the imposition of inappropriate external models, and when Streeten (1994:13) asserts

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[12] For a more comprehensive review of the history of development theory, the reader is referred to Booth (1985); Toye (1987); Hettne (1995); Brohman (1996); Dickenson *et al.* (1996); Cowen & Shenton (1996); Leys (1996); Preston (1996); Schuurman (1993a); Todaro, (2000); and Streeten (1995).

that "it is development itself that interferes with human development". Similarly, Goulet (1971) argued that so-called 'development', owing to its costs in human suffering and loss of meaning, can amount to anti-development. He argued that development needs to be redefined, demystified and thrust into the arena of moral debate (Goulet, 1971:xix).

Development implied the spread and consolidation of a capitalist economy and society into the underdeveloped regions. The unproblematised assumption was that capitalism would generate development. The relationship between intellectual production and actual power relations and political projects was never more clear than in modernisation theory (Gendzier, 1985). It guided the thinking of Western governments, international development agencies and many policy-makers in the Third World. The post-structural turn in European philosophy and social science in the 1970s had by the 1990s influenced development theory and research in a major way, under the various appellations of post-structuralism, post-modernism, post-developmentalism and post-colonialism (Escobar, 1995a; Sachs, 1992; Kincaid & Portes, 1994). The post-structuralist school is discussed in Section 2.1.3.

2.1.1   Classic Development Theories

Early economic development theory[13] was but merely an extension of conventional economic theory which equated 'development' with growth and industrialisation. As a result, Latin American, Asian and African countries were seen mostly as 'underdeveloped' countries, i.e. 'primitive' versions of European nations that could, in time, 'develop' the institutions and standards of living of Europe and North America. As a result the 'stage theory' mentality of economic development dominated discussions of economic development. As later made famous by Alexander Gerschenkron (1966) and, more crudely, Walt W. Rostow (1956), the stage theories argued that all countries passed through the same historical stages of economic development and that current underdeveloped countries were merely at an earlier stage in this linear historical progress, while First World (European and North American) nations were at a later stage.

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[13] Early development theorists included economists such as Bert Hoselitz (1952), Simon Kuznets (1954), W. Arthur Lewis (1954) and Hla Myint (1967).

More enlightened attempts to arrive at an empirical definition of the concept of 'underdevelopment', as exemplified by the work of Hollis Chenery (1960), Simon Kuznets (1954) and Irma Adelman (1961), led to the general conclusion that, while there were not explicit 'linear stages', countries tended nonetheless to exhibit similar patterns of development, although some differences could and did persist. The task of the development economist, in this light, was to suggest 'short cuts' by which underdeveloped countries might 'catch up' with the developed and leapfrog over stages.

By equating development with output growth, early development theorists, prompted by Ragnar Nurkse (1953), identified capital formation as the crucial component to accelerate development. The celebrated early work on the 'dual economy' by W. Arthur Lewis (1954) stressed the role of savings in development. Although capital formation never really left the field, the meaning of the term mutated somewhat over time. T.W. Schultz (1961), drawing upon his famous Chicago School thesis, turned away from physical capital accumulation to emphasise the need for 'human capital' formation. W. Arthur Lewis (1964) and Hans Singer (1998) extended Schultz's (1961) thesis by arguing that social development as a whole (notably education, health, etc.), by improving human capital, were also necessary prerequisites for growth. In this view industrialisation, if it came at the cost of social development, could never be self-sustaining. However, it was really only in 1969 that Dudley Seers (1969) finally broke the growth 'stranglehold' in development theory. Development, he argued, was a social phenomenon that involved more than increasing per capita output. Development meant, in Seers's (1969) opinion, eliminating poverty, unemployment and inequality as well. As the world environmental crisis became evident in the 1980s, this debate took a new twist as the very sustainability of economic development was questioned (see Section 2.1.2.4).

Economists such as Albert Hirschmann (1958) became disillusioned with 'stages of growth' reasoning and stressed the need for country-specific analyses of development. Further, a 'structuralist' thesis began to germinate, which called attention to the distinct structural problems of Third World countries. One of these distinctive features was that, unlike the process of European industrialisation, Third World

industrialisation was supposed to occur while these countries existed alongside already industrialised Western countries and were tied to them by trade.

The Latin American economist, Raúl Prebisch (1959, 1963), formulated the famous dependency theory of economic development, wherein he argued that the world had developed into a 'centre-periphery' relationship among nations. The Third World was regressing into becoming the producer of raw materials for First World manufacturers and were thus condemned to a peripheral and dependent role in the world economy. Dependency theory (and the later world-systems theory of Immanuel Wallerstein [1987] which subsumed the dependency paradigm) shifted the focus from culture and alleged national character as explanations of underdevelopment to structural forces shaped over time by the dynamics of the world economy. In contradistinction to the dualism of modernisation theory, the appropriate unit of analysis became the larger capitalist world system and its historical formation.

A radical version of the theory espoused by neo-Marxian economists such as Samir Amin (1976) and André Gunder Frank (1967) argued that poor countries exiled to the periphery of the world economy could not develop as long as they remained enslaved by the rich nations of the hegemonic centre. The only solution was to de-link completely from the world economy.[14] The milder version of dependency, pioneered by Fernando Henrique Cardoso and Enzo Faletto (Cardoso & Faletto, 1979), was more useful. Cardoso and Faletto (1979) maintained that under capitalism both rich and poor countries could grow but would not benefit equally. As advocated by the UN Economic Commission for Latin America (ECLA), this version was a mixture of protectionism and Keynesianism that became known as import substituting industrialisation (ISI). Behind a tariff wall, with generous state subsidies, an active fiscal policy and a certain degree of central planning, poor countries could lessen their dependency on the centre and develop autonomously.

Dependency theory's tendency towards teleological and functionalist explanation, the rigid state structuralism associated with the model, its zero-sum realist interpretation of world political and economic dynamics and development potential, and its inability

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[14] Only Albania and North Korea attempted the policy of de-linking from the world economy, with (predictable) adverse consequences.

to explain more recent changes under globalisation, represent major limitations. Although there were some periods of rapid growth in countries such as Mexico and Brazil, even the most ardent advocates of ISI came to recognise that the policy was not the panacea they had claimed it to be.

In response a neo-liberal countermovement initiated by, *inter alia*, I.M.D. Little (1982), Deepak Lal (2000), Bela Balassa (1981) and Anne Krueger (1990) began to gain adherents. Neo-liberalism is a doctrine of *laissez-faire* capitalism grounded in neo-classical economic theory, and the assumptions of monetarism, modernisation theory and the doctrine of comparative advantage, legitimated by the globalist rhetoric of free trade, growth, efficiency and prosperity (Sachs, 1989; Williamson, 1990). Development is generally defined as economic globalisation.[15] Put simply, neo-liberals have developed a negative view of state action and the political process.

The neo-classical counterrevolution school argued that the emergence of huge bureaucracies, state regulations and 'bad' economic policies have suffocated private investment and distorted prices making developing economies extremely inefficient (Krueger, 1974; Balassa, 1982).[16] The ills of unbalanced growth, dependency, poverty, etc. were all ascribed to the *dirigiste* policies of Third World governments (Bhagwati, 1979). To remedy this situation 'structural adjustment' was promoted, which included privatising state-owned enterprises; promoting free trade and export expansion; welcoming investors from developed countries; and eliminating government deficits, price distortions (in factor, product and financial markets) and over-valued exchange rates (Bauer, 1984; Lal, 2000). By the early 1990s neo-liberalism had become a hegemonic ideology of development encapsulated in the so-called 'Washington consensus' on the virtues of free markets and globalisation (Williamson, 1993).

There are five major weaknesses with the neo-liberal paradigm. First, "the usual understanding of a dichotomy between the state and globalization is an illusion, as the

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[15] Interestingly, both neo-Marxian structuralists and neo-liberals point to fast East Asian development and the disastrous African experience as proof of their directly opposing theses (Wade & Veneroso, 1998).
[16] This is in stark contrast to dependency theorists who regarded underdevelopment as an *externally* induced phenomenon.

processes of global restructuring are largely embedded within state structures and institutions, politically contingent on policies and actions, and primarily about the reorganisation of the state" (Amoore *et al.*, 1997:186) . The point being made here is that the state is actually at the very heart of the politics of globalisation and as such the state can play a positive role in the development process. The 'bringing the state back in' literature of the 1980s (see Evans, Rueschemeyer & Skocpol, 1985), for example, characterised states as independent actors in themselves and placed geopolitics at the centre of analysis. The state's ability to perform a positive role, however, is not guaranteed by definition but depends on its organisational characteristics including, *inter alia*, the quality of its personnel, the degree of its internal cohesion and the degree of its autonomy or insulation from rent-seeking pressures (Jessop *et al.*, 1991). Second, neo-liberals overemphasise competition and trade liberalisation at the expense of human capital formation and investment in physical infrastructure (Toye, 1987). Third, there are many areas in which the operations of 'free markets' are flawed by asymmetric control of information (Stiglitz, 1998). This points to the importance of institutions and social norms in shaping market outcomes. This, in turn, justifies social and governmental action at both the micro and macro levels, and opens the way to a more explicitly normative theory of development.

Fourth, many developing countries are so different in structure and organisation from their Western counterparts that the behavioural assumptions and policy precepts of traditional neo-classical theory are questionable and often incorrect. Competitive markets simply do not exist, nor, given the institutional, cultural and historical context of many developing countries, would they necessarily be desirable from a long-term economic and social perspective (Önis, 1995). Fifth, there is no unique path for development in terms of specific policies or institutions. There are a variety of paths depending on the country's initial characteristics, its ideological and cultural heritage, plus a number of other factors. Hence, to propose a universal formula for success as neo-liberals do is certainly not warranted (Portes, 1997).

2.1.1.1 The East Asian Model

Scholars (Evans, 1987; Wade, 1990; Gore, 1996) have long debated the causes of the spectacular economic success achieved by the East Asian newly industrialising countries (NICs) (i.e. Taiwan, South Korea, Hong Kong and Singapore), as well as the lessons that other developing countries can learn from this development experience. The World Bank and neo-liberal economists have argued that the main lesson to be learnt from the East Asian NICs is that free markets, free trade and an export-oriented development strategy are the key to economic success (Krueger, 1985; Balassa, 1989). Thus countries which had pursued protectionism and ISI policies came in for heavy criticism from the World Bank, IMF and advocates of neo-liberal economic policies (Krueger, 1985; Balassa, 1989; Lal, 2000; Corbo, Krueger & Ossa, 1985). This has generated many debates and the neo-liberal interpretations of the NICs' economic success has been challenged and shown to be flawed (Toye, 1987; Wade, 1990; Amsden, 1994). It is now generally accepted that the success of the NICs was largely a result of the crucial role played by the state, which also at times involved selective protectionist policies (Wade, 1988; Gore, 1996). Even the World Bank (1993) has come to admit, albeit reluctantly, that the state was heavily involved in the NICs' development process. Thus the key developmental issue is not 'getting prices right' as argued by neo-liberal policy-makers but getting 'statecraft' right (Dietz & James, 1990).

Wade (1990, 1996) argues, convincingly in our view, that the remarkable success of the East Asian dragons in bringing about rapid economic growth was not due to their pursuit of 'free market' policies *per se*, as claimed by the World Bank, but rather the innovative 'governing and co-ordination' of the market by the 'developmental' state. Thus, the state played a central role in determining the path of development that was followed. Despite a strong export orientation, the East Asian economies were not from their early stages of development fully integrated with the world economy.[17] Rather, integration was strategic, tailored to specific sectoral needs and their level of

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[17] South-East Asian economies such as Malaysia are much more open in terms of foreign direct investment (FDI) and other capital inflows than the East Asian NICs. Malaysia, for example, has adopted a much less demanding policy regime, which relies less on interventionist industrial policies and more on conservative macroeconomic management, as well as liberal trade and FDI policies. On these grounds the South-East Asian model is often recommended to other developing countries as easier to imitate (World Bank, 1993).

industrial and economic development, and sequenced accordingly. Moreover, strategic integration was not only confined to trade relations but also extended to technology transfer. Government policy had a major influence in sectors such as electronics: (i) promoting joint ventures; (ii) screening imported technologies; (iii) bargaining over local content agreements; and (iv) in the process firmly embedding MNCs in a national industrialisation strategy.

In 1997, however, the East Asian 'miracle' economies, with an acknowledged record of economic success, suddenly and simultaneously suffered an extraordinary reversal that justifies the term 'economic meltdown'. The World Bank (1991) ascribed the crisis to excessive government intervention. The irony is that when these countries were successful, the model was interpreted by the World Bank and IMF as one of a minimalist state in which the government provided only the overall framework for private enterprise to flourish. The World Bank and the US Treasury argued that close government-business relations led to 'crony capitalism' and lack of transparency, which in turn led to excessive investment in unprofitable or marginal projects (Kay, 2002). In essence the neo-liberal argument claimed that the underlying model of 'guided capitalism' bred complacency, cronyism and corruption (Singh & Weisse, 1999). Hence, as a condition for the multi-billion dollar bailout packages, the IMF requested fundamental reforms in their economic systems to eradicate market 'rigidities' and 'heavy' state intervention (Wade, 1998).

Although there was a close, consultative relationship between government, business and the financial system, an important characteristic which distinguished the East Asian model from other *dirigiste* states was that the government provided assistance to the corporations only in return for adherence to strict performance standards (Amsden, 1989; Amsden & Singh, 1994). Further, the East Asian governments have sought not 'close' but what might be called 'strategic' integration with the world economy, i.e. they have integrated up to the point where it has been useful for them to do so. For example, during its high growth, developmental phases, South Korea (1970s and 1980s) integrated with the world economy in relation to exports, but not imports; with respect to science and technology but not finance and multinational investment (Chakravarty & Singh, 1988).

Korean business conglomerates (*Chaebol*) were used as a vehicle for government's drive for rapid industrialisation and technological catch-up. In effect the Korean government was willing to share risks with the enterprise. In his seminal work Williamson (1975) pointed out that the internal allocation of capital by conglomerates may in many circumstances be more efficient than an external capital market. The latter is often subject to speculation, asymmetric information and myriad other market inefficiencies. However, financial liberalisation of the mid-1990s fundamentally changed the Korean economic system (Wade, 1998). High debt/equity ratios without the government's active involvement in risk taking made the corporate system fragile. Furthermore, it was accentuated by the fact that not only was overt government control over corporate borrowings (particularly abroad) and investment abandoned, it was not replaced by adequate prudential regulation. Thus the crisis has arisen in large measure through financial liberalisation that involved the abandonment of the essential tenets of the East Asian model of development.

2.1.2 New Perspectives

A myriad of new perspectives and middle-range theories (as opposed to meta-theories) emerged in the 1970s, 1980s and 1990s. However important feminist, basic needs and 'voices of the poor' (bottom-up) approaches are to development, they do not in themselves constitute new development paradigms. Rather, they draw on one or a combination of meta-theories in the social sciences.

2.1.2.1 Human Development
There was a growing realisation that the 'human' dimension of development was being neglected at the expense of growth. The ILO summarised the position:

> "[I]t has become increasingly evident, particularly from the experience of the developing countries, that rapid growth at the national level does not automatically reduce poverty or inequality or provide sufficient productive employment" (ILO, 1976:15).

Dissatisfaction with the pace and direction of economic growth, and with the severe problems of social inequity, increasing poverty and dualism in the economies of developing countries, led development planners to re-examine strategies emphasizing capital-intensive, export-oriented industrialisation (EOI). From the 1970s the 'growth maximization and trickle down' agenda was challenged on a number of fronts:

- The inappropriateness of the GDP as the primary indicator of development (Seers, 1983);

- Employment objective: various ILO missions (e.g. to Colombia, Kenya and Sri Lanka) led by Dudley Seers (1983) in the 1970s, stressed the need to look to the traditional, rural areas for expanded employment opportunities;

- The importance of integrated rural development planning (World Bank, 1975; USAID, 1974);

- 'Redistribution with growth' advocates (Chenery *et al.*, 1974);

- The 'basic needs' school (ILO, 1976; Streeten *et al.*, 1981);

- Amartya Sen's (1999) 'capabilities' approach;

- Human development approach (UNDP, 1990);

- 'Voices of the poor' school (Chambers, 1983).

A reappraisal of the mainstream development paradigm led to the emergence of a populist 'voices of the poor' school. It originated from a number of different sources which increasingly converged during the late 1970s (Watts, 1993). In essence it entailed a rejection of the classic, top-down, technocratic, and state-led model of technology transfer. There was a realisation that the previous models were not working and development should be promoted by alternative approaches. A strong case was made that knowledge about poverty should focus on the understandings of poor people and the concepts that they utilise. This approach has, in the main, been associated with the work (i.e. participatory rural appraisal and rapid rural appraisal) of Robert Chambers (1983, 1999). Chambers (1999) poses the question "Whose reality counts?" and advocates the position that much more emphasis must be given to the perspectives and understandings of poor people themselves in international development.

The 'basic needs' school, on the other hand, argued that the poor need access to a bundle of essential goods and services to overcome basic deficiencies in their standards of living and to satisfy their 'basic human needs' (ILO, 1976; Streeten *et al.*, 1981). This strategy is concerned with meeting the needs of the poor as a legitimate goal *per se*, aside from its contribution to productivity; and it emphasises the restructuring of production so that the poor have greater access to basic goods and services despite their disadvantages in the market. Education, nutrition, health,

sanitation and employment for the poor were the central components of this approach, reflecting an acknowledgement that the benefits of development did not necessarily 'trickle down' to those who needed them most (Stewart, 1985; Streeten, 1984). The success of China and Cuba provided evidence that basic needs approaches could be effective in alleviating or eliminating absolute poverty. They provided less impressive evidence, however, that basic needs strategies could, alone, increase productivity or stimulate economic growth (Paine, 1976; Lee, 1977).

Building on Streeten's (1984) basic human needs strategy, Sen (1999:76-85) argues that the goal of development is to expand people's 'capability' to do things that they value. Sen (1985) puts forward a view of poverty which derives from the idea of failure to be able to take a full part in human society, but which sees this as a matter of lack of choice or capability rather than simply material living standards. Capability refers to a person's or group's freedom to promote or achieve valuable 'functionings'. Functioning relates to the achievement of a person, such as being literate, being nourished, etc. Capability, on the other hand, is the person's ability to achieve valuable functioning (Sen, 1984:497). Sen (1992:42-46) states that the selection of capabilities on which to focus is a value judgment that is to be made explicitly and in many cases through a process of public debate. In these terms development means not just combating or ameliorating poverty, but restoring or enhancing basic human capabilities and freedoms. By redefining the space for assessing development in terms of capabilities, Sen critiques the conventional conceptualisation and measurement of development. In doing so the capability approach brings a theory of 'value' and 'ethics' for assessing human well-being and deprivation.

The focus on equity and on 'basic needs' inspired the UNDP (1990) to focus on human development and the creation of the Human Development Index (HDI), which combines life expectancy, adult literacy, health and education measures together with per capita GDP to calculate an overall index of development success. The objective of this was to put people at the centre of development, not incomes:

> "[P]eople are the real wealth of a nation. The basic objective of development
> is to create an enabling environment for people to live long, healthy and
> creative lives…Human development is a process of enlarging people's
> choices. The most critical ones are to lead a long and healthy life, to be

> educated and to enjoy a decent standard of living. Additional choices include political freedom, guaranteed human rights and self-respect" (UNDP, 1990:1).

In terms of the UNDP's approach, human development concerns widening human choices, while incomes are merely a means, not an end in themselves. Further, there are many paths to human development success including: poverty-reducing growth, equitable distribution of income and well-targeted social expenditures.

As a result of the failure of the World Bank's structural adjustment programmes (SAPs) and the International Monetary Fund's (IMF) stabilisation policies, UNICEF called for 'Adjustment with a Human Face' (Cornia, Jolly & Stewart, 1987). The UNICEF study: (i) draws on 10 country case studies and UNICEF experience to illustrate the severity of the debt crisis and point to ways to avoid or alleviate the ill-effects of economic adjustment on vulnerable groups; and (ii) addresses, as its main issue, the question of how economic growth translates, or fails to translate, into human development (Cornia, Jolly & Stewart, 1987). The UNICEF study underscores that policies to protect the vulnerable can and must become part of national planning even when the economy is in difficulties. The strategy of 'Adjustment with a Human Face' combines the promotion of economic growth, protection of the vulnerable and macro-economic adjustment.

An important caveat to this section is that populist rhetoric can be useful for repackaging development styles by verbally addressing fundamental structural issues of inequality and power, but in practice by pursuing 'business as usual'. Re-labelling projects, 'putting old wine in new bottles', and using its appealing vocabulary allow new claims to be made upon funds and justify the exercise of control in old ways.

2.1.2.2 Gender and Development

Feminism and gender studies have helped to reinvigorate the sociology of development in the late 20th century with the still burgeoning literature on Women in Development (WID), Women and Development (WAD) and Gender and Development (GAD) (Mies, 1994; Tinker, 1990). Placing gender at the centre of theorisation, feminist development theories have reoriented development discourse and practice. These theories have been crucial in exposing the 'invisibility of women'

in earlier theories of development and the uneven impact of development processes on men and women, as well as on sectors of the population differentiated by class, race and ethnicity. They have also broken new theoretical ground with exploration into a changing sexual division of labour and into the mechanisms through which production and reproduction are linked in such ways that they produce not only gender inequality but also unequal development and international asymmetries (Fernandez-Kelly, 1994).

2.1.2.3 Institutional Theories of Development

In the 1990s institutional theories of development were beginning to emerge based on the 'new institutional economics' and the 'new political economy' (Bates, 1988; North, 1990). The emerging institutional theory of development does not constitute a break with the dominant neo-liberal paradigm, but is rather an enrichment of it. This theoretical work largely embraces the essential tenet of rational choice theory, which postulates that social behaviour (and hence outcomes) may be explained by the interplay of individuals pursuing their own best interests and 'preferences' on the basis of rational choices and available information. The central idea of the new institutionalism is that what makes for an efficient economy is a set of institutions that permits individuals to benefit personally from doing what will also serve the material interests of society as a whole (Leys, 1996). In simplified terms, the institutional approach to development attempts to ascertain how institutional arrangements and their modification may constrain or enhance the economic behaviour of agents and hence impede or contribute to development processes (Nabli & Nugent, 1989). However, to the extent that institutions are products of cultures and alleged national characters, the approach has brought us back full circle to the focus of classical modernisation theory (Biggart & Guillen, 1999).

Leys points to a major flaw in the explanatory power of the institutional approach:

> "[W]e cannot explain in terms of the 'paradigm' how any particular set of institutions that existed in the past or exist today in a given country came into existence" (Leys, 1996:37).

Despite this shortcoming, the World Bank's (1991, 1994) *World Development Report for 1991 and 1994*, for example, relied extensively on the theories of North (1990) and Bates (1988) in their discussion on infrastructure and legal structures. Further,

the recent emphasis of the international development agencies on 'good governance' clearly reflects the influence of institutional thinking.

2.1.2.4 Sustainable Development

Increasing concern about the inappropriate and ineffective use of natural resources in developing countries and the declining quality of the physical environment also led to the search for new approaches to development during the late 1970s and early 1980s. The conceptual origins of sustainable development can be traced back to an early 1970s environmental discourse about 'the age of scarcity' and 'the limits to growth' (Meadows *et al.*, 1972; Ward & Dubos, 1972; Hirsch, 1977), when the impact of Rachel Carson's (1962) landmark study of environmental problems in the US prompted new research agendas and the establishment of the United Nations Environment Programme (UNEP). The quest for an alternative, ecologically sustainable and socially just development trajectory for the South led to radical formulations such as 'grassroots development' (Illich, 1969); 'pro-peasant development' (Das, 1979); 'eco-development' (Glaeser, 1984); 'people-centred development' (Korten & Klauss, 1984); 'participatory development' (Cohen & Uphoff, 1980; Chambers, 1983, 1992); and so forth. While these early sustainable development models varied, they shared a number of common features:

- A Gandhian[18] emphasis on equity, basic needs, self-reliance and local control over the use of local resources;
- A general preference for small-scale enterprises, emphasising community and village-based designs;
- Shared values of solidarity with future generations, social justice and ecological balance;
- An affinity for 'appropriate' or 'intermediate' technologies, designed with local inputs and know-how; and
- A propensity for political decentralisation and political openness to enable popular participation and to incorporate local knowledge and traditions of stewardship.

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[18] Pertaining to, or characteristic of Mahatma Gandhi (1869-1948), Indian political leader and social reformer.

The UN World Commission on Environment and Development (UNWCED), chaired by Gro Harlem Brundtland (1987), in its report *Our Common Future*, offered the following definition of sustainable development:

> "Development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (Brundtland, 1987:1).

The Brundtland (1987) report gave unprecedented prominence to the principle of sustainability. The next major event was the UN Conference on Environment and Development (UNCED) (or *Earth Summit*) held in Rio de Janeiro in 1992, which produced Agenda 21 (Sitarz, 1993), the international blueprint for sustainable development. Unlike the Earth Summit, the World Summit on Sustainable Development (WSSD), which took place in Johannesburg between 26 August and 4 September 2002, was never intended to develop new conventions or to renegotiate Agenda 21. Rather, the WSSD was given the mandate of implementing existing promises and commitments, such as those made in Rio and in the UN Millennium Development Goals (MDGs) (OECD, 2001). Emanating from the Millennium Declaration, the MDGs bind countries to do more in the fight against inadequate incomes, widespread hunger, gender inequality, environmental deterioration and lack of education, health care and clean water. They also include actions to reduce debt and increase aid, trade and technology transfers to poor countries (UNDP, 2003:Chapter 1). The *Plan of Implementation* (WSSD Secretariat, 2002a) and the *Johannesburg Declaration on Sustainable Development* (WSSD Secretariat, 2002b) was negotiated and adopted by the intergovernmental committee. These documents, together, are intended to frame the 'official' approach to sustainable development in the foreseeable future. The *Plan of Implementation* was designed specifically to generate a set of targets, timetables and concrete action plans that would make sustainable development happen.

The absence of new commitments and innovative thinking, particularly on global environmental issues and how they threaten development in all countries, is probably the most significant weakness of the *Plan of Implementation*. What the *Plan of Implementation* could have been and what it actually became were often significantly affected by the alteration of a few simple words. Each word and phrase change gradually shifted the Plan from a promising document outlining commitments and

obligations to one filled with voluntary options and choices, and may actually have 'watered down' principles affirmed in the Rio declaration. Despite a call for examination of the relationship between trade, environment and development, the WSSD failed to signal how development co-operation and expanding international trade could be directed to serve the goals of sustainable development. The inability of governments to agree on: (i) reform of the existing global environmental governance system; (ii) effective institutional mechanisms and effective means of implementation; and (iii) how to ensure effective financing of sustainable development, makes meaningful accountability on these issues unlikely.

Where Brundtland (1987) was vague, Agenda 21 (Sitarz, 1993), the WSSD *Plan of Implementation* (WSSD Secretariat, 2002a) and the World Development Report 2003 (World Bank, 2003) discarded discourses of scarcity and limits[19], and emphasised that: (i) the best way to end poverty is to promote economic growth; (ii) in order to promote poverty alleviation, free trade should be the engine of renewed economic growth; and (iii) technological innovations, investment in research and development (R&D) and technology transfer offer the best hope for liberation from the constraints of a finite biosphere. Hence, 'sustainable development' has become conflated with 'sustained economic growth'. Thus, growth maximisation and environmental preservation can be mutually enhancing. In other words, neo-liberalism is not inimical to sustainable development. It is not surprising, therefore, that several observers have raised the concern that the sustainable development discourse has been captured by the grand universalising project of neo-liberal globalisation, and in practice is just as undermining of distributive equity, social justice and poor people's rights and livelihoods as the mainstream modernisation development agenda (Korten, 1995; Campbell, 1993; Brecher & Costello, 1994; Karliner, 1997). This is clearly reflected in the following two quotations:

> "Modernism, and its more recent manifestation as development, have betrayed progress…while a few have attained material abundance, resource depletion and environmental degradation now endanger many and threaten the hopes of all to come…Modernism betrayed progress by leading us into, preventing us from seeing, and keeping us from addressing interwoven environmental, organizational, and cultural problems" (Norgaard, 1994:2).

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[19] Thereby, averting the question of Northern over-consumption.

> "[L]ocal experiences of western development in many localities of the third world have been closely associated with the dissolution of indigenous cultural, political, and economic systems; with increased inequalities in life chances between genders and among classes…and with deterioration in, and removal of access to, the biophysical environment" (Porter & Sheppard, 1998:2).

It would seem that most official agendas envisage little fundamental change, focusing on promoting more efficient resource and energy evaluation and use, recycling and reduced pollution broadly within existing parameters rather than on radical changes to lifestyles and economic systems. At the extreme, sustainable development has become a convenient slogan to signal political correctness without the corresponding commitment to change. The dominant modernist ethos, and its contemporary incarnation as neo-liberalism, is still for the most part promoting an agenda of economic efficiency, articulated largely through privatisation and liberalisation programmes.

2.1.3 The Post-Structuralist Critique of Development

Many writers have identified an impasse in development theory and praxis, linking this to the growing diversity of the so-called Third World, the collapse of communism and perceived crisis of Marxist analysis, and the failure of a great deal of radical development theory (be it Marxism or dependency theory) to offer constructive alternatives to neo-liberal orthodoxy.[20] There have been many texts (for example, Booth, 1994; Schuurman, 1993a; and Nederveen-Pieterse, 2000, 2001) in recent years urging us to 'rethink' development and to move 'beyond' the perceived impasse in this area of knowledge and practice. Authors like Sachs (1992), Escobar (1995b) and Rist (1997) have expressed deep dissatisfaction with 'business-as-usual' and standard development rhetoric and practice.

Over the past fifteen years there has been a turn to the work of Michel Foucault to develop a more fundamental critique of the will to power which informs development as discourse (Escobar, 1985; Ferguson, 1990; Rahnema & Bawtree, 1997; Esteva & Prakash, 1998; Rist, 1997; Sachs, 1995; Schuurman, 2000). The label that has been

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[20] See Alvares (1992); Apffel-Marglin & Marglin (1990); Booth (1994); Crush (1995b); Dallmayr (1996); DuBois (1991); Escobar (1985, 1988, 1992, 1995a, 1997); Esteva (1987); Esteva & Prakash (1998); Ferguson (1990); Lummis (1991); Nederveen-Pieterse (1991, 1998); Latouche (1996); Rahnema & Bawtree (1997); Rist (1997); and Sachs (1990, 1992, 1995).

attached to this critique is 'post-development' or the post-structuralist critique of development. Post-development is not a homogeneous concept. While these authors hold certain assumptions in common, it is clear that much divides them. Referring to the post-development idea in the singular therefore runs the risk of caricaturing a number of different writers' ideas.[21] This is even more the case given post-development theory's widespread commitment to diversity and pluralism. However, we still believe that there are certain key ideas which are sufficiently unified to be identified in the singular.

Writings grouped under the heading of 'post-development' are, as the term implies, critical of development as it has been practised since WWII. Further, most of this writing is in some ways inspired by Foucault and tends to see development as a discourse that orders and creates the object that it purports to address. The writings directly inspired by Foucault have served to illuminate the political and power aspects of what was earlier seen as a neutral and practical problem, *viz.* how to deliver development to poor people. The power of post-development thinkers such as Escobar (1995a, b), Esteva and Prakash (1998), Rahnema and Bawtree (1997) and Sachs (1995) is the fresh challenges that they offer to the neo-liberal mainstream in development economics, and their prescient warning that we should not be complacent about the failures of development, or about the power relations that inform particular constructions of 'the development project' (Cooper & Packard, 1997).[22]

Escobar's (1995a) *Encountering Development* has undoubtedly been the most important post-structuralist intervention in the field of development studies and he has emerged as the pre-eminent advocate for the deconstruction of development discourse. Escobar (1995a:40) maintains that the development discourse "determines what can be thought and said". Escobar's (1995a, b) work takes its lead from Foucault (1980), Gramsci (1971, 1985) and Said (1995), and concerns itself with the ways in which Western accounts of development set out to normalise the West's 'Other' in the name of reason or progress, but always for particular political ends. As

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[21] Much of the post-structuralist impulse in development studies rests upon the notion of *discourse*, although it needs stressing that there is much variation within this body of theory.

Escobar (1995a:16), notes, "the process of deconstructing and dismantling has to be accompanied by that of constructing new ways of seeing and acting". The argument is that the act of deconstruction opens up fissures in dominant discourses and thereby creates the conditions for imagining alternative political spaces. The systematic discourse coterminous with development is the means by which the "Western developed countries have been able to manage and control and, in many ways, even create the Third World politically, economically, sociologically, and culturally" (Escobar, 1985:384). It is rooted in the values and assumptions that constitute the perception of a world comprised of developed and developing nations.

Drawing upon Foucault's work on representation, knowledge and power, Escobar (1995a) argues that development should be understood as a historically specific representation of social reality which permits particular modes of thinking and doing, whilst disqualifying others. This involves specific forms of knowledge, systems of power which regulate practice and subjectivities by which people recognise themselves as developed or underdeveloped. Escobar (1995a) offers a powerful manifesto against the 'magic formula' of development and a draft for a 'cultural' political economy. Escobar borrows from Michel Foucault as well as other post-modernist, feminist and environmentalist thinkers to insist that beneath development's optimistic and emancipatory façade has lain a project to control, manage and dominate "in the name of science, progress, and freedom" (Escobar, 1995a:85). Escobar (1995a:vii) concludes that a major crisis has befallen development due to its "failure and the increasing opposition to it by popular groups in the Third World". For Escobar (1995a, b), the ways of changing dominant discourses lie in bottom-up grassroots social movements and the new forms of knowledge they generate.[23]

Most post-development writings have focused on the development apparatus itself: how it constructs and orders the reality in which it seeks to intervene. Thus Grillo (1997:20) has argued that the writings of Escobar and others portray development as:

> "a monolithic enterprise, heavily controlled from the top, convinced of the superiority of its own wisdom and impervious to local knowledge, or indeed

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[22] See Cooper & Packard (1997) and Cowen & Shenton (1996) for an understanding of 'development' in terms of the history and politics of knowledge.

[23] For Crush (1995b) the changes envisaged have more to do with the ways we speak and write about development.

common-sense experience, a single gaze or voice which is all-powerful and beyond influence".

Kiely (1999:48) asserts that "post-development discourse tends to imply a passive Third World, simply having its strings pulled by the all-powerful West". This is a critique that has been levelled against discourse analysis more generally. In conversations together, Trombadori criticises Foucault for a "lack of individuating *real subjects* who are capable of determining a relation of power: in the context of the tensions of a discursive formation or of a particular apparatus in which knowledge and power are intertwined", and asks, "*who* struggles against *whom*?" (Foucault, 1991:18-19, emphasis in original). It is certainly true that the focus of these writings is very much on the discourse of the developers, how they portray and construct the object to be developed. Long (1992) and Arce and Long (2000) make the important point that the spread of hegemonic discourses such as development is always played out in local encounters and through human agency.

Manzo (1991:8) cautions that even the most radically critical discourse can slip "into the form, the logic, and the implicit postulations of precisely what it seeks to contest". She goes on to argue that "the pervasiveness of 'logocentric' thinking in the field of development studies explains why subversive counter-discourses are not taken more seriously" (Manzo, 1991:8).[24] Gardner and Lewis (1996:157) argue that "the relativism of post-modernist approaches is in danger of collapsing into depoliticised irresponsibility" and that "the deconstructionalist stance…makes active involvement in processes of change difficult". "There is…a danger in simply standing back and critiquing development from a discourse angle: after identifying overlapping, conflicting discourses, one is tempted to ask – so what?" (Robinson-Pant, 2001:323). As Gee (1999:8) states emphatically, "discourse analysis must have a 'point'". Escobar (1995a) has been criticised for being too negative about 'development' yet suggesting no alternative (see Gardner & Lewis, 1996; Grillo & Stirrat, 1997).[25] Nederveen-Pieterse (2000) and Schuurman (2000), for example, state that post-

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[24] The concept of 'logocentrism' was developed by Jacques Derrida and refers to the imposition of a hierarchy on familiar dichotomies (Hoy, 1996).
[25] Escobar's (1995) devastating critique of conventional developmentalism is not matched by an exposition of an alternative vision; even his final chapter does little more than eulogise new social movements as representing the way forward.

development offers an interesting critique of the development apparatus, but it does not point to a way forward.

We believe that the lack of instrumentality in much post-development theory is not in itself a weighty argument against the analysis. Post-development attempts to demonstrate why development interventions do not work and this must be kept separate from a call for alternatives. As Nustad (2001:488) argues: "If one retains faith in development, analyses that demonstrate that the premises on which an intervention is based do not hold surely must be of relevance". While cognisant of the shortcomings of the post-development writers such as Escobar, we are nonetheless sympathetic to certain elements of the post-structuralist critique, particularly its stress on contingency and questioning of the neutrality of technocracy. A major strength of the post-development approach is that it correctly argues that development practice is far from being a neutral process and may represent entrenched social and political interests. According to Brigg (2002:422), "taking the post-development critical impulse seriously requires moving away from the colonisation metaphor to a closer understanding of the operation of power through development, including its productive modality".

By drawing inspiration from the 'discursive turn' in the social sciences, post-development effects a move away from the centring of economic relations which characterise neo-liberal, political economy, regulation school and other variants of development studies. In doing so it initiates a wider critique of development than has hitherto been possible. The post-development school offers new ways of understanding what development is and does, and why it seems so difficult to think beyond it. In time this might also constitute "a point of resistance and a starting point for an opposing strategy" (Foucault, 1990:101).

2.2   Poverty as Discourse

Galbraith (1990) not only sees poverty as an inhumanity in itself, but also as the source of oppression and conflict. A particularly graphic description of what is meant by poverty as lack of choice was given more than 30 years ago by Denis Goulet:

> "The prevalent emotion of underdevelopment is a sense of personal and societal impotence in the face of disease and death, of confusion and ignorance as one gropes to understand change, of servility towards men whose decisions govern the course of events, of hopelessness before hunger and natural catastrophe. Chronic poverty is a cruel kind of hell, and one cannot understand how cruel that hell is merely by gazing upon poverty as an object" (Goulet, 1971:23).

Jean-Philippe Thérien (1999:723) has pointed to the emergence over the last decade of two competing interpretations of international poverty that he has dubbed the 'Bretton Woods paradigm' and the 'United Nations paradigm'. The former is associated with the discourse and practices of the international organisations initially conceived at Bretton Woods in 1944, namely the IMF, the World Bank and the General Agreement on Tariffs and Trade (GATT), and its successor, the World Trade Organisation (WTO). The latter corresponds to the discourse and practices of the UN and, in particular, those of its specialised agencies such as the United Nations Development Programme (UNDP), the UN Economic and Social Council (ECOSOC) and the International Labour Organisation (ILO), whose mandates are related to economic and social issues. Both paradigms explicitly seek to incorporate globalisation[26] into their thinking but differ significantly in their analysis of the impact that it had upon international inequality and development.

Perhaps, unsurprisingly, given their function as the main international agencies of liberal capitalism, the Bretton Woods Institutions (BWIs) take a broadly optimistic view of the historical achievements of post-World War II (WWII) development:

> "Over the last five decades, average per capita incomes in developing countries have more than doubled. The GDPs of some economies have more than quintupled…There has been a 'green revolution' in South Asia, an 'economic miracle' in East Asia, Latin America has largely overcome its debt crisis, and substantial gains in health and literacy have taken place in Africa" (World Bank, 1995a:10).

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[26] We follow Held *et al*. (1999:7), who conceive of globalisation as "an essentially contingent historical process replete with contradictions" that is reconfiguring global power relations in ways that cannot be predicted and therefore need to be researched.

Future prospects are also deemed to be good, provided that the countries either adopt or maintain the 'market-friendly' package of policies recommended by the international financial institutions. Yet, as Thérien (1999) has noted, the BWIs did come to concede in the 1990s that 'zones of extreme poverty' still exist in the world economy and they have moved to make 'poverty alleviation' one of their current watchwords. Much of the World Bank's (1995b, 2000) investment lending and the majority of its SAPs are now poverty focused. In a similar vein the IMF has made the financing of social safety nets a standard part of its macroeconomic programmes. However, it is important to stress that the attention paid to poverty by the BWIs derives from a distinctly different worldview from that which drove the development debate in the 1970s and 1980s. For the BWIs poverty does not derive from asymmetrical inequalities in the structure of the global political economy, but is "more the result of a temporary misadaptation of markets" (Thérien, 1999:732). The cause is perceived to be domestic, not external.

Thus poverty is treated by the World Bank as a consequence of "country-specific imbalances, policy errors, or political difficulties" (World Bank, 1995b:5). It must therefore be countered with selective measures addressed to particular states and situations, not with global reforms that might challenge the core principles of the international economic order. In sum, the vision is deliberatively restrictive and clearly political in its attempt to limit the range of possible, acceptable action. Hulme and Shepherd spell out the problems with this approach:

> "A particular problem of contemporary poverty analysis, seeking to rapidly reduce poverty headcounts in an era of globalization driven by a neoliberal vision, is to see 'the poor' as those who are not effectively integrated into the market economy. This leads to a focus excessively on the role that market forces can play in poverty-reduction…there are two problems with [this approach]…First, such a focus will not meet the needs of all the different types of poor people. Second, such an approach encourages a focus on those poor whom the market can 'liberate' from poverty but neglects the needs of those who need different forms of support, policy changes, or broader changes within society that take time. The chronic poor – those who have experienced poverty for long periods, or perhaps, all their lives – are likely to be neglected in such an era given the multiple factors that constrain their prospects and the likelihood that market-based factors may contribute to their continued deprivation" (Hulme & Shepherd, 2003:404).

The World Bank's website grandly proclaims that "Our dream is a world free of poverty", pledging to commit the Bank's "financial resources, highly trained staff and extensive knowledge base" to empowering the poor through such irreproachable strategies as the pursuit of ethnic and gender equality, environmental sustainability, accessible primary education and widespread community health care (World Bank, 2002:n.p.). The World Bank has been outstandingly successful in securing the adoption of this programme by other international organisations and by governments around the world. In the case of the United Kingdom, for example, successive development White Papers produced by DFID in 1997 and 2000 adopt and promote the World Bank agenda (DFID, 1997, 2000). Inclusive development, 'pro-poor institutions' and community initiatives are all invoked, differences respected and inequality deplored (World Bank, 2000:6). Behind these apparently progressive aims, however, there stands a commitment to a project that Karl Marx once described as "the entanglement of all peoples in the net of the world market" (Marx, 1963:Chapter 32). The assault on poverty given pride of place in World Bank propaganda has been premised upon the adoption of policies that would extend the scope of the world market and the global reach of capitalism. In this context, the World Bank's outwardly progressive anti-poverty strategy far from being a shift away from the neo-liberal revolution is, in reality, a means to completing it.

In comparison the UN paradigm remains closer to the radicalism that drove much thinking on international development questions in the 1970s. Yet it, too, has moved on from the framework of these discourses to embrace and promote as its central idea the notion of 'global poverty'. While recognising the extent of the social and economic progress generated by post-war development policies, the UN position emphasises the unequal distribution of the fruits of development. As stated in the declaration adopted by the UN Summit for Social Development held in Copenhagen in 1995, "we are witnessing in countries throughout the world the expansion of prosperity for some, unfortunately accompanied by an expansion of unspeakable poverty for others" (UN, 1995:6). In other words globalisation is openly recognised as generating winners as well as losers. The liberalisation of trade and finance is understood to have reduced the capacities of national governments to shape the social order within the countries over which they preside, producing the 'states of disarray'

that the UN Research Institute for Social Development (UNRISD) has argued are the social effects of globalisation (UNRISD, 1995).

As can be seen, then, both the Bretton Woods and the UN paradigms offer strongly divergent accounts of the problem of international poverty and development. They are grounded in different institutional complexes and are sustained by different power blocs of markedly uneven weight within the current world order. The former is very much the orthodoxy of our time; the latter perhaps constitutes something of the critical opposition.

2.3   Development as Discourse

In this section the concept of 'development as discourse' is opened up and is deconstructed to reveal the power-knowledge framework underlying it. The concept of development as discourse can provide a way into acknowledging and analysing the complexities of development, rather than reducing everything to a simple policy equation or model. Using the conceptual lens of development as discourse, we aim to expose the idea of development "as a construct rather than an objective state" (Gardner & Lewis, 1996:1).[27] Considering development as discourse shifts attention onto the power relationships both at local and international level between developers and developed, and onto the rules that influence how development is carried out or which practices are valued. The concept can provide those involved in development with greater insight into the dynamics of power and knowledge at both field and policy level, but may not in itself provide a direct solution for those suffering from inequality and poverty.

Grillo states that:

> "Discourse …includes language, but also what is represented through language. A discourse (e.g. of development) identifies appropriate and

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[27] Following Sen (1999), we take development to mean the expansion of people's capabilities, i.e. increasing the possibilities for more people to realise their potentials as human beings through the expansion of their capabilities for functioning. According to Sen's (1999) 'capability approach', development should be about the enrichment of human lives, not in the sense of purely economic progress ('having more things') which is achieved at great social cost, but rather that of having the freedom to choose between different ways of living. Sen (1985) thus views poverty in terms of lack of choice or of capability: poverty meaning the failure to be able to take a full part in human society. In these terms development means not just combating or ameliorating poverty, but restoring or enhancing basic human capabilities and freedoms.

> legitimate ways of practising development as well as speaking and thinking about it" (Grillo, 1997:13).

Significantly, discourse also implies analysis of what is excluded, what cannot be said or done. What we are talking about here is 'development' as a regime of representation: "the manner in which Development constructs the world" (Crush, 1995a:2) or "the ways in which development discourse constructs the object of development" (Grillo, 1997:19).

An important caveat is that there are many overlapping discourses, rather than just one Development Discourse. As Robinson-Pant makes clear:

> "To use the concept creatively involves: being aware of many overlapping, rather than one, development discourse, exploring what is included (and how) and excluded by certain discourses, who influences a discourse and above all, analysing how and why discourses can change" (Robinson-Pant, 2001:324).

Categorising a type of development discourse as 'the development discourse' is therefore dangerous because it oversimplifies and misrepresents complex discursive fields. Development is after all a hybrid discipline with a diversity of contested discourses. This notwithstanding, development, as Nederveen-Pieterse (1991:14) reminds us, "tends to be short for the Western development model…The perspective remains linear, teleological, ethnocentric". Similarly, Crush (1995a:9) argues that development theory "has rarely broken free from linearity, from organic notions of growth and teleological views of history". For Esteva (1992:9), "the metaphor of development gave global hegemony to a purely Western genealogy of history, robbing peoples of different cultures of the opportunity to define the forms of their social life". As McMichael puts it: "The development project had offered a *universal* blueprint for national economic development" (McMichael, 1996:147, emphasis added). What these authors are referring to is the dominant mainstream development paradigm of 'development as modernisation/Westernisation', i.e. the venerated external aid/technical transfer approach to problems of underdevelopment.[28] The resistant, pervasive and deeply embedded nature of the dominant development paradigm is underscored by DuBois:

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[28] Modernisation is an overarching meta-theory, which is firmly rooted in the discourses of intellectual modernism, and seeks to provide singular, universal explanations for poverty and underdevelopment and prescriptions for overcoming them.

> "The effectiveness of radical criticism is diminished because even such alternative frameworks of policy formulation fail to penetrate deep enough to confront the most fundamental assumptions embodied in the dominant development paradigm. To put it more bluntly, strategies have been changed, but the foundations of contemporary development ideology are being reinforced. Above the polemics and disagreements over policy, which appear to distinguish the sundry schools of thought in development studies, there exists a profound unity…in the definition and identification of these problems of underdevelopment" (DuBois, 1991:2).

The term 'dominant paradigm' is used here to refer to the body of Western-derived theories that related to the social organisation of Western Europe and the United States. These theories share the common theme of modernisation of underdeveloped economies from a state of pre-modernity. Dominant Western-derived theories of development became the basis for development efforts in developing nations for over half a century. Rogers remarks:

> "This conception of development [the dominant paradigm] grew out of certain historical events, such as, the Industrial Revolution in Europe and the United States; the colonial experience in Latin America, Africa, and Asia; the quantitative empiricism of developed nations; American social science; and capitalistic economic/political philosophy" (Rogers, 1993:35).

An influential view of post-WWII development was Rostow's (1971, 1991) theory of economic growth. Advancing dichotomous traditional and modern theories of societies developed by Tonnies (1957) and Durkheim (Hughes, Martin & Sharrock, 1999; Preston, 1996), American economist Walt W. Rostow classified society into five sequential stages: (i) traditional society; (ii) establishment of preconditions for take-off; (iii) take-off into sustained growth; (iv) the drive to modernity; and (v) the age of high mass consumption. Rostow's growth-stage theory introduces the ideas of sequential stages of development.[29] Implicit in this model is the evolutionary but irreversible nature of development. Similarly, the orthodox development paradigm espouses a linear view of progress according to which developing countries are on an evolutionary trail blazed by the industrialised economies. Orthodox development theory has accepted uncritically the notion that progress in the Third World is identical to a progressive emulation of the social, political and economic institutions in Western countries (Banuri, 1990a).

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[29] Modernisation theory competed with communism in a world split by the Cold War. Rostow, the author of the classic of modernisation theory, *The Stages of Economic Growth* (1971) subtitled his book *An Anti-communist Manifesto*.

The classic aim of development has been modernisation or catching-up with the advanced industrialised countries. More or less synonymous with the post-WWII 'Golden Age' was the view that technology represented the solution to development. During these decades the dominant motif for development among the newly independent countries was modernisation with a strong technological dimension. Thus, according to Smelser, modernisation consists of various interrelated technical, economic and ecological processes involving "in the realm of technology, the change *from* simple and traditionalized techniques *towards* the application of scientific knowledge" (Smelser, 1968:126, emphasis in original).

Development is, in the Foucauldian sense, a particular discourse which does not reflect but actually *constructs* reality. In doing so, it closes off alternative ways of thinking and so constitutes a form of power. In this way "the 'Third World'…is produced by the discourses and practices of development since their inception in the early post-World War II period" (Escobar, 1995a:4).[30] Crush (1995a:22) claims that "the power of development is the power to generalize, homogenize, objectify". Objectification rooted in binary oppositions of an 'either-or' kind is a *sine qua non* of the development paradigm, e.g. 'underdeveloped (or 'developing' or 'less developed') and 'developed'.

In 1949 Harry S. Truman in his inaugural presidential address, argued that there was a need for the countries of the 'modern' world to solve the problems of the underdeveloped areas:

> "More than half the people of the world are living in conditions approaching misery. Their food is inadequate, they are victims of disease. Their economic life is primitive and stagnant. Their poverty is a handicap and a threat both to them and to more prosperous areas. For the first time in history humanity possesses the knowledge and the skill to relieve the suffering of these people…I believe that we should make available to peace-loving peoples the benefits of our store of technical knowledge in order to help them realize their aspirations for a better life…What we envisage is a program of development based on the concepts of democratic fair dealing…Greater production is the key to prosperity and peace. And the key to greater production is a wider and more vigorous application of modern scientific and technical knowledge" (quoted in Rist, 1997:249-250).

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[30] Although it can be traced back to at least the 19th century, it was in the post-WWII period that the idea of development was made explicit (see Rist, 1997; Leys, 1996).

Truman's address is a very clear statement of the basic thinking behind the idea of development. The Third World (as it came to be known) was regarded as backward and primitive, but these problems could be overcome by following a similar path of development to that of the Western, civilised world. Indeed, this path would be traversed more easily because the West could share the benefits of material prosperity and scientific knowledge with the 'backward' areas, and so hasten the transition to modernity. Above all, this could be achieved through an increase in production in underdeveloped areas, and this in turn could occur through the introduction of rational scientific methods.

Since WWII the West has provided the model by which to measure the progress of the rest of the world. Banuri (1990b) suggests that the intellectual dominance of the Western model has derived not from its inherent and unequivocal superiority, but rather from the political dominance of those who believe in its superiority, and who have been able to devote attention and resources to legitimising 'modernisation-as-Westernisation'. Eisenstadt (1966:1) bluntly asserts:

> "Historically, modernization is the process of change toward those types of social, economic, and political systems that have developed in Western Europe and North America".

The net result of the Western style 'modernisation-as-development' project is the marginalisation of criticism and the foreclosure of more appropriate, alternative paths of development. Although there is a diversity of views about what modernisation means, the following features are at its core:

> "On the economic side, industrialization and urbanization, as well as the technological transformation of agriculture; on the political side, rationalization of authority and the growth of a rationalizing bureaucracy; on the social side, the weakening of ascriptive ties and the rise of achievement as the basis for personal advancement; culturally, the 'disenchantment' of the world (to use Max Weber's terminology), the growth of science and secularisation based on increasing literacy and numeracy" (Marglin, 1990:2).

Development policy is shaped by arguments, or discourses, based on knowledge claims. The shaping of policy depends ultimately not on 'surface' characteristics of rationality, but on a deeper dynamic of power and knowledge within and between discourses. In his influential book, *The Anti-Politics Machine*, Ferguson (1990:259) stipulates that "development discourse typically involves not only special terms, but a

distinctive style of reasoning, implicitly (and perhaps unconsciously) reasoning backwards from the necessary conclusions – more 'development' projects are needed – to the premises required to generate those conclusions". Ferguson's (1990:87) thesis holds that 'development discourse' represents the depoliticisation of poverty issues, whereby the reproduction of development agencies and the spread of bureaucratic state power are effected through a conceptual apparatus which translates a reality of non-technical problems into 'simple, technical problems' for which the "apolitical, technical 'development'" intervention is then seen as appropriate, thus masking "extremely sensitive political operations" (Ferguson, 1990:256). Similarly, Crush (1995b:xii) laments the "technocratic depoliticized language of international development" and Mitchell (1995:149) asserts: "Development is a discourse of rational planning".

Discourse analysis makes us aware that development is not simply theory or policy, but in either form is discourse. Discourse analysis involves meticulous attention to development texts and utterances, not merely as ideology but as epistemology. Thus, it involves sociology of knowledge not only in terms of class interests (as in ideological critique), but also in terms of an inquiry into what makes up an underlying 'common sense' (Apthorpe & Gasper, 1996; Rew, 1997). Nederveen-Pieterse (2001:14) cogently argues that:

> "The methodological gain of discourse analysis is to add a level of reflexivity, theoretical refinement and sophistication to development studies, and thus to open up the politics of development to a more profound engagement …[but we must be careful not to]…risk slipping into *discursivism*, i.e. reading too much into texts, or textualism, and overrating the importance of discourse analysis, as if by rearranging texts one changes power relations" (Nederveen-Pieterse, 2001:14, emphasis in original).

Nederveen-Pieterse's (2001) warning is a perceptive one, since development discourse is contested and, above all, ideological and political. Just changing the language of development or of developers cannot alter the underlying structural inequalities. The objective of this study is not to embark on a sustained literary analysis based on the premise that language 'is all there is'. Rather, we take the view that the language of development is never self-referential, but is instead constructed within social fields of knowledge and power. Political economy, for instance, has a real existence and is not reducible to the texts that describe and represent them. The

challenge, therefore, is to situate the texts of development in their geo-political, historical and social context and to decode the "subtleties of contextual presence in texts" (Cunningham, 1994:45), and to be cautious of reducing life to language and obliterating the relations of power, exploitation and inequality that order society and history (Palmer, 1990).

In the discourses of development produced by Western hegemony, knowledge and power are intricately interwoven. The central thesis of developmentalism is that social change occurs according to a pre-established pattern, the logic and direction of which is known. Those who declare themselves furthest advanced along its course claim privileged knowledge of the direction of change. Having said that, discourse analysis is but one way of looking at development, only part of the toolbox. Its power lies in making development thinking more reflexive. This reflexivity should, however, have a political edge and refer to collective feedback loops that generate and inform collective action challenging existing power relations.

The major concern is "to deconstruct development, to unpack its claims and discourses, and once that is done, to deconstruct the deconstruction, for deconstruction is a never-ending task" (Nederveen-Pieterse, 2001:163). The implication of the analysis so far is that by deconstructing development discourses, new relationships between developer and developed can be initiated: how developers construct the 'poor', for example, not only affects the kind of interventions provided but how field level staff interact with these groups of people. Deconstructing discourses can lead to new ways of writing, thinking and even practising development. This section has explored the ways in which the concept of development as discourse can enable us (both developers and developed) to adopt a more critical perspective on development interventions.

According to de Sousa Santos (1995:ix), "the paradigm of modernity has exhausted all its possibilities of renovation". We now need to embark on a process involving "the creative metamorphosis of old forms into new ones, the transposition of universal theories and concepts into locally relevant forms of understanding and the rendering of ahistorical frameworks into concrete forms of explanation" (Calderón, Piscitelli & Reyna, 1992:35).

2.4   Conclusion

Chapter 2 sets out a discursive analysis of the theories of development. We used Michel Foucault's post-structuralist work on power, knowledge and discourse to attain a radical reading of subjectivity in the development discourse (Mohan, 1997; Said, 1995). As a set of relations which objectifies and structures marginality and reproduces networks of power, development is thus a particularly fitting subject for discourse analysis. The term 'development' embodies competing political aims and social values and contrasting theories of social change. The theoretical heritage of mainstream development is linked to the modernisation school which assumes that social change is unidirectional, progressive and moves society from industrial (or pre-industrial in the case of least developed countries) to post-industrial.

The chapter also discussed the post-structuralist critique of development. According to the post-structuralist critique, there is an impasse in development studies which is said to have arisen as a result of widespread disillusionment with conventional development and development failure; the crisis and eventual eclipse of the various strands of socialism as alternative paths; the growing economic diversity of countries within the Third World; increasing concern with the need for environmental sustainability; the increasing assertiveness of voices 'from below'; and the rise of the post-modern challenge to universalising theories and conventional practices of development (Blaikie, 2000; Schuurman, 1993a). Post-development thinking has a lot of useful insights into the derivation of terms and the politics of the way they are used.   Post-development writers, despite some romanticising of pre-industrial societies (see, for example, Rahnema & Bawtree, 1997), do not deny the need for change. What they argue is that in order for change to be undertaken differently, it needs to be conceived literally in different terms. The post-development literature has posed two key questions that needs to be critically addressed: What form should development take? and What role can development play in reducing poverty?

The rationale underpinning the deconstruction of development theory is that it is a prerequisite for its subsequent reconstruction. Reconstruction is critically important if we are to address what David Korten (1995:21) calls the "global threefold human crisis" of "deepening poverty, social disintegration and environmental destruction".

Indeed, the main reason to uphold the continuing importance of the idea of development is the vital need to address these issues. Thus, there is still a need for action to tackle poverty. Frantz Fanon, author of the *Wretched of the Earth* (1961:254), urged the Third World not to just imitate the ideologies, institutions and socio-economic structures of the West, because such an imitation would "be almost an obscene caricature". Rather, he advocates that Third World countries must craft a viable alternative development model based on the realisation of human potential that is appropriate for their needs and circumstances (Fanon, 1961:255).

The complex relationship between ICT, poverty and development is the focus of this dissertation. In later chapters we will explore facets of the rhetoric and language of the ICTs for development discourse. The objective is to show how the discourse surrounding ICT, poverty and development is: (i) replicating and extending a markedly Western worldview (based on the assumption of linear evolution along a Western trajectory) into the development sphere; (ii) normalising a dominant set of economic and political assumptions underpinning the dominant development paradigm; (iii) structuring marginality and replicating a wider discourse of marginalisation; and (iv) being framed within a broader discourse of modernisation and development, which is based on the assumption that a deficiency in knowledge is partly responsible for underdevelopment.

The chapter is important because it lays the foundation for critiquing the certainties and universalising modernising ethos which continue to characterise mainstream ICT, poverty and development thought and policy. Moreover, it sets the scene for the use of the Foucauldian power-knowledge framework addressed by discourse analysis to demonstrate: (i) how ICTs have become embedded in the conception and practice of mainstream development; and (ii) how the prevailing discourse masks[31] submerged assumptions and interests regarding the nature and role of ICTs for development in the Third World.

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[31] Ng and Bradac define masking as: "[T]he rendering of reality so as to make it appear different from the 'actual' way of the world. Masking…presents…information in an incomplete or partial way under the cover of one or more literary masks…which cover particular aspects of reality by presenting or foregrounding other aspects of reality" (Ng & Bradac, 1993:145).

Chapter 3

Theoretical Perspectives on the 'Information Society' and Social Studies of Technology

3.1   Towards Conceptualising the Information Society

3.1.1   Background

In recent years the concept of the information society has been high on the political agenda of Western countries and their allied international organisations (see, for example, Bangemann, 1994).   At the highest level policy-makers have been concerned with the development of national and global strategies to arrive at the information society (Wajcman, 2001).   Within this context the concept of the information society encompasses the development and integration of high-speed communication networks and a set of core services and applications into global integrated networks.   Such networks potentially provide fully interactive access to network-based services within countries and across national borders.   The development of such an information infrastructure is expected to have important beneficial impacts on society as it stimulates economic growth and productivity, creates new economic activities and jobs, and improves quality of life (Martin, 1995; May, 2000; Zacher, 2000).   Although the context in developing countries differs markedly from that in the West, the above scenario has often been extrapolated as the appropriate trajectory for the development of the information society in developing countries (Van Audenhove *et al.*, 1999).

The dramatic advances in computer and telecommunications technologies such as the Internet, virtual reality and multimedia applications are increasingly regarded as ushering in a new form of society, i.e. the 'information society' (Servaes & Heinderyckx, 2002).   The force for change is provided by the synthesis of formerly disparate technologies such as personal computing, digital telecommunications, virtual reality, nanotechnologies and biotechnologies, as well as a range of multimedia applications and software which enable the creation, communication and dissemination of information in ways which transcend modernist conceptions of time and space.   The information society is considered to be a new social and economic

paradigm restructuring the traditional dimensions of time and space within which we live, work and interact. Policy-makers are encouraging us to join the information superhighway at the nearest junction or risk being excluded from the social and economic benefits of the 'information revolution'. That senior policy-makers have become fervent evangelists of the capabilities of ICTs to revolutionise societies is seemingly unquestionable: non-participation in the creation of the information society is quite simply not a serious option (Wajcman, 2001).

Webster (1995:Chapters 1-2) has classified five dimensions of the information society concept. These are based on technological, spatial, economic, cultural and occupational criteria. The *technological* dimension naturally emphasises the technical capabilities of ICT innovations. It is assumed that the application of ICTs will permeate all aspects of life, along with breakthroughs in processing information and communication. In the *spatial* dimension the focus is on connecting localities with ICT networks. These networks are considered to have dramatically changed the organisation of time and space. The core criterion of definitions based on changes in *economic* or *occupational* structures is the dominance of the ICT sector in the spheres of employment and production. Finally, according to the *cultural* definition, we are living in a culture that is more engulfed by information than ever before.

The history of the concept of the information society appears in a variety of sources, including the work of social scientists such as Daniel Bell (1973, 1988) and Alain Touraine (1971). Whilst differing significantly in the contributions they make to the debate, they all share the notion that society is being transformed by a revolution in ICTs, which is creating an entirely new social structure. Such advocates suggest that we are witnessing the demise of the industrial age with the replacement of capital and labour as the chief resources of economic growth by information and knowledge as the primary means of development. For evidence of the emergent information age they would claim that traditional manufacturing industries no longer dominate the generation of national wealth in advanced societies. In contrast, the information industry is rapidly expanding in terms of employment, investment and market share.

The idea that advanced industrialised countries might be moving to a post-industrialised society first took hold in the United States in the 1960s within a context

of increasing prosperity and automation. The main proponents of this approach supported a historical model of development in the leading economies based on shifts in the composition of output and labour from agriculture to manufacturing to services to information activities (Bell, 1973; Porat, 1977; OECD, 1981). Many writers tried to quantify the extent of progress countries were making toward achieving an information society by counting the number of people employed in information-related occupations, which was defined in various ways (see Beyers, 1989; Kling, 1990).[32] Apart from change in employment, other factors associated with the information society included the diffusion of IT within society, the expansion of institutions dedicated to the creation and manipulation of information, and the growth in universal public information services (Katz, 1988).

It would appear that the idea of the information society has its roots in the literature of 'post-industrialism', a popular social science notion of the 1960s and 1970s which heralded the end of the industrial capitalist era and the arrival of a 'service' or 'leisure' society.[33] According to Bell (1980), by shortening labour time and diminishing the role of the production worker, IT actually replaces labour as the source of 'added value' in the national product. Bell (1973) asserted that IT enhances the planned nature of knowledge production and its productivity. Bell's (1973) 'postindustrial society' theory argued that organised knowledge was becoming the key ingredient in value-added and therefore in economic growth. It is important to stress that for Bell (1973) it was not information and knowledge in general that were the key, but the application of Weberian[34] rationalisation to the production of knowledge itself.

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[32] Simply aggregating occupations and counting totals, for instance, tells us nothing about the really significant information workers in society, nor does it enable us to differentiate the most important dimensions of information work (Webster, 1994).

[33] Especially the version of post-industrialism associated with Daniel Bell (1974). Bell (1980) argues that the information society is developing in the context of post-industrialism. He forecasts the growth of a new social framework based on telecommunications which "may be decisive for the way economic and social exchanges are conducted, the way knowledge is created and retrieved, and the character of work and occupations in which men [sic] are engaged" (Bell, 1980).

[34] Pertaining to, or characteristic of the German sociologist and political economist Max Weber (1864-1920) or his philosophy or writings.

3.1.2 Perspectives on the Information Society

In contrast to the optimists (such as Stonier, 1983; Toffler, 1991; Masuda, 1990; Jarillo, 1993), scholars such as Bloomfield and Coombs (1992) and Gandy (1989) provide a critical analysis of issues such as power, control and surveillance associated with ICTs. Frissen (2000a:72), for instance, argues that ICTs are "a new strategy in the exercise of power which is being added to the bureaucratic arsenal". Further, Zuboff (1988) argues that information systems make discipline easier by extending monitoring facilities. Beniger (1986) calls this the 'control revolution', thus emphasising the Orwellian[35] properties of ICTs. The pessimists challenge the optimistic accounts of utopian thinkers by implicating ICTs as technologies of control, surveillance, disinformation, propaganda and inequality. Pessimistic commentators are convinced that ICTs lead to social control, dehumanisation and invasion of personal privacy, as opposed to the freedom, empowerment and equality promised by the optimists. It should be clear that the optimists and pessimists are both engaged in what are essentially technologically determinist debates (i.e. ICTs are powerful, autonomous force acting on society) about social impacts of ICTs.

In addition to the optimistic/pessimistic dichotomy, information society theorists can also be divided into: (i) those who endorse the notion of an information society as being an absolute break from the previous form of society (Bell, 1979, 1990; Poster, 1990, 1994; Piore & Sabel, 1984; Goddard, 1992; Hirschhorn, 1984; Castells; 2001; Porat, 1978); and (ii) those who insist that we have only had the 'informatisation' of established relations (Schiller, 1987; Aglietta, 1979; Lipietz, 1993; Giddens, 1985, 1991; Webster, 1995, 2000). The former stress the *primacy of change* whereas the latter focus on the *primacy of continuity*, i.e. 'informatisation' is the continuation of pre-established relations. According to Webster:

> "On the one hand there are those who subscribe to the notion that in recent times we have seen emerge 'information societies' which are marked by their *differences* from hitherto existing societies. Not all of these writers are altogether happy with the term 'information society', but in so far as they argue that the present era marks a turning point in social development they can be described as its endorsers. On the other hand there are scholars who, while happy to concede that information has taken on a special significance in the

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[35] Characteristic or suggestive of the works of the English writer George Orwell; especially pertaining to or characteristic of the kind of totalitarian society portrayed in his futuristic novel *Nineteen Eighty-Four*, which was published in 1949.

modern era, insist that the central feature of the present is its *continuities* with the past" (Webster, 1995:4-5, emphasis in original).

Commentators have increasingly begun to talk about 'information' as a defining feature of the modern world.[36] Much attention is now devoted to the 'informatisation' of social life: we are told that we are entering an 'information age' where a new 'mode of information' predominates (Castells, 1998b, 2001). Castells, in his trilogy *The Information Age* (1996, 1997, 1998a), depicts the present epoch as one in which the 'information flows' of a 'network society' transform relationships and ways of doing things. Bell (1974) and Schiller (1987), in their very different ways, have been arguing for over a generation that information and communication issues are at the heart of post-war changes. Schiller (1987), for example, argues that information both expresses and consolidates the interests of corporate capitalism.

There are two common beliefs about the social impact of ICTs: first, a total socio-economic transformation is predicted; and second, this transformation is generally a good and progressive movement. The arrival of the information society appears as an entirely natural event, the outcome of progressive tendencies within Western industrial societies. But granting it this 'natural' status forecloses debate over and action towards any alternatives to that dominant society. It may be 'revolutionary' in its consequences, such that it represents a new era in human history. But it is simultaneously the obvious and logical way forward. Webster (2000) and Garnham (2000) challenge the assertion that technological innovations in information and communication have been an independent variable, giving rise to a new and distinctive information society that is radically discontinuous with earlier forms of social organisation. Webster (2000) avers that technological choices are broadly understood as outcomes of social integration processes, and that the intensive contemporary 'informatisation' of social institutions is consistent and continuous with the trajectory of development of capitalism and the nation-state.

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[36] Early proponents of this view include: Masuda (1985:623), who envisaged an information society of which the axis would comprise information values rather than material ones, and an economy in which knowledge capital would predominate over material capital; and Stonier (1983), who perceived the dawning of a new information age for Western society, one as different from the industrial period as that period was from the Middle Ages.

Webster (1995) goes on to state that there is much rhetoric and a sense of *fait accompli* around the notion of an emergent information society. He notes that information society theorists are characterised by a shared reliance on technological determinism of various hues. He makes the valid and important point that there is no linear causality between more information and a new society. He argues that information society theorists of the schism school single out "technology/technique as a *primum mobile* of change (which is over-simplistic) while simultaneously presuming that this technology/technique is aloof from the real world of value beliefs" (Webster, 1995:219). For Webster (1995) information society theorists of the schism school are actually guilty of what they have attempted to avoid, *viz*. decontextualising and objectifying one aspect of social change whilst ignoring many others.

The changes characterised by many commentators as announcing the 'information society' (Castells, 1996; Reich, 1992; Drucker, 1993) are better seen, not as heralding a new type of society, but as the *continuation, consolidation and extension of capitalism*. While there is undoubtedly change taking place - and at a speed and with a reach hitherto unimaginable - it is for the most part a matter of the continuity, consolidation and extension of *established relations*. Indubitably, information and knowledge, as well as advanced communications and computing technologies, are an integral element of these developments, but it would be wise to resist any notion that these are the cause, or even privileged factors, in the present maelstrom. Following Webster (1995) and Lyon (1988), while there has undoubtedly been an information explosion, it is premature to conceive of an information society. We should rather emphasise the 'informatisation' of established relations.

3.1.3   Assessment

The idea of an information society has been criticised on various levels by Lyon (1988). Lyon (1988) draws our attention to three ideological aspects inherent in the notion of the information society. The first is that the use of this seemingly descriptive term obscures the vested interests of those promoting the spread of ICTs. Information is often assumed to be free and owned by all, yet this is not the case in the real world. Second, underlying contradictions of those who gain and those who lose, as with any other means of production, are not adequately considered when one focuses at the level of the information society. Third, the arrival of the information

society is presented as a natural event and this forecloses debate about and action towards any alternative to this form of society:

> "The point is not to deny that it is happening, but rather to examine how it is orchestrated and by whom, to what purpose, and with what methods and effects" (Lyon, 1995:69).

Preceding from the previous discussion, it is clear that the precision of the information society concept is open to question. Garnham (2000), for instance, argues that the concept of the 'information society' fails as theory because it is internally incoherent and unsupported by evidence. The term is not very helpful because it is largely meaningless and the vision bears very little, if any, relation to any concretely graspable reality. It therefore does not operate as a useful concept for theoretical analysis, rather it operates as an ideology. Garnham explains further:

> "Rather than serving to enhance our understanding of the world in which we live, it is used to elicit uncritical assent to whatever dubious proposition is being put forward beneath its protective umbrella" (Garnham, 2000:140).

Though as a heuristic device the term 'information society' has some value in exploring features of the contemporary world, it is far too inexact to be acceptable as a definitive term. In fact, the further one moves from grand national ICT plans and from futuristic forecasts of conditions prevailing within the information society, and the nearer one gets to actual social analysis in which technology is not perceived as a quasi-autonomous force acting upon society, the more questionable the concept of an information society appears.

The new technologies are announced by futurists such as Toffler (1991) and Naisbitt (1998) and it is unproblematically presumed that this announcement in and of itself heralds the 'information society'. Such accounts of the information society adopt an apolitical attitude towards technological development. ICTs are not value-neutral and their increasing pervasiveness within societies will have both beneficial and disadvantageous consequences. A second and related disconcerting feature of the information society rhetoric is its deterministic quality. This is the often unstated contention that technology is somehow independent of society and acts to define social and economic structures as well as determining modes of human action.

Our understanding of the complex relationship between the restructuring of capitalist modes of production and its technological consequences for social structural change are still relatively underdeveloped. Whilst we cannot but be impressed by the changes being driven (although not determined) by informatics applications, it is still far from clear that these represent a distinct break with past capitalist societies. The apolitical and frequently deterministic accounts of the information society ideologues, by envisioning the future of their virtually constructed realities, may well be guilty of overlooking the material impoverishment of large numbers of the world's population by those both better equipped to take advantage of ICTs and also use it for the protection of their privileged position: a social and economic process which has much in continuity with previous epochs.

There are a number of thinkers who envisage the arrival of an information society as something comparable to the agricultural or industrial revolutions. Machlup and Mansfield (1983), Bell (1973) and Porat (1978) put forward the so-called 'march through the sectors' thesis, in which economic development occurs in a series of sequential and discrete movements between first agricultural and industrial societies, and then, industrial and information societies. The technological determinism framing such explanations of change has been discredited time and again in social science circles (Dutton, 1996, Wyatt *et al*., 2000). *Contra* to this trend, Perelman (1998) argues that ICTs simply reinforce existing capitalist power relations. All that has happened is that the dominant forces in capitalist society have found new avenues of exploitation and new technological means by which to pursue them. The primary driving force behind the extension of the network architecture that has been adopted by global capital is to allow global corporations to make larger profits and this process directly excludes a majority of the world from the newly emerging power structures.

However, in the last few years there has been a step away from prioritising technology as the centre-piece of change. The focus now appears to be on information/knowledge, rather than ICTs, as the key source of change. It is noticeable that the shift towards emphasising information still retains deterministic presuppositions (Webster & Robbins, 1998). In sum, announcements of the information society have typically been shrouded in vague statements about the 'ICT

revolution'[37] and its supposedly profound impact on contemporary societies. Just what has changed, and what is principally responsible for the change, remains elusive.

3.2   Manuel Castells's *The Information Age*

3.2.1   The 'Network Society' Thesis

Castells's (1996, 1997, 1998a) magisterial study is the most serious and sustained attempt yet to give the information society a firm theoretical as well as empirical grounding. Castells finds his main inspiration in the work of Daniel Bell (1974) and Alain Touraine (1988) on post-industrialism, along with Nicos Poulantzas's (2001) neo-Marxist writings. However, Castells does not really abstract his findings into stringent theory comparable to, for example, Giddens's *Modernity and Self-Identity* (1991).

Over the last 15 years radical sociologists such as Beck (1992), Giddens (1990), Hall, Held and McGrew (1992), Harvey (1989, 1996) and Poster (1984, 1990) have attempted to offer their own critical understanding of a society that is globalised and/or informatised. However, it is Manuel Castells (1996-1998) in his monumental work, *The Information Age*, who has captured the imagination of scholars with his radical notion of a globalised 'network society'. Castells has the following to say about the network society:

> "A network-based social structure is a highly dynamic, open system, susceptible to innovating without threatening its balance. Networks are appropriate instruments for a capitalist economy based on innovation, globalisation, and decentralised concentration; for work, workers, and firms based on flexibility, and adaptability; for a culture of endless deconstruction and reconstruction; for a polity geared towards the instant processing of new values and public moods; and for a social organisation aiming at the suppression of space and the annihilation of time. Yet the network morphology is also a source of dramatic reorganization of power relationships…The convergence of social evolution and information technologies has created a new material basis for the performance of activities throughout the social structure. This material basis, built in networks, earmarks dominant social processes, thus shaping social structure itself (Castells, 1997:470-471).

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[37] We would argue that widespread usage of the term 'ICT revolution' obscures the extent to which actual change has been, and continues to be, incremental.

The objective of this section is not to attempt to cover all of the substantive issues that Castells raises in his grand meta-narrative of the Information Age, which attempts to present a comprehensive view of the current-day global society in all its political, economic, social and cultural aspects, as well as its developmental tendencies. The scale of such an undertaking is clearly beyond the scope of this study. Rather, we will provide an overview of Castells's work from the perspective of his conceptualisation of the information society.

Firstly, we will give an overview of the basic argument of *The Information Age*, which is organised in three volumes. Volume One, *The Rise of the Network Society* (1996), provides an economic and sociological analysis of *informationalism*, which Castells describes as a new phase of capitalism. Castells theorises on the changing nature of time and space (the 'space of flows' as opposed to the 'space of spaces')[38] in the current era and puts forth his concept of *the culture of real virtuality*, which has been created by the Internet.[39] Castells's point is that it is within the framework of timeless, placeless, virtual symbolic systems that we construct categories shaping our behaviour. In Volume Two, *The Power of Identity* (1997), Castells's central argument is that globalisation and the proliferation of ICT have fundamentally undermined the institutions of civil society upon which the modern democratic order was founded and led to a new form of societal organisation, *viz.* the network society. This has resulted in the dissolution of existing shared identities and in reaction to this, the emergence of numerous singly focused resistance identities. Finally, Volume Three, *End of Millennium* (1998), examines some of the social and political outcomes

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[38] One of Castells's most notable and controversial ideas is the hypothesis that the new technologies have spawned a new experience of space and time; one characterised by a logic of networks and flows and of 'timeless time' rather than of people and places. Castells's conception of space-time compression and intensification, the increasing socio-geographic stretch of 'society', and the increasing domination of space over time follows from the work of Harvey (1989). The 'space of flows' acts as the material support for time-sharing practices and dominant social arrangements. The space of flows is seen as dissolving time "by disordering the sequence of events and making them simultaneous, thus installing society in eternal ephemerality" (Castells, 1996:467).

[39] According to Castells (1996:478), "information is the key ingredient of our social organisation and…flows of messages and images between networks constitute the basic thread of our social structure". Since 'informationalism' and the logic of information society pervade every aspect of life and consciousness, the network society also signals a shift to what Castells (1996) calls the *culture of real virtuality*, i.e. the replacement of stable formations of place, identity and nation with malleable, fungible 'flows' drawn across borders. The 'culture of real virtuality' is a system in which people's material and symbolic existence is fully immersed in a world of virtual images that become the experience itself.

of these generative processes, including the collapse of the Soviet Union, the rise of Asian economies, the geography of social exclusion and the global criminal economy.

In his trilogy, *The Information Age* (1996, 1997, 1998a), Castells attempts to understand how technology, the economy and society are changing. Castells attempts to construct a grand theory of technology-driven social change. The central thesis is that a new techno-economic paradigm based on information networks has generated a new mode of development. This new mode of development, which he calls 'informationalism', is driven by 'the action of knowledge upon knowledge' and is oriented towards technological development and further knowledge generation. This can be contrasted with the previous industrial mode of development which was oriented towards energy use and growth.

Since IT networks provide the material foundation for Castells's society, networks become the major structural form through which social power is formulated and exercised. Power resides in social networks whose members can exploit the ability of IT systems to flexibly adapt to new opportunities. The organisational morphologies most suited to informationalism are the ones that can behave like networks and switch and adapt to bring workers and managers online as they are needed. The flexibility and adaptiveness of this new organisational morphology, and its dependence on ICT, means that the traditional importance of geographical location is being superseded by flows of information. This priority of 'flows' over 'spaces' means that competitiveness and relative development depend on being part of networks rather than being located in particular places.

Castells argues that at the end of the 20th century a transformation of the social landscape of human life as profound as the industrial revolution was taking place. Castells traces the origins of the new global order in the intersection of three developments: the world-wide crisis in the political economy of capitalism in the early 1970s, the ICT revolution underway at the same time and the cultural transformations then being expressed in the so-called 'new social movements'. None of these developments, Castells shows, is reducible to the others or in some sense prime. But the crisis of capitalism is the precipitating factor in the narrative. The crisis is itself complex, taking different forms in different countries and regions,

though the reaching of limits of the Keynesian model of economic development, disturbing mixed patterns of productivity growth and the infamous oil crises are always involved. Whatever its precise components, the crisis is experienced as a crisis of profitability. In capitalist economies driven unrelentingly by the profit motive and geared towards maximising the competitiveness of their constituent economies, capitalists tried all available means to increase profits, including reduction of production costs, especially labour costs. But the preferred strategy, Castells argues, was the broadening of markets and the fight for market share to absorb a growing capacity in the production of goods and services.

Castells discusses at length the new geography of social exclusion and the power dynamics structuring the network society. These two themes are briefly discussed below.

3.2.1.1 Social Exclusion

The concept of networks is used by Castells (2001) to explain the growing social inequality within and between nations. The ability to take part in networks, and the position one takes in them, is partly determined by one's cultural capital, which is, in turn, related to one's education level. Castells (1998a) provides a devastating critique of growing economic and social polarisation which has resulted in pockets of systematic social exclusion he terms *black holes of informational capitalism* (Castells, 1998a:162). These black holes largely overlap with areas whose people lack the equipment, tools or training to access or use ICT. This is part of a broader polarisation between *generic labour*, i.e. those who have non-reprogrammable skills and thus can be replaced by other workers or machines, and *self-programmable labour*, i.e. those who through education have acquired the capability to constantly redefine the necessary skills for a given task and to access the sources for learning these skills.

Castells (1998a:Chapter 2) introduces the concept of the 'Fourth World', and includes under this one term Africa and the inner-city ghettos of the United States.[40] Castells's

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[40] In this age of informationalism Africa suffers from what Castells (1998a, 2001) calls 'technological apartheid'. Africa is kept out of the information revolution because of various modern shortcomings, including an unreliable supply of electricity, a shortage of telephone lines and a lack of human and

Fourth World reveals the extent to which the phenomena traditionally associated with the less developed countries are global, i.e. produced by universalising processes and found everywhere. The author attributes the growing inequality in developing countries to the rate of rural-urban migration and the growing inequality in the industrialised countries to the various declines in the welfare state, wage levels and labour's bargaining power. The Fourth World is a world of rising inequality and social exclusion that is part and parcel of informational capitalism. The analyses of 'Africa's plight', of 'dual America', of the over-exploitation and slaughter of children the world around, and of the shanty-towns in the mega-cities of Asia and Latin America, reveal the "black holes of informational capitalism" (Castells, 1998a:162). These black holes "concentrate in their density all the destructive energy that affects humanity from multiple sources" (Castells, 1998a:162). In them, the "homeless, incarcerated, prostituted, criminalized, brutalized, stigmatized, sick and illiterate" are killed as subjects of the network society even before they die prematurely and often violently (Castells, 1998a:162).

The socially excluded lack positions within networks, and lack the power to enter them, and consequently form the excluded social underclass at the national level and the excluded Fourth World at the level of nation states. "The rise of informationalism in this end of millennium is intertwined with rising inequality and social exclusion throughout the world" (Castells, 1998a:70). While the historic causes of their exclusion vary from case to case, they nevertheless form an entity, the *Fourth World*, because they all entered the Information Age in positions in which their exclusion is reinforced by the structural dynamic of informationalism. The new ability is to effectively switch off areas which are viewed as non-valuable from the perspective of the dominant social logic, embedded in the 'space of flows', which has created *black holes of informational capitalism*: regions from where there is, statistically speaking, no escape from suffering and deprivation.

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technical support. The region's inability to keep up with the rest of the world's technology also leaves its commodity production lagging behind the rest of the developing countries.

3.2.1.2 Power

In the network society power lies in "information exchange and symbol manipulation, which relate social actors, institutions and cultural movements" (Castells, 1998a:368). Power resides in institutions that exploit ICT networks to transmit inter-linked cultural codes. As a result power has drifted away from the traditional institutions of the labour union, the political party and the geographically constrained nation state towards global investment banks, news networks and NGOs like Greenpeace.

For Castells (1998) power has become primarily a matter of symbolic manipulation; elites are ephemeral and situation specific, while classes decline in significance. In opposition to the *Net*, i.e. the universalism and instrumentalism of global networks, stands the *Self*, i.e. the individual defined and self-defined increasingly in terms of primordial identities (gender, race, religion and ethnicity) and engaged in identity movements that have become the central arena of political struggle in this end-of-millennium time. The antithesis of the *Net* is a social reaction to the way modern informational capitalism strips away identity. The instrumentalising and globalising nature of economic life disrupts older forms of community and creates the need for people to reinvent themselves. They typically do this by building on new social movements.

3.2.2   A Summary and Critique

The main theme of Castells's (1996, 1997, 1998a) work is the emergence of a new society, a 'network society', that is fundamentally different from societies of the past. This contemporary society has emerged as a result of a number of processes converging in the last half of the 20th century including, most importantly, the restructuring of capitalism and the introduction of new ICTs. Both of these processes have reacted to, facilitated and accelerated processes of globalisation. They also operate inexorably on each other. The force of these processes has been so great that Castells (2001) postulates a fundamental change in social relations, in cultural milieus and in the form and experience of power in society.

Each mode of development is said to possess a structurally determined performance principle around which technological processes are organised. According to this schema, the most recent *informational mode of development* is oriented towards the

accumulation of knowledge and higher levels of complexity in information processing. Castells (1998b) claims that the defining characteristics of the new technological paradigm that has emerged is its pervasiveness, flexibility, networking logic and informational nature. The basic theme is that the transition from industrial society to an informational society, in which the creation of wealth is based on the production, manipulation and control of information, leads to massive changes in all areas of human life. Within societies it leads to the disruption of traditional forms of work and even of family life. It also leads to greater inequalities between social groups, regions, countries and continents, with the increasing wealth and power of those with access to the new technology, and the increasing impoverishment of those excluded from it.

By assembling the morphological elements of the information/network society, Castells (1996, 1997, 1998a) wants to establish that he has discovered not just some socio-economic consequences of technological change, but a new mode of human existence developing out of a new mode of production, albeit within capitalism. While Castells (1996:5) goes to great lengths to deny being a technological determinist, the theory that *technology determines the mode of production, which, in turn, determines social relations* clearly is. In Castells's trilogy there is no serious analysis of how society influences technology. The technological determinism and reductionism seriously constrain the explanations on offer in the trilogy. The technological reductionism reveals itself in an over-emphasis on ICTs and the constant invocation of networks as underlying causal mechanisms even for phenomena in which evidence of their causal presence is dubious. ICT networks are important but they do not, and cannot, explain everything. Techno-economic paradigms are cumulative and build on one another, and are not alternatives that displace all previous generations of technology (see Dosi *et al*., 1988; Archibugi, Howells & Michie, 1999; Archibugi & Michie, 1997; Lundvall, 1995).

Moreover, Castells's argument that informational capitalism is necessarily a 'new' form of structural exclusion within a 'new' form of society is questionable.[41] While

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[41] The academic debates centre on whether the information society should be understood as a new social system or merely an extension of past social forms. Lyon (1995:56) notes that we should ask

the new ICTs have impacted on our society and forms of social organisation, this does not necessarily mean that a 'new society' with 'new' forms of exclusion has emerged. Instead this new technology has put additional strains on people who are already living within the global structures of poverty. It is premature to focus exclusively on the new 'black holes' that are emerging when we have yet to deal with long-term and resilient social structures that have created poverty far wider than simply 'information poverty'. Information poverty is nothing new, but rather an additional dimension of being poor.

Castells provides, at best, an incomplete picture of the social processes he studies. Technological change is not governed simply by its own internal logic. The factors influencing the rate, directions and specific forms of technical change are social, cultural, political and economic as well as technical. It is to this theme that we now turn.

3.3   Social Shaping of Technology

Edge critiques traditional approaches to the social analysis of technical change, emphasising the extent to which such approaches "imply a *technological determinism*, use a simplified *linear model* of the innovation process, tend to treat the technology as a 'black box', and are preoccupied with the 'social impacts' of a largely predetermined technical 'trajectory'" (Edge, 1995:14, emphasis in original). Following MacKenzie (1984) and Winner (1977), Edge defines technological determinism as:

> "a belief…which holds that technical change is a prime cause of social change, and that technical innovations are themselves *'uncaused'* – in the sense that they arise only from the working out of an intrinsic, disembodied, impersonal 'logic', and not from any 'social' influence" (Edge, 1995:14, emphasis in original).

In other words, technological determinism is the notion that technological development is autonomous of society; it shapes society, but is not reciprocally influenced. In more extreme varieties of technological determinism, the technology is seen as the most significant determinant of the nature of a society. The reality, of

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"does IT bring about a new society without precedent, or does it rather help to intensify certain processes in today's society of which we are all too aware"?

course, is that technologies do not, in practice, follow some predetermined course of development. Also, although technologies clearly have impacts, the nature of these is not built into the technology itself, but varies from one culture to another, depending on a broad range of social, political and economic factors (MacKenzie & Wajcman, 1999).

The main problem with the 'information society' idea is the suggestion that technology is somehow 'outside' society, impinging upon it. At a lecture entitled *The Question Concerning Technology*, delivered in 1955 in Germany, Martin Heidegger made the following prescient remark:

> "[W]e are delivered to [technology] in the worst possible way when we regard it as something neutral; for this conception of it, to which today we particularly like to do homage, makes us utterly blind to the essence of technology" (Heidegger, 1977:4).

That said, we should not replace technological determinism with social determinism. The view we subscribe to is that the 'social' and the 'technological' cannot be separated. New technology is as much a social product as the shape of society is a technological product.   There is a constant interplay between 'technology' and 'society' (Lyon, 1988:viii).

The technical attributes of the new ICTs increasingly dominate explanations of contemporary change and development. There is a discernible tendency to understand or conceptualise these technologies in terms of technical properties and to construct the relation to the sociological world as one of applications and impacts.   The challenge for social scientists is not so much to deny the weight of technology, but rather to develop analytic categories that allow us to capture the complex interweaving of technology and society. It would appear that the 'social shaping of technology' approach is beginning to take root in the social sciences (Klein & Kleinman, 2002; Rip, 1995; Pinch & Bijker, 1987; Werle, 1998; Woolgar, 1991). In the 'social shaping of technology' approach technical change is no longer seen as autonomous or external to society, but as influenced and shaped by its societal context.   The social shaping of technology approach 'serves as a needed corrective' to technological determinism (Winner, 1993).

Kling (2000:217) points out that "much of the writing about the social changes that these new…ICTs will or could catalyze has relied on oversimplified conceptions of the relationship between technologies and social change". We would, therefore, argue that understanding the place of these new technologies from a sociological perspective requires avoiding a purely technological interpretation and recognising the embeddedness and the variable outcomes of these technologies for different social orders. Granovetter (1992:53) refers to the argument of embeddedness as:

> "the argument that the behavior and institutions to be analysed are so constrained by ongoing social relations that to construe them as independent is a grievous misunderstanding".

The embeddedness position is associated with the 'substantivist' school in anthropology, identified especially with Karl Polanyi (1944; Polanyi, Arensberg & Pearson, 1957) and with the idea of 'moral economy' in history and political science (Thompson, 1971; Scott, 1976). ICTs are embedded in both the technical features and standards of the hardware and software, and in actual societal structures and power dynamics (Latour, 2000; MacKenzie & Wajcman, 1999). Sassen (2002) makes the case that electronic space is embedded and not a purely technological event. Thus electronic space is inflected by the values, cultures, power systems and institutional orders within which it is embedded.

Anderson (1985:57) argues that when technology is transferred from one society to another, it reflects the "social values, institutional forms and culture" of the transferring party. Anderson (1985) explains technology as a social process, where technology is embedded in social, cultural and economic relations of particular societies. In this view, technology both reflects and influences the society that produces it. Moreover, although an important influence in shaping society, technology is only one among several. Technological development is seen as being shaped by social, economic and political relations which in turn often produce indeterminate outcomes. From this perspective the explanation for the uneven spread of ICTs within and between societies is to be sought from a clearer understanding of the relationship between technological development and differential opportunities for exercising power.

3.3.1 The Constructivist Tradition

Work in the constructivist tradition is concerned with the way organisational, political, economic and cultural factors influence the process of technological innovation and change (MacKenzie, 1996).[42] It provides an alternative to technological determinism by proposing that technologies are shaped by the conditions of their creation and use. In other words, technology and society are mutually constitutive. On the other hand, it also denies simple social determinism by maintaining that technology does not emerge from a single social determinant. Instead technological change evolves through choices (not necessarily conscious) between different technological options. These choices are in turn shaped by social factors. Thus there are always a number of possible outcomes (Williams & Edge, 1996).

The constructivist approach introduces a concept of technology as *interpretively flexible*, i.e. expressing the notion that technological artefacts are both culturally constructed and interpreted (Woolgar, 1996). Orlikowski proposes the notion of the duality of technology:

> "[T]echnology is created and changed by human action, yet it is also used by humans to accomplish some action" (Orlikowski, 1992:405).

Based on the application of Giddens's (1979, 1984) *structuration theory*, Orlikowski (2000) suggests that the notion of technology embodying fixed characteristics and thus leading to the perception of technology as an embodiment of structure is misleading. First, because the presumption that technologies embody specific stable structures is problematic, as technologies are not static and they are continuously modified by their users. Second, Orlikowski (2000) argues that only technologies-in-use, when this use is routinised and habitual, can be seen as rules and resources (structures), not the technology itself. That is, the structural consequences of technology come through habitual use. In this study, we see technologies as indeed socially shaped and, although embodying certain fixed characteristics, they can be (and will be) appropriated and re-interpreted by users in different ways. This means

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[42] Within the constructivist tradition there are three main schools: (i) the systems approach (Hughes, 1986, 1987); (ii) actor-network theory (Callon, 1986); and (iii) the social construction of technology approach (Bijker, Hughes & Pinch, 1987; Bijker & Law, 1992).

that the consequences of technologies are not pre-determined but are enacted through their use.

Technology can only be successful when it makes sense within the existing social relations within which it is to function, suggesting the crucial role played by the translation and even re-invention of technology into everyday contexts of use (Grint & Woolgar, 1997). This articulation between technologies and the context of use through which their meaning and utility are constructed is, of course, a key theme within social studies of science and technology (McLaughlin *et al.*, 1998). The 'technical' is always socially shaped and the socio-technical system can be re-invented, reconfigured in different contexts and take on greater or lesser degrees of 'mutability' and 'mobility' (Mol & Law, 1994; Latour, 2000). In this way technologies reflect the 'congealed social relations' (Grint & Woolgar, 1997) and heterogeneous networks that inform their construction (Akrich, 1992). The deconstruction of the 'technical' to reveal its 'socially congealed' properties does not mean that the technical has a materiality and functionality that has no value; indeed, one might argue that the more technologies are shaped by the social gauntlet of their construction, the more robust they are likely to be (Nowotny, Scott & Gibbons, 2001:Chapter 11).

3.4 Conclusion

There are two different views regarding the speed and extent of change brought about by ICTs in society. At one extreme, current developments are seen as a continuation of the past, while acknowledging that substantive changes, both qualitative and quantitative, are taking place in society (Beniger, 1986; Mulgan, 1991; Webster, 1995). At the other end, authors such as Bell (1988) and Castells (2001) declare that a fundamentally new kind of society (i.e. an 'information society') is emerging, in which ICTs have an all-pervasive revolutionary potential. Both strands in the debate do accord information a special place in understanding contemporary society, but differ with respect to their perception of the relationship between technology and social change.

It is the contention of this study that we are simply witnessing the effects of a new and powerful technology on *historically determined social structures* (Webster, 2000; Thomas, 1995; Edge, 1995; Lyon, 1988). The study subscribes to Webster's (1995) argument that the assumption that a technological innovation results in social change is the wrong point of departure to study technology and society. Webster (1995) proposes that it is misleading to separate the social realm from technology (i.e. to see no influence of beliefs and values on technological developments) and then to bring these two together when describing the 'impact' of technology on society.

In this chapter we attempted to assess both the analytical and evaluative claims of the 'information society' thesis.   In doing this we have aimed to steer clear of the 'hype' of futurologists such as Toffler (1991) and Naisbitt (1998) and evangelical 'techno-boosters' such as Negroponte (1996) and Tapscott (1996), and have focused more on the historical and contextual assessment of the information society concept found in the scholarly social science literature. Scholars like Manuel Castells and Daniel Bell have argued that we have or are set to enter an information society based on criteria ranging from technology, to occupational changes, to spatial features. Though these criteria appear at first glance robust, they are in fact vague and imprecise, incapable on their own of establishing whether or not an information society has or will arrive sometime in the future. The sum of the changes inherent in what proponents refer to as the information society, which supposedly amounts to a shift beyond industrial capitalism, is at best debatable. It seems more a matter of faith than hard evidence.

In the next chapter we will show that the 'hype' surrounding the information society, and the accompanying technological determinism, has filtered into the ICT, poverty and development literature. The 'technology-driven modernisation' model of development advocated by the ICT optimists is grounded in assumptions of technological determinism which allow the complex political factors influencing poverty and inequality at local, national and international levels to be hidden, or at least to go largely unquestioned. The implicit assumption that the new technologies are apolitical and value-neutral, and that technology is separate from society and acts to define social structures and human interaction, is also quite pervasive in the ICT, poverty and development discourse of the international donor community and of many Third World governments, including South Africa.

The problematic nature of apparently neutral assumptions of technological development and the emergence of a 'new' information society has been underscored in this chapter. Such a purely technological reading of technical capabilities inevitably neutralises or renders invisible the material conditions and practices, place-boundedness and thick social environments within and through which these technologies operate. Failure to address these assumptions may lead social scientists to become complicit in distracting attention away from the very 'real' global economic, social and cultural inequalities, to 'virtual' inequalities which merely hide an unwillingness to address the core failings of the 'development' paradigm.

Chapter 4

ICT, Poverty and Development: A Discursive Analysis

4.1 'Digital Divide' or 'Development Divide'?

4.1.1 ICT Diffusion Data

The 'digital divide' has become a primary indicator of unequal opportunity, measured in terms like number of telephones, Internet hosts or personal computers (PCs) per thousand inhabitants. The 'digital divide' advocates argue that access to the new ICTs remains (extremely) unequally distributed across and within societies (Quibria *et al.*, 2003:811).[43] An overview of the regional digital divide, including not only essential products but also essential inputs into the generation and maintenance of digital services, is provided in Tables 4.1 and 4.2 below.

The picture sketched in Tables 4.1 and 4.2 is, of course, changing rapidly. The evolution of Internet access has been remarkable. In Africa the number of Internet subscribers grew from under 15,000 to over 400,000 between 1996 and 1999 (Rodriguez & Wilson, 2000). In Latin America the figure increased from 5.8 to 13.3 million between 1998 and 2000 (US Internet Council and ITTA Inc., 2000). For a number of reasons, however, it is hard to know whether a rapid rate of growth in access to certain products or services indicates significant progress toward narrowing digital divides, among countries or within them. The figures cited in Tables 4.1 and 4.2 do not imply a reduction in the North-South divide, since progress remains faster in advanced industrial countries than in the rest of the world. Moreover, until research is carried out in specific local settings, there is a paucity of information on the kinds of sectors, groups and individuals that are actually gaining access to new ICTs in developing countries. Furthermore, figures such as those in Table 4.1 measure consumer access, not the effect that increasing use of ICTs may have on the economy or on people's livelihood. When mobile phones, fax machines, computers

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[43] ICTs can be defined as "electronic means of capturing, processing, storing and communicating information" (Heeks, 1998:3). ICTs are based on digital information held as binary digits, i.e. 1s and 0s, and are comprised of computer hardware, software and networks. The term ICTs is used, rather than information technology (IT), because it reflects the convergence of digital computing, broadcasting and telecommunications. Whereas IT like computers largely focus on the processing of information, ICTs undertake both processing *and* communication of information. The *new* ICTs refer primarily to Internet-based technologies and mobile phones.

and software are imported (as they are in most African, Latin American and Middle Eastern countries) there is nothing inevitably 'developmental' about their availability. And since it is usually costly to use the Internet in developing countries, the figures also say little about how frequently the new Internet-based tools are being used.

Table 4.1: Selected technological outputs by region (1992-1997)[44]

Region	Television sets	Mobile phones	Personal computers	Internet hosts	Fax machines	GDP per capita (US$)
OECD	522.57	102.21	195.37	138.25	31.43	20,114
Middle East	254.87	24.58	32.16	5.31	7.06	8,941
East Asia	164.08	24.36	46.10	6.26	6.34	6,271
Latin America & Caribbean	242.03	14.43	20.33	5.69	9.05	5,636
Eastern Europe & Transition Economies	288.47	6.34	28.21	6.99	2.27	4,027
Sub-Saharan Africa	47.76	1.61	5.05	0.50	1.66	1,972
South Asia	32.70	0.69	4.72	0.13	1.60	1,764

<u>Note</u>: Figures for Internet hosts are per 10,000 people; all others are per 1,000 people. GDP figures are calculated at purchasing power parity.
<u>Source</u>: Calculations based on UNDP (1999) and World Bank (2001) Development Indicators Database

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[44] More recent figures are available for certain variables; however, their accuracy is questionable. Therefore, they have not been included in this table.

Table 4.2: Selected technological inputs by region (1992-1997)

Region	R&D as % of GDP	Technicians	Scientists	Telephone mainlines	GDP per capita (US$)
OECD	1.8	1,326.1	2,649.1	517.9	20,114
Middle East	0.4	177.8	521.0	136.5	8,942
East Asia	0.8	235.8	1026.0	140.3	6,271
Latin America & Caribbean	0.5	205.4	656.6	197.4	5,636
Eastern Europe & Transition Economies	0.9	577.2	1,841.3	167.9	4,027
Sub-Saharan Africa	0.2	76.1	324.3	24.3	1,972
South Asia	0.8	59.5	161.0	14.2	1,764

<u>Note</u>: Technicians and scientists are per 1 million persons; telephone mainlines are per 10,000 persons. GDP figures are calculated at purchasing power parity.
<u>Source</u>: Calculations based on UNDP (1999) and World Bank (2001) Development Indicators Database

Table 4.3: Information and communication infrastructure (1995-2001) (per 1,000 people)

Country groups*	Personal computers		Internet users		Telephone mainlines		Mobile phones	
	1995	2001	1995	2001	1990	2001	1995	2001
Income Breakdown								
High-income OECD	188	363	34	360	455	574	89	690
Developing countries	14	34	2	37	52	104	4	94
Least developed	n.a.	4	n.a.	3	3	7	0	8
Region Breakdown								
North America	273	623	68	467	555	660	108	382
Western Europe	174	325	30	345	445	572	84	747
Eastern Europe & Central Asia	26	81	5	65	130	232	4	199
East Asia & Pacific	82	158	14	177	148	222	36	278
Middle East & North Africa	28	62	1	61	89	147	16	163
Latin America & Caribbean	17	49	1	63	66	145	9	142
South Asia	0	4	0	4	5	20	1	9
Sub-Saharan Africa	n.a.	12	n.a.	9	9	19	1	30

<u>Note</u>: n.a.=data not available; 0=less than half the unit shown
* The classifications are based on the definitions in the World Bank's (2001) Development Indicators database, but all countries with population below one million are excluded. The group average has been calculated when data for at least half of the countries are available.
<u>Source</u>: Calculations based on ITU (2002).

Table 4.4: World Internet users by region (September 2002)

Region	No. of Internet users	% of total
Europe	190.91 million	31.5
Asia/Pacific	187.24 million	30.9
Canada & USA	182.67 million	30.2
Latin America	33.35 million	5.5
Africa	6.31 million	1.0
Middle East	5.12 million	0.8
World	605.60 million	100

Source: Nua.com (2003:n.p.)

Table 4.3 displays data about ICT equipment and its use. It is apparent that, at present, the average developing country does not have large-scale access to ICT technology. The number of PCs and Internet users per 1,000 people is ten times higher in the rich countries than in the developing countries. The number of telephones is six times higher, and the number of mobile phones seven times higher. But the contrast is even more stark when the rich countries are compared with the least developed ones. The fact is that there are as many Internet users in Finland, with a population of 5 million, as there are in Sub-Saharan Africa, with a population of 643 million. Table 4.4 shows that Africa accounts for only 1% of the world's Internet users.

The world can be divided into three broad blocks in terms of access to the information and communication infrastructure. The two extreme blocks in terms of ICT density are North America and Western Europe, on the one hand, and South Asia and Sub-Saharan Africa, on the other. The rest of the world falls in between, East Asia and the Pacific being the leading region within this block. Table 4.3 also highlights the rapid growth in the use of PCs, the Internet and mobile phones in the 1990s. In developing countries the number of PCs increased twofold, whereas the Internet and mobile phone densities rose twenty-fold in the second half of the 1990s.

Not much is known about the patterns of ICT diffusion across countries and about the determinants of its adoption. The importance of human capital, openness to trade and direct investment, telecommunication infrastructure and Internet access costs are emphasised in existing studies (Caselli & Coleman, 2001; Lee, 2001; Shih, Kraemer & Dedrick, 2001; Kiiski & Pohjola, 2002). But even their impacts seem to be

different between the developed and developing countries. It is evident that given the dissimilarities in the production and consumption profiles between these two groups of countries, the optimal ways to benefit from ICTs are likely to be different as well. More research is needed on the factors affecting the adoption of ICTs.

The enormous gap in the accessibility of basic telephone infrastructure has been recognised for many years. In 1984 the 'Maitland Report' set a target for the beginning of the 21st century for all the world's people to be brought within easy reach of a telephone, observing that:

> "in the industrialised world telecommunication is taken for granted as a key factor in economic, commercial and social activity and as a prime source of cultural enrichment…The situation in the developing world is in stark contrast…Neither in the name of common humanity nor on grounds of common interest is such a disparity acceptable" (Independent Commission for Worldwide Telecommunication Development, 1984, Executive Summary).

In 2003, despite the advent of new mobile satellite services and considerable investment in some countries, little has changed.

There has been a recent surge of literature on the so-called 'digital divide' between developed and developing countries (UNDP, 2001; World Bank, 1999; TeleCommons Development Group, 2000; UN, 2000). It is argued that the failure of the South to harness the benefits of the ongoing technological revolution in the North places developing country populations at an ever increasing disadvantage in a globalising world. The concern for 'bridging the digital divide' is often validated by emphasising the potential to 'unleash the power of the Internet' or indeed the information superhighway. In the words of Bellamy and Taylor (1998:63), "the power of ICTs lies in their proleptical vision: one that promises new opportunities". The development challenges that such generalised debate presents can appear overwhelming. Moreover, rather than highlighting priority areas for intervention, 'facts and figures' about the digital divide tend to obscure and oversimplify complex and long-standing development concerns.

4.1.2 Discourse on the 'Digital Divide'

The discourse on the digital divide is characterised by an emphasis on the notion of (equal) access to the new ICTs, with policies oriented towards the stimulation of the adoption of these technologies. The digital divide discourse articulates a dichotomy between 'information haves' and 'information have-nots', between 'information rich' and 'information poor' and between those who use or benefit from the Internet and those who do not (InfoDev & the Centre for Democracy and Technology, 2002:13; Roche & Blaine, 1996:6).[45] As such the danger exists that the articulation of this discourse becomes, and/or remains, a 'digital myth' (Frissen, 2000b), which is predominantly technology determined, thus reducing the social complexity to the virtual binary. Not only does this dichotomy imply a static approach to technological innovation, but it also offers a structuring of the social on the basis of a technological criterion. Wolf (1998:26) argues that the metaphor of the 'digital divide' "masquerades as a quick fix to social inequality while ignoring the factors that lead to inequality". Moreover, Mosco (1998) points out that narratives about the 'digital divide' tend to be simplistic, deterministic and mythical in scope.

'Digital divide' type debates tend to focus on large-scale infrastructure development and the extension of information and communication services from the centre to the periphery. However, impoverished and marginalised areas in most developing countries are far from becoming integrated into 'global knowledge partnerships'. ICT infrastructure still reflects historical and colonial relationships and Internet connectivity tends to strengthen existing inequalities within countries and regions, favouring educated urban elites over the rural population (UNDP, 2001).

The notion of a digital divide is, in many ways, unhelpful. It has given too much emphasis to the technology and has thus drawn attention away from the other divides and inequalities that hamper development. The digital divide is symptomatic of a far more serious *development divide*, constantly limiting possibilities for progress among most inhabitants of the planet. New ICTs by themselves cannot bridge this divide and

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[45] The phrase 'information poverty' recurs in the literature on ICTs for development as a *new* form of poverty affecting those who are unconnected through ICTs (D'Orville, 2000; Richardson, 1998). Ending this form of poverty is the motivation behind many ICT projects in the Third World. At any rate, 'information poverty' is nothing new, but merely another dimension of being poor. Poverty is

if not employed in a conscious effort to improve equity, they can worsen it. It is important to recognise the complexity of the problem at hand and to steer clear of any simple recipes for progress in the field of ICT, poverty and development. The likelihood that poor people in developing countries can improve their life chances is often sharply limited by a complex network of constraints ranging from unresolved problems of poverty and injustice in their own societies to the structure and dynamics of the global economic system. When designing ICT programmes in developing countries, these broader constraints must be explicitly taken into account. If the surrounding context for proposed innovation is not sufficiently analysed and remedies for pressing socio-economic problems addressed, many well-meaning efforts will have short lives and minimal results.

4.2   Multilateral ICT Strategies

Multilateral (and bilateral) providers of development assistance such as the World Bank and the United Nations are engaged in urgent policy debates concerning the economic growth and poverty reduction potential of ICTs. ICT is in fact conceived of as a new development paradigm by the international donor community (Hilbert, 2001). This wellspring of international support for ICTs is a clear indication of the ways in which its role is perceived within the development industry. Among the most salient international initiatives are the World Summit on Information Society under the auspices of the ITU[46]; the G-8's Digital Opportunity Task Force (DOT Force); the UN ICT Task Force; UNDP's Information Technologies for Development Initiative (Info21); the World Bank's Global Information and Communication Technologies Department (GICT); and the World Bank's Information for Development (InfoDev) initiative. The UN ICT Task Force (2002:1), for example, is mandated to:

> "lend a truly global dimension to the multitude of efforts to bridge the global digital divide, foster digital opportunity and thus firmly put ICT at the service of development for all".

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increasingly accepted to be multidimensional and therefore strategies at every level need to be more flexible to incorporate the heterogeneous contexts and livelihoods of the poor (Carter & May, 2001).

[46] The ITU is organising a World Summit on the Information Society (WSIS), the aim of which is to develop a common vision and understanding of the 'information society' and to draw up a strategic plan of action for concerted development towards realising this vision (see http://www.itu.int/wsis/). The WSIS aims to bring together Heads of State, Executive Heads of UN agencies, industry leaders, NGOs and civil society. The summit takes place in two stages, first in Geneva in December 2003 and then in Tunis in November 2005.

Kofi Annan, Secretary-General of the UN, links the digital divide to development, poverty and inequality when he states:

> "One of the most pressing challenges in the new century…[is to]…harness this extraordinary force of ICTs, spread it throughout the world, and make its benefits accessible and meaningful for all humanity, in particular the poor" (Annan, 2001:1).

As Servaes (2000:xi) remarks in the introduction of *Walking on the Other Side of the Information Highway*, many developing country governments have attributed a leading role to ICTs in their strategies for economic growth and are being encouraged by multilateral agencies such as the IMF and World Bank to do so. For example, the World Bank's GICT Department's mission is as follows:

> "Information and communication technologies…are opening new opportunities for developing economies. These opportunities will assist developing countries bridging the digital divide through economic growth, increased jobs, and improved access to basic services. GICT was created to leverage the strengths of the World Bank Group in addressing these needs and taking advantage of these opportunities" (GICT, 2000:n.p.).

The G-8 Heads of State at their Kyushu Okinawa Summit in July 2000 created the DOT Force, whose mandate is to encourage the use of ICTs since:

> "they offer enormous opportunities to narrow social and economic inequalities and support sustainable local wealth creation, and thus help to achieve the broader development goals that the international community has set" (DOT Force, 2001:3).

The UNDP (1999) is another recent high-profile convert to the digital cause. Thus, even those who deal in poverty eradication and sustainable development have now come around to accepting a technocratic route to their objectives. Various recent international ICT-related programmes have been initiated in the context of the UN system. 'ICT for development' is one of the key areas of the United Nations Conference on Trade and Development's (UNCTAD) Internet gateway on Science and Technology for Development (UNCTAD, 2003). This gateway hosts the homepage of the UN Commission on Science and Technology for Development (UNCSTD), provides continuously updated information on best practice in the assessment, transfer, adaptation and mastery of technology, and also offers opportunities for partnering and networking in science and technology.

Moreover, at its fifth session, held in Geneva in 2001, the UNCSTD selected as the theme for its inter-sessional period 2001–2003 'Technology development and capacity-building for competitiveness in a digital world' (UNCSTD, 2001). The programme for this inter-sessional period is being carried out by three panels addressing specific aspects of the main theme, with particular attention being given to the assimilation and application of ICTs for the purpose of enhancing competitiveness of developing countries and transition economies. The first of the panels is studying indicators of technological development for 'stocktaking' purposes. The second is exploring the link between foreign direct investment (FDI), technology development for capacity building and strategic competitiveness. Lastly, the third panel is concentrating on the transfer, diffusion and use of ICTs.

The first panel met in Geneva in May 2002 to identify the most important factors affecting technological mastery and development for competitiveness, to attempt to measure them, and to provide a rational explanation of their determinants (UNCSTD, 2001). In addressing the need for technology indicators it was decided that countries should be grouped into those that were 'catching up', 'keeping up' and 'getting ahead'. It was agreed that the key objective for collecting a set of indicators was to identify concomitant policies and programmes.

Besides the activities of the UNCSTD, it is also important to mention the launch in early 2002, by the UN Development Programme (UNDP) in partnership with the Markle Foundation and in consultation with public and private institutions and individual expert partners, of the Global Digital Opportunity Initiative (GDOI, 2003). This initiative is attempting to increase the impact of ICTs in achieving developing countries' development goals by building on the strategic framework developed by the Digital Opportunity Initiative at the 2001 G8 Summit in Genoa.

The G-8 countries, for instance, have emphasised that "IT empowers, benefits and links people the world over [and] access to the digital opportunities must, therefore, be open to all" (G-8, 2000:1). The expectation is that the extension of global telecommunication networks and the use of the Internet can provide a new means for developing countries to benefit from their participation in the global economy. Deployment of advanced ICTs is expected to provide a major stimulus for economic

growth. Despite the very substantial gaps in the availability of the new technologies, developing countries that do gain access are expected to benefit substantially.

In its 1998/1999 World Development Report, entitled *Knowledge for Development*, the World Bank framed poverty as a lack of knowledge and positioned its poverty alleviation objectives in an analysis of the 'information society' approach:

> "Knowledge is like light. Weightless and intangible, it can easily travel the world, enlightening the lives of people everywhere. Yet billions of people still live in the darkness of poverty – unnecessarily" (World Bank, 1999:1).

The World Bank's (1999:1) new approach to development is based on the assumption that "poor countries – and poor people – differ from rich ones not only because they have less capital but because they have less knowledge". The focus on the role of knowledge in development processes is the result of new understandings about the relationship between economic growth and the application of knowledge. It assumes that knowledge is a neutral, manageable commodity that can be shared freely and easily, and that ICTs can provide the appropriate tools for accessing, archiving, transferring and communicating information and knowledge. Critics of the new knowledge-based development paradigm argue that this approach to development is a convenient vehicle to promote a neo-liberal agenda (Coraggio, 2001; Mehta, 2001). The mode of development is linear/evolutionary and entails the diffusion of knowledge from more developed to less developed societies.

In May 1996 the United Nations' Economic Commission for Africa (ECA) adopted its *African Information Society Initiative (AISI): An Action Framework to Build Africa's Information and Communication Infrastructure*. As AISI is viewed as a guiding framework for multiple donors, the document may shed some light on the way the African 'information society' is conceived of by some key players. AISI is seen as an ambitious, long-term programme directed at the utilisation of ICTs to stimulate overall economic and social growth in Africa (ECA, 1996a). It was put in place through the collaborative action of a network of partners, among which include the International Telecommunications Union (ITU), the United Nations Educational, Scientific and Cultural Organisation (UNESCO), the International Development Research Centre (IDRC) and the World Bank.

ECA's African Information Society Initiative suggests that Africa is on the brink of a new era, that of the 'information society'. AISI defines the information society in terms of technological innovations and its potential for change:

> "Africa's information society [is] a term used to refer to the pervasive benefits to all Africans of proactive policies on information and communication technologies" (ECA, 1996b).

The prospects for development through the investment in and use of ICTs are presumed to be tremendous (Hafkin, 2002). The reasoning is quite similar to that in Western countries. Prices of new ICTs are becoming increasingly affordable as costs continue to fall. Cheap ICTs offer developing nations the opportunity, not only to leapfrog entire stages of development in setting up their own information infrastructure and applications (ECA, 1996b), but also to accelerate development in all spheres of African economic and social activity (ECA, 1996a). This is a rather optimistic view which puts ICTs and information at the centre of social and economic change. This view seems to be based on four basic, and highly questionable, assumptions: (i) that ICTs are neutral and easily transferable; (ii) that information as such is neutral (and equals knowledge); (iii) that Africa and its citizens, by means of ICTs, have access to information which is *necessary and sufficient* to accelerate development; and (iv) that information will be free or near to free in the 'information society'. These assumptions correspond with modernisation theory's perception of the relation between ICTs, information and development (Pool, 1990:283). The AISI Action Framework can be criticised on the grounds that it is technologically deterministic, does not pay attention to the complexity of social reality and for failing to analyse the origins of technological innovation (Tsui, 1991).

The assumption that access to information is necessary and sufficient to accelerate development is questionable. Many problems of development are structural problems of distribution and power. Information as such may have little impact on such problems and, indeed, could aggravate them under certain conditions by increasing the resources available to urban and rural elites (Hudson, 1984:154). Furthermore, the AISI equates information with knowledge. The generation and application of knowledge depends upon much more than access to a global information infrastructure and the information it contains (Mansell & Wehn, 1998:323). Many of the promises made by proponents of ICTs conflate and confuse notions of

'information' and 'knowledge', with these terms often being used interchangeably and uncritically. As the Panos Institute highlights:

> "Knowledge is not the same as information; it is the sense that people make of information. Knowledge is infused with the insights, expertise and capacities of those who have it. People need to be able to make their own sense of information – to interpret it, to evaluate it, to reach their own understanding of it" (Panos Institute, 1998:n.p.).

The AISI Action Framework does not really deliberate this point, as it mainly seems to stress that connectivity to an information infrastructure is sufficient in producing applicable knowledge. An associated assumption underlying the view of the AISI's Action Framework is that information will be available for free or at very low prices. This assumption runs counter to an observable evolution of growing commercialisation of information (Schiller, 1996:Chapter 1). The shift observed in the last two decades from public service policies towards more market-guided policies has already left its mark on the availability of public as well as scientific information (Webster, 1995; Hamelink, 1997). The picture the AISI presents of a future information society and the easy road towards its completion is over-optimistic and maybe even dangerous, as it presents a view in which investment in the right technology seems sufficient for development.

4.3   Foucauldian Discourse Analysis

As a result of the power ICTs have gained in the development industry, a particular discourse has been generated which functions in a self-perpetuating fashion, leaving little or no space for any critique. This discourse then goes on to feed the power from which it derives its existence. What this section seeks to do is to analyse in Foucauldian terms the manner in which the power of ICTs operates and to problematise the ways in which this informs the development agenda.

ICTs have been vested with immense power within the development agenda. As ICTs claim this position of power, concurrently a rationale is provided which eulogises the specific characteristics of these technologies making them worthy of such investment. Chief amongst them are computer networks (Castells, 1996), the quintessential manifestation of ICTs, which supposedly: (i) create an equitable 'information society'; (ii) provide ways in which the marginalised can be integrated; and (iii)

empower people as individuals and as communities (Negroponte, 1996; ECA, 1996a, 1996b; G-8, 2000; World Bank, 1999). This compares interestingly with Foucault's analysis of:

> "a new 'economy' of power, that is to say, procedures which allowed the effects of power to circulate in a manner at once continuous, uninterrupted, adapted and 'individualised' throughout the entire social body" (Foucault, 1980:119).

In this reading of the way in which power operates within a society ICTs not only wield power in themselves, but also become exemplary vehicles for the exercise of power within larger structures. Their inherent virtues then become the very ways in which the pervasive aspect of the exercise of power is accentuated and operationalised. Foucault's web of power then finds a potent manifestation, perhaps not envisaged by him in the terminology he created.

When Foucault (1980:119) spoke of power in its extant form in current social structures, he observed that it needed to be "considered as a productive network which runs through the whole social body" going on to create systems of self-perpetuation. Although his usage of the word 'network' could be seen as an inadvertent play on words in the context of ICTs, it is this productive aspect of power which needs to be analysed further to gain a better understanding of the implications of ICTs being projected as a critical vehicle of development. Foucault (1980:119) contends that: "What makes power hold good, what makes it accepted, is simply the fact that…it traverses and produces things, it…forms knowledge, produces discourse". The power of ICTs indeed does have this productive aspect. As it operates within the development agenda, it produces knowledge and discourse in a myriad of ways. It is this productive aspect of power that operates in a cyclical fashion to accentuate the power of ICTs further.

Of late, ICTs have become the vehicle for bringing the 'light of knowledge' to those that are poor and excluded (World Bank, 1999:1). A paternalistic assumption is lodged in the minds of many of those who push ICTs on developing countries, *viz*.: 'if poor people could know more of what we already know, their lives could get better'. Through such a strategy existing power structures seek to replicate and diffuse *their* notions of knowledge within the larger social body. In many ways it can be seen as

an evangelical exercise. In practice all it does is further its own cause, while simultaneously detracting from issues that are often more fundamental to the problems of poverty and injustice.

While the creation of discourse is an essential constitutive element of power, Foucault's analysis of the nature of discourse shows that, while it seeks to be liberated from any control, at the same time institutions seek to constrain and control it. It is in this way that it acquires power. Another form of social exclusion as expounded by Foucault (1980) was synthesised in the division created between reason and its other, madness (or irrationality). A manifestation of this division within the context of the ICTs for development discourse is the way in which the discourse does not allow any dissent to creep into it. The language of the discourse is structured in a manner which operates within the rather simplistic oppositions of development/science/progress versus tradition/reaction/stasis. If there is hesitance in accepting the intrinsic goodness of ICTs in development, it is a sign of being retrogressive, of not being able to grasp the importance of the technologies, of being a Luddite, and of being anti-developmental.

The premature celebration of ICTs contributes substantially towards the creation of the 'information society', which ignores the single most important reason behind underdevelopment – people are not poor because they are ignorant, but because they are embedded in social structures which are deeply unjust – politically, economically and socially. Emphasising a single technology approach for resolving problems which are deeply embedded within the social fabric is unlikely to achieve much success.

The oft-repeated example which is mentioned in support of introducing ICTs in rural areas is the access to information, such as the market prices of agricultural produce on a given day to sellers of such produce, that ICT can provide (UNCTAD, 2002; World Bank, 1999; UNDP, 2001). What the example does is to create a very attractive image of rural society marching towards progress aided by technology. In truth, this example completely ignores the illiterate landless migrant labourers who are important constituents of the rural economy, and for whom no benefits will accrue, either directly or indirectly. Effectively, the introduction of these technologies only

strengthens the logic that those who already occupy spaces of privilege within a society gain most from any further investment in their area of operation.

Thus, one of the main functions of this discourse is to act as a vehicle for presenting a case for change in the way that society must be regulated – a call to action. Threats can be avoided, and opportunities taken, but only if we act now. The UNCTAD (2002), World Bank (1999) and UNDP (2001) reports, for example, construct a crisis and a resolution, i.e. new approaches to regulation. The way in which the crisis is constructed becomes a key part of the discourse. At key points in the debate over ICT, poverty and development, the dominant discourse systematically foregrounds the nature of the threat as being primarily economic. The privileging of the economic parameters of the debate naturally influences the solutions offered. The fear is that of the Third World falling technologically further behind the advanced industrial economies.

The dualism of threat/opportunity is not uncommon in the literature examining the impact of new ICTs, especially regarding the Internet (Mansell, Samarajiva & Mahan, 2002).[47] By doing so, the political debate calls upon a discourse of technological change that is well established within society and which acts to reduce the complexities surrounding the introduction of new technologies to a choice between a set of distinct binary oppositions. The discourse's binary quality acts to narrow the scope of debate by making it much harder to present technologically mediated social change as incremental (Hakken, 1999:25). Rather, we need to be able to talk of the ways in which ICTs interact with multiple social, technical, cultural and political relations to produce an unavoidably mixed set of outcomes.

Closely tied to the discourse of threat/opportunity is the discourse of technological determinism. The continued strength of technologically deterministic discourse is owed, in part, to the simplistic and powerful message it conveys – a vision that is easily communicated and can be used to generate emotive and powerful arguments. Technological change is not only presented as radical and double-edged, it is also

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[47] In 1996 the World Bank stated: "If African countries cannot take advantage of the information revolution and surf this great wave of technological change, they may be crushed by it. In that case

constructed as unavoidable. Technology is seen as an external force outside of governmental control, which is nominalised (Fairclough, 1992) - that is, constructed almost as if it possesses social agency. The notion is one of technology as an exogenous variable to which society and individuals must adapt. Thus, governmental action is restructured to a reaction against the 'realities' presented by the new ICTs, limiting governments' responsibility to that of attempting to control a situation they had no hand in creating and in which they cannot change the technologically determined ground rules (Chilton & Schaffner, 2002). It is this discourse which has been drawn upon most often by neo-liberals in their largely successful attempts to deregulate and liberalise the telecoms markets. Thus, the only relevant information policy is one of 'privatising, liberalising and deregulating'.

Another discourse which runs throughout the debate is the discourse of 'market determinism'. The market is not only constructed in the liberal pluralist sense - in that a free market allows the most effective mediation of power - it is also constructed as an unavoidable reality. In a similar manner to technology, the market is nominalised, given social agency and presented as an external force outside governmental control. Thus, this discourse interacts with a technologically deterministic discourse to construct a set of socio-political relations whereby all governmental action must work within the boundaries defined by the market and technology. This construction of the inherent limitations in governmental action draws upon a well-established discourse of globalisation within society, whereby the role and influence of the state diminishes drastically as ICTs facilitate the creation of a powerful global marketplace. However, to date, the evidence to support the demise of state power remains fairly thin on the ground. For example, Weiss concludes:

> "There are now sufficient grounds to suggest that globalisation tendencies have been exaggerated, and that we need to employ the language of internationalisation to understand better the changes taking place in the world economy. In this kind of economy, the nation-state retains its importance as a political and economic actor" (Weiss, 1998:212).

The unavoidable reality of market forces constructed by the deterministic market discourse is itself heavily dependent on a deterministic view of technology. The two

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they are likely to be even more marginalized and economically stagnant than they are today" (World Bank, 1996:n.p.).

discourses interact with one another, such that it is the power and pervasiveness of technology that has facilitated the evolution of the market.

Although usually remaining on the periphery of flows of knowledge and wealth, developing countries are nonetheless integrated within global networks of capital, production, trade and communication increasingly mediated by ICTs (Castells, 1996). This recognition has resulted in: (i) the inclusion of ICTs as important elements of developmental strategies and interventions (Gillespie & Cornford, 1997; UNCTAD, 1997, 2002; UNESCO, 1996); and (ii) unprecedented levels of investment in ICTs by major development donors, often at the expense of alternative forms of initiative (Jensen, 2001). The discourse surrounding the appropriate use of ICTs in developing countries is thus becoming part of development discourse itself, as macro-level development policy options are becoming increasingly linked to the shape of technological evolution (Perez, 1988).

The current direction of the ICT, poverty and development discourse, while detracting from the fundamental issues of inequality, also causes the diversion of scarce resources into a sector whose potential is debatable. In a situation where critical choices must be made regarding the allocation of scarce resources, the importance being accorded to ICTs is open to question. Therefore, a more circumspect approach to the promotion of ICTs for development is appropriate. ICTs can prove to be useful in the development arena, but they must be recognised as just another tool rather than a 'technology fix'.

By presenting these discourses we do not mean to suggest that they imply unanimity of opinion among the debate's participants, as it is the very process of discursive conflict that requires extensive construction of competing discourses. Rather, the discourses identified dominate the debate by establishing and maintaining what Fairclough (1992, 1995:29) refers to as an "order of discourse". That is, they structure, frame and in some ways restrict discussion by contributing to a set of discursive norms or conventions that frame the set of discursive events which make up the totality of the policy debate.

4.4   The Modernisation Paradigm

The World Bank (1999) shares the Modernisation School's view that what prevents modernisation in developing countries is a lack of access to the kind of knowledge that Western developed countries possess.   The dominant approach to ICTs in development has been framed by modernisation theory, which perceived development spreading from the West to the rest of the world, crucially aided by modern ICTs. It tends to assume, along with "much scholarship about knowledge and development…that the main task is to transfer commoditised chunks of information and knowledge from one place to another" (Chataway & Wield, 2000:817).

In an economic context developing countries are often diagnosed as suffering from a 'lack of information', especially relating to the functioning of markets and market opportunities (World Bank, 1999). This perspective is synchronous with neo-liberal concerns over globalisation and integration. To assume that ICTs can help provide useful and 'developmental' information simply by transcending physical distance at a greater speed and reduced cost is to ignore essential phenomenological concerns that highlight alternatives to positivism.

The dominant discourse's 'belief' in the potential of ICTs is largely based on the assumption that access to ICTs and its content equals economic and social development.   This assumption is based on a 'technology push' vision which emphasises the "technical orientation of ICT-intensive change programs", and tends to steer the debate towards "apolitical and asocial analysis" (Taylor, Snellen & Zuurmond, 1997:3). This view is inspired by a technologically deterministic mindset in which technology is seen as the sole enabler of social action.   International organisations such as the World Bank, UNDP, UNCTAD, ITU and ECA play an important role in the spread of the dominant discourse. These organisations are able to influence policy formulation as well as the actual implementation of ICTs in developing countries through several mechanisms, *viz.* programmes in policy assistance; institution-building and private sector support; specific ICT-related projects; international and regional conferences; and the dissemination of documents. Most activities can be situated in the field of connectivity, technology transfer and training. Little attention is given to the development of information and content. And

only few initiatives contribute to the development of an institutional framework putting Africa in a position to regulate, adapt and innovate ICTs to its own needs and priorities for sustainable development.

Many analyses of ICTs focus on the gap between the 'haves' and the 'have-nots' of information and knowledge. They raise concerns about the exclusion of certain groups, nations or social sectors, which are left behind in the so-called 'information revolution'. The problem is examined internationally as a North-South disparity, or sociologically as the result of economic marginalisation. In either case, it calls for the rich (North, power-holders) to include and empower the poor (South, excluded), who risk further impoverishment as a consequence of global changes (see Annis, 1991; Greenberg & Goodman, 1996; D'Orville, 1996; Cairncross, 1997; IDRC, 1997a, b). Strategies then seek improved accessibility through national ICT programmes and donor-driven development projects of increasing public awareness, business support activities, infrastructural development, etc.

The *telos* of development stands revealed in the progress-oriented notion of development (Apffel-Marglin, 1996). And it is this ideology of progress which is entrenched in the ICT, poverty and development discourse. The 'techno-optimists' emphasise the potential of new ICTs to promote the development of the Third World, and call for intensive efforts to transfer technologies, management practices and organisational processes from the richer countries. The transfer-of-technology model dominates development thinking. Panagariya even suggests that:

> "given the cost savings offered by Internet technology and the relative ease with which it can be provided, they [i.e. developing countries] can now skip several stages of technological growth through which developed countries had to go. Stated differently, developing countries are much further inside the current technological frontier and, therefore, have larger potential benefits from moving to it" (Panagariya, 2000:5).

Similarly, Negroponte (1996) thinks that ICTs have a leapfrogging characteristic that will enable the poor to catch up. For many, the new ICTs promise to leapfrog the Third World into post-industrial informationalism (see notably Cairncross, 1997; Burton, 1997; Annis, 1991). As latecomers, developing countries can embrace existing technologies developed elsewhere and skip intermediate stages, allowing them to save on considerable costs of development. The 'leapfrog' route presumes

that progress must follow a predefined Western model of development, and technology can help nations jump over intermediary stages in that evolutionary path (Giovannetti, Kagami & Tsuji, 2003; Mansell & Wehn, 1998).

The East Asian model of rapid industrialisation and technological catch-up, as exemplified by the four dragons, (i.e. Korea, Taiwan, Hong Kong and Singapore), is frequently put forward as evidence of the transformative potential of ICTs (see, for example, UNDP, 2001; World Bank, 1999). Significantly, these 'miracle' countries not only expanded at a fast rate, but also did so without any worsening of income distribution. More recently these four countries were followed by emerging South-East Asian economies such as Malaysia, Thailand and Indonesia, which also recorded sustained and rapid growth of per capita income, prior to the Asian financial crisis of 1997.

The Asian dragons and the second-tier NICs like Malaysia have created one of the largest markets in the world for telecoms equipment and services. Jussawalla claims:

> "All four Asian Dragons – Singapore, South Korea, Hong Kong and Taiwan – invested heavily in their telecommunications sectors and subsequently reaped huge benefits in the form of export earnings…They opened up their economies to foreign participation by promoting technology transfer and using it to their maximum advantage for skill formation. In fact, the success of these countries has brought about a shift in global production trends such that a high percentage of IT products, including semiconductors, are now manufactured on their shores" (Jussawalla, 1999:222).

How did the four dragons of East Asia learn to innovate in electronics? According to Hobday (1995), within the firms subcontracting, original equipment manufacture (OEM) mechanisms acted as a training school for latecomers, enabling them to overcome entry barriers and to assimilate manufacturing and design technology. Essentially, the needs of export customers drove the pace of learning and acted as a focusing device for technological assimilation, adaptation and innovation. We argue that the success of the East Asian dragons can be attributed to a number of virtuous and mutually reinforcing linkages between interconnected factors, *inter alia*: (i) government-led capitalist development; (ii) high government investment and ownership of industry, with initially substantial foreign aid and little FDI; (iii) strategic integration with the world economy; (iv) high private and public investment

in human resources and almost no reliance on foreigners; (v) a short period of generalised infant industry protection followed by export-led growth combined with selective ISI and government promotion of those industries that would become the core export industries in the next phase of dynamic comparative advantage; (vi) agrarian reform; and (vii) favourable geo-political factors (Kay, 2002).

This success story cannot be generalised to the Third World at large (Cline, 1982; Wade, 1996), it originated in a particular context shaped by history, geopolitical location, socio-cultural factors and resources, just to name a few factors, which differ markedly from the rest of the Third World. Thus, policy prescriptions based on generalising across countries at very different levels of social, economic and institutional development are likely to be seriously misleading. Further, it does not take full cognisance of historical and situational relativism and of the multifaceted nature of the development process. It would, therefore, seem highly questionable whether the particular history of one country or region can, or even should, be emulated by another country or region at another point in history. Indeed, such reasoning would require an ahistorical epistemology. The East Asian model should therefore only be regarded as models of economic development for heuristic purposes.

It cannot be taken for granted that a successful export-oriented ICT industry will benefit the broader and pressing development problems of a poor country. The trickle down effect of the impressive success of the Indian software industry is still to be felt (Avgerou, 2002; Bhatnagar, 2003). In addition, although South-East Asian countries such as Malaysia and Thailand, through their reliance on FDI, have succeeded in high-technology exports, which in large part combine low-skill assembly activities with high-technology imported parts, both countries have yet to develop a diversified manufacturing base (UNCTAD, 1996). In particular, their early orientation towards electronics contrasts with the slow development of most capital goods industries, such as iron and steel, non-electrical machinery, metal products and transport equipment. The continued heavy reliance on imports of both capital and intermediate goods suggests that the second-tier NICs have still to embark on the kind of upgrading process in the medium-technology sectors pursued earlier by the first-tier NICs (i.e. the four dragons) (Hentschel, 1992). Many of the elements of the technological infrastructure needed to allow domestic firms to compete in this middle-range of

exports are still missing. These countries have still to put in place a well-developed local supplier network, incipient clusters of high-technology activities and an adequately trained workforce; they also lack any significant industrial R&D, either within the enterprise system or in the public sector (Jomo, 1997). In the absence of these linkages, local firms in key sectors such as electronics continue to concentrate on the supply of secondary materials and services, such as packaging and transportation.

The lack of comprehensive and integrated industrial policies, as well as of adequate human resources planning and other related policies to widen and deepen the skill base of the economy, also casts some doubts about the medium-term industrial upgrading of the second-tier NICs (Jomo, 1997). Furthermore, Malaysia's high reliance on FDI is raising concerns about a dualistic economic structure with insufficient technological and supply links between the MNC-dominated export sectors and the domestic economy (Lall, 1995). Just as worrying is that the limited product diversification of the export sector, the predominance of simple assembly and finishing operations and the low level of technological capabilities in this sector have given rise to the fear that China, Vietnam and other lower-wage South and South-East Asian countries could take away these sources of growth momentum, unless measures are introduced to deepen the domestic industrial base and improve the quality of workers, managers and infrastructure in line with rising production costs (UNCTAD, 1996; Jomo, 1997). The footloose character of FDI and the difficulties in sustaining the pace of export growth have been giving rise to serious concerns over the longer-term growth prospects of these countries, particularly in view of their large current account deficits and vulnerability to interruption of capital inflows.

If the optimistic expectations about the impact of advanced ICTs on economic growth and development are to be met, the technological gaps between industrialised and developing countries, that is the 'digital divides', need to be reduced. This will require a rapid process of technological catch-up. In the absence of any conclusive empirical evidence this view rests mainly upon rhetorical arguments about the socio-economic outcomes that may be associated with the transfer of advanced ICTs. Moreover, technological leapfrogging is more difficult to achieve than it first appears (Steinmueller, 2001). If technological leapfrogging is to be successful, it must be

feasible to bypass stages of capability building or investment that the industrialised countries have had to pass through in the process of economic development. This theory implies a linear and highly predictable set of stages of development (*vide* Rostow, 1971).

Technology is presented as the source of profound and far-reaching change within society. It is seen as the prime generator of the 'information society'. What the 'information society' actually represents remains unclear and continues to be a site of discursive and social struggle. Hakken (1999) speaks of the need to critically interrogate the concept as a descriptor of change. He specifically criticises simplistic yet widespread notions of an 'ICT revolution', which often embody a series of presumptions about the impact of technology on society. He suggests that these presumptions act effectively as a block to a disciplined examination of ICTs and social change. Mansell (1993), for example, has examined the way in which political rhetoric, which tends to treat technical progress as uniformly beneficial to all facets of society, can differ greatly from the reality on the ground.

The promises of the new ICTs are formulated within a broader discourse of modernisation and development, which is based on the assumption that a deficiency in knowledge is partly responsible for underdevelopment. This way of looking at knowledge and development harks back to the modernisation literature of the 1960s, where the main problem was also seen to lie with the diffusion of Western knowledge to the rest of the world. ICTs are regarded as a neutral, transparent media which function as a conduit for the information and knowledge required to develop. Authors like Lyon (1994), Davies (1996), Sardar (1998), Escobar (1999) and Shiva (1997, 2000), however, who are critical of the mainstream development paradigm, find the prospect of accelerating the spread of Western knowledge through the new ICTs alarming. They see it associated with social exclusion, surveillance and corporate control, and the expansion of the capitalist economy into ever more remote parts of the globe.

The pessimistic accounts based on structural analysis of global inequality and globalisation of capitalism does, however, offer a glimmer of hope for those who want to see the new ICTs being used as a space for empowerment and alternative

development visions. Because the Internet makes possible 'horizontal, global communication' which is very difficult to censor or control (Castells, 1996:352), it can also be used by locally-based and virtual communities to represent themselves, to network with progressive NGOs for human-centred development, or to gather support for political struggles that challenge national or global elites. Similarly, Escobar argues that ICTs can become sources of empowerment and emancipation as the technology offers "unexpected opportunities that groups at the margin could seize to construct innovative visions and practices" (Escobar, 1995a:225).

The ICT, poverty and development discourse has been affected by the intimate three-way association of ICT, modernisation and Western rationalism (Shields & Servaes, 1989; Avgerou, 2000; Tettey, 2000). Many ICT designers tend to draw from and work within a rationalist tradition (Mundy, Kanjo & Mtema, 2001). As Frissen states:

> "ICT is an unambiguous artefact of modernisation. The dominant code of meaning attached to, and even embodied in, ICT is functional rationality" (Frissen, 2000:157).

More generally, technology is conceived as an objective and rational entity, not as something (as described in the previous chapter) that incorporates particular political, social and cultural values. The tendency toward rationality in information system (IS) design is reinforced by the rationality of the modernisation agenda that carries innovations from industrialised to developing countries. It is also reinforced by the 'discourse of rationality', i.e. the way in which users and others feel it is only legitimate to discuss ICT issues in rational terms, suppressing more political discourse (Heeks, 2001, 2003). This combination can readily be seen at work in the agendas of many donor agencies. For them, the overall purpose of development is the creation of economic rationalism within developing country economic systems. ICTs are seen as a key tool in achieving this and become part of a technically rational and technologically determinist agenda that focuses on the 'digital divide' and on ICT infrastructure (Wilson & Heeks, 2000). Any ICT problems are, in turn, seen as best resolved by a resort to market rationality (Heeks & Mundy, 2001; Heeks, Mundy & Salazar, 2000).

According to Leo Marx (1999), the historical roots of current utopian views of technology are found in the 19th-century Enlightenment ideals of social progress,

determinism and positivist epistemology. This modernist heritage has led to linear, simplistic interpretations of how technology impacts on society, thus leaving out the complexities of these relationships (Feenberg, 1999). This type of deterministic thinking is embedded in the current hype surrounding ICTs for development. However, as historians of technology note that seemingly innocuous technical innovations such as mechanical looms, automobiles and piped water systems have always had negative, as well as positive, impacts (Marx, 1999; Sclove, 1995). History teaches us that there is not a simple, linear relationship between technological innovation and social progress:

> "Global institutions of development have long promoted, either overtly or covertly, the linear equation that accumulation of technologies and technological knowledge equals 'success' in the quest for modernisation. Indeed, the Enlightenment belief that technological innovation and/or adoption indicates progress is still very much alive at the beginning of the twenty-first century, with much being prophesied about the potential of ICTs to deliver both growth and liberation on economic, social and cultural fronts" (Marx, 1997:14).

Extraordinary claims are being made about the new ICTs, particularly the Internet. Recent breakthroughs in the fields of semiconductors and digital communications, it is said, will soon ensure that sharing information will be both instantaneous and relatively costless (Negroponte, 1996; Tapscott, 1996; Gates, 1996, 2000; De Kerckhove, 1997). The world will evolve, in fact is evolving, toward a seamless 'information society', organised in global networks, in which individuals and countries can escape the confines of poverty or underdevelopment, simply through exploiting new access to information. Moreover, societies can 'leapfrog' over entire stages of economic and social re-organisation formally thought to be essential for the creation of modern nations. For example, the UN Social and Economic Council's Committee of Experts on Public Administration is concerned with the issue of:

> "how to create a dynamic culture that could be conducive for developing countries to *'leap-frog' over stages of development* and to reap more rapidly the benefits of a nascent knowledge economy" (UNCEPA, 2002:6, emphasis added).

For those who engage in day-to-day efforts to improve the life chances of people living in poverty, such claims can only provoke scepticism. They do not reflect the real world in which the vast majority of people in the Third World live. Therefore, far from inspiring imaginative new approaches to development policy, they tend to close

off avenues of discussion. The purpose of this study is to re-open the discussion on a more realistic note, taking into account the potential of new ICTs to improve people's lives, and the great difficulties thrown up by existing structures of power, patterns of resource distribution and social organisation.

4.5   Links Between ICT, Poverty and Development

This section explores the linkages between the new ICTs and poverty reduction. Can the potentialities of ICTs be exploited to enhance the development prospects of poor countries or more particularly the well-being of the poor in those countries? Some clearly believe that technology has a great deal to offer:

> "This new technology greatly facilitates the acquisition and absorption of knowledge, offering developing countries unprecedented opportunities to enhance educational systems, improve policy formation and execution, and widen the range of opportunities for business and the poor" (World Bank, 1999:9).

ICTs have been recognised as having a role to play in broad-based, cross-sectoral poverty-reduction strategies and universal access policies are being promoted to improve rural access to ICTs (Kenny, Navas-Sabater & Qiang, 2000). The World Bank (1999) and the UNDP (1999) assert that ICTs have the potential to improve the welfare of the poor in a number of ways. These include: (i) opportunities to increase social capital; (ii) improved availability of market information; (iii) creation of new economic opportunities; (iv) improved economic efficiency and competitiveness; (v) better access to health and education facilities; and (vi) more efficient and effective governance (Grace *et al*., 2001; Analysys, 2000; ILO, 2001).

It is claimed that ICTs can improve governance in three distinct yet overlapping ways (Heeks, 2003; Heeks, 2000). First, they assist decision-makers in the acquisition, management and transmission of complex policy information and data, thus creating efficiency benefits. Second, they improve the delivery of government services. Third, they empower civil society by raising access to government information and facilitating dialogue and public feedback on government projects and performance. The combination of these three factors results in potential benefits in sectors such as education, health-care and environmental preservation.

Between 1995 and 1997 the United Nations Commission on Science and Technology for Development (UNCSTD) investigated claims and counterclaims about the benefits and risks of ICTs (Mansell & Wehn, 1998). Members of the Commission's Working Group on IT and Development examined the available evidence on the experiences of developing countries. They found that there are many instances where the use of ICTs is bringing social and economic benefits. However:

> "[T]here are as many instances where ICTs are making no difference to the lives of people in developing countries or even having harmful effects…there is a very high risk that these technologies and services will deepen the disadvantages of those without the skills and capabilities to make the investments required for building innovative 'knowledge societies'" (Mansell & Wehn, 1998:1).

Avgerou and Walsham (2000:1) claim that ICTs "offer significant potential benefits for socio-economic development" in such fields as business development, transport, agriculture, health, education, and human resources and environmental management. Moreover, it has been argued that the new technologies can be implemented to support democratic decision-making, more effective governance and lifelong learning, and to enhance the possibility of sustainable development (Grace *et al.*, 2001). The results are, however, mixed. While some groups of people in developing countries are being empowered through their use of ICTs, others are being disempowered (Gómez, Hunt & Lamoureaux, 1999; Heeks, 1999a). There is a risk that the diffusion of ICTs and the transition to knowledge-based development will exacerbate existing social and economic problems (Mansell, 1999). For example, the least developed face enormous risks of exclusion because they often lack the economic and social capabilities needed to take advantage of innovations in ICTs. Developing countries will need to find ways of combining their existing social and technological capabilities if they are to benefit from the potential advantages of ICTs.

While ICTs can improve the delivery of basic services such as health care, they require an underlying traditional system with trained medical personnel to interpret or make use of that information. Basic services such as health care, doctors and hospitals have to pre-exist before ICTs can be utilised to improve their delivery. ICTs cannot tackle other basic needs such as food, nutrition and access to water supply. There are indeed aspects of such basic needs that require the development of physical infrastructure, to which ICTs may have little or nothing to contribute. ICTs can

improve the employment situation and help in the education arena (ILO, 2001). The direct employment effect of ICTs in the poorer countries, however, has so far been limited and largely been restricted to those with some education (Heeks, 1999a). ICTs can improve education through distance education or local (computer-assisted) learning systems. This, however, would require trained and computer-literate teachers.

The evidence in support of a strong relationship between investment in advanced ICTs by developing countries and economic growth, at least at the macroeconomic level, has been found to be very weak (KPMG, 2000; Mansell, 2001).[48] According to Kraemer and Dedrick (2001) ICT capital shows no significant correlation with productivity in developing countries. Rodriguez and Wilson conclude that:

> "the link between ICTs and society-wide economic progress has been more elusive. Our study confirms what many researchers have found for developed countries, namely a lack of association between economic growth and use of ICTs" (Rodriguez & Wilson, 2000:2).

Pohjola (2001), for example, investigated the relationship between IT investment and growth in 39 countries over the period 1980-1995 and found a paradoxical result. Whereas IT investment appears to boost growth in developed economies, the same is not necessarily true in developing countries, which need to institute other complementary policies to reap economic benefits from such IT investments. This is partly attributable to the fact that it is difficult to establish an empirical link between the diffusion of digital ICTs and economic development on the basis of available data. It may also be due to the fact that the positive effects of the global extension and consolidation of digital networks take time to accumulate (Rodriguez & Wilson, 2000).

Seen from the perspective of economics, the Internet has been widely regarded as a major force likely to raise productivity. However, at least so far, the identifiable

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[48] The contribution of ICTs to an economy-wide productivity growth in the US has been the subject of a number of recent empirical studies (see Cohen, DeLong & Zysman, 2000). These productivity studies are fraught with many conceptual and data difficulties, and were largely spurred by the Nobel Laureate Robert Solow. In 1987 Solow (1987:36), in a book review, famously stated: "You can see the computer age everywhere but in the productivity statistics". The failure of massive investment in IT to boost productivity growth has came to be known as the *productivity paradox*.

effects on productivity appear small and largely confined to the US (Graham, 2001).[49] Identifying these effects proves remarkably difficult, especially as there is a host of measurement problems involved in assessing the impact of the new technologies on output and productivity. Nevertheless, it is important to keep in mind its relatively limited effect on conventional growth measures, at least so far.

It has been suggested that developing countries would also experience a similar, even a greater, shift in productivity if they incorporated ICTs more comprehensively in their production structure (Cohen, DeLong & Zysman, 2000). How realistic is such an idea? For this to happen, they would require sufficiently well-developed social and physical infrastructures as well as conducive policy and institutional frameworks. As data on ICT diffusion indicate (Table 4.3), the diffusion rates in most poor developing economies remain abysmally low to make such a transition to the new technology regime feasible in the immediate future. Diffusion would require substantial investments in related physical infrastructures as well as human capital much beyond the present capacities of many developing countries. Even if such resources were available, the impact would be far from immediate. These economies would need a considerable amount of time to assimilate the technology, reorganise their production structures, reconfigure their organisational structures and adjust management practices in line with the new technologies. In the transition period there are likely to be substantial adjustment costs in terms of production disruptions and unemployment.

In short, however tantalising the idea of technological leapfrogging may be, it will entail a radical development strategy involving an across-the-board adoption of ICTs in the economy. However, such a strategy may not be feasible or desirable for all developing countries. It may not be feasible because it may entail changes in skills and organisational structures of these economies much beyond their present capacities. It may not be desirable because many of these activities entail substitution of one medium with another, with different implications for labour demand. Many of these substitutions would reduce the demand for unskilled labour, which may not be desirable for a country struggling with a large unemployment problem.

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[49] And in fact, one large study showed that sectors of the US economy that have invested most in ICTs have seen smaller than average productivity gains (Jorgenson & Stiroh, 2000:125).

ICTs can help pro-poor institutions listen to the poor, engage in more meaningful dialogue and build consensus and mutual understanding around development objectives. Integrating ICTs into local knowledge and information systems in order to address locally identified knowledge gaps and information problems, and encouraging partnerships for local appropriation of the technology and content with the necessary training and support, are major challenges. The network architecture that has been adopted by global capital can also be used to link the disempowered (Brecher, Costello & Smith, 2000:86). The importance of supporting the voice of the powerless and allowing communication between those usually reliant on information from a powerful central agency is confirmed by Chambers (1999) and Hamelink (1996). Hamelink (1996) uses the idea of human rights to argue for developing the right communication as fundamental to all in the 'network society'. The ability of the powerless to describe their own situation and to share experiences with others in similar circumstances is a powerful step in developing strategies to benefit the marginalised.

It should be noted at the outset, however, that there is a serious deficiency of strong empirical support for this position as of yet. There are a number of concerns. First, there are reasons to believe that the Internet might act as a technology of divergence. Certainly the spread of the new ICTs will create winners and losers. The rural poor are especially vulnerable. Second, ICT, poverty and development projects are very complex and prone to failure (Heeks, 2002b). Although there are great complementarities between ICTs and economic and social progress, there are also important trade-offs between equity, well-being and the unhindered development of ICTs. Simple claims about the links between ICTs and progress are therefore not correct and may in some cases be dangerously wrong. While the assertion that information is an important focus for sustainable development strategies is not particularly contentious, defining the role that information should play is somewhat more challenging. It is not only a question of whose reality (Chambers, 1983, 1999) the information reflects, but who is able to make use of that information and for what purpose?

4.6 Access and Equity

Governments and donor agencies are working to provide the overt resources, but realistically the poor will not own the ICTs, and the poor will be very unlikely to control the ICTs or to use the technology hands-on in any significant numbers for the foreseeable future. The main strategy has therefore been to provide ICTs to intermediary institutions such as government agencies and NGOs. The most popular model is the 'telecentre' with an Internet-linked computer providing a multi-function resource. Telecentres provide public access to basic information and communication services to poor people who cannot afford private ownership. A large body of literature has examined the rapid growth of 'telecentres' in rural areas (Gurstein, 2000; Roman & Colle, 2002; TeleCommons Development Group, 2000; Richardson, 1999; Ervin, 1998; Falch, 1998). These programmes can be divided into two categories: (i) privately owned telecentres where local operators cater to business demand for limited services such as phone, fax and photocopying; and (ii) donor/government/NGO funded Multipurpose Community Telecentres (MCTs) that incorporate Internet access, email and other computer applications to existing community access telephone centres. The growth of these centres may signal an important shift away from the 'universal service' goal of bringing a telephone into every household to a more realistic and cost-effective goal of universal community access.

The process of the initiation, diffusion and adoption of the telecentre idea has, however, been largely devoid of systematic research and planning (Benjamin, 1998). It is therefore not surprising that the conceptualisation and deployment of telecentres often ignores the needs of the alleged beneficiaries and addresses priorities that are not necessarily theirs (Fortier, 2000). A range of important issues are associated with the operation and success of telecentres. These include: sustainability, community relevance, government policy, research, community partnerships, training of telecentre management and business planning (Ernberg, 1998a, b; Roman & Colle, 2002). And even if access is made affordable, as in telecentres that are (more often than not) driven by the not-for-profit sector, much of the information the Internet offers is of little relevance to people living in poverty (Heeks, 2002b; Hedley, 1998; Main, 2001). Currently, the overwhelming dominance of English as the principal

medium of exchange on the Internet coupled with low-levels of pro-poor content are major drawbacks to its use by poor people (Skuse, 2001:10).

How can ICTs be used to support communities in their efforts for social and economic development? Fundamental to this is *access* to the technology, since without at least minimal access, little can be accomplished. Clement and Shade (2000) identify seven discrete levels of 'access': (i) governance and policy; (ii) literacy; (iii) social facilitation; (iv) service providers; (v) content and services; (vi) software tools; and (vii) devices and carriage facilities. This includes 'technical' (telephone connections and computers), 'economic' (the cost of using and maintaining these systems), 'social' (cultural, education/literacy, and social barriers limiting use of the systems) and 'physical' access (as for the physically disabled).

If ICT, poverty and development initiatives are to deliver the empowerment of socially and economically disadvantaged individuals and communities on which they are premised, then it is vital that key issues concerning the broadening of access to ICTs are identified and addressed. While access is consistently identified as a key principle in policy discussions, it is not an end in itself. Access simply enables further activities that can only partially be specified beforehand. There are three main questions to address: (i) Access for what purposes? (ii) Access for whom? and (iii) Access to what? The new technologies cannot therefore be easily divorced from relations of power based upon existing social and economic structures (Sclove, 1995).

We need to recognise that ICTs can as easily act to reinforce existing patterns of exclusion as to provide opportunities for global networking. Following Samarajiva and Shields (1990:100):

> "An adequate theory of telecommunication [and the Internet] and development requires an adequate treatment of power. Banishing power from explicit discussion results in faulty analysis and policy".

Technologies never occur fortuitously; they are always created and implemented through funding, R&D, production, improvements, commercialisation and support, with purposes that become an integral part of what they are, and can or cannot do. Not surprisingly then, dominant social sectors, i.e. those who control both investment and most technological development, have the opportunity to select options that are

best suited to their own interest, not to a broader, vaguely defined, social progress (Stewart, 1978; Noble, 1984). It cannot therefore be taken for granted that ICTs are necessarily beneficial either to a society as a whole or, in particular, to groups already exploited and oppressed within a society. In order to understand the social implications of ICTs it is therefore necessary to understand multidimensional processes, with ICTs being affected and shaping social relations, throughout their development and deployment (Stewart, 1978; Noble, 1977, 1984; Sussman, 1997; Feenberg, 1991).

The new ICTs have been introduced into an asymmetric global system and are unequivocally an engine of inequality. The UNDP finds that the "The Internet is contributing to an ever-widening gap between rich and poor which has now reached 'grotesque' proportions" (UNDP, 1999:1). *Contra* to the UNDP, the World Bank (1999) claims that the new ICTs are quite positive and have tremendous equalising potential. The World Bank (1999) points to dozens of stories showing that telemedicine, distance education and falling ICT costs are having positive and dramatic impacts on the growth prospects of poor people and poor countries. The optimistic claims about the inevitably progressive impacts of ICTs are untested empirically and flawed logically. When ICTs are introduced into a societal context already marked by substantial structural inequalities, whether global or domestic, then the dispersion of the ICTs are likely to follow these same structural patterns of inequality (see, for example, Heeks, 1999a; Castells, 2001).

Even if developing countries gain from ICTs, can we be sure that the poor in these developing economies will benefit? In general, the logic of ICT inequality linkages is that when a new technology is introduced into a social setting where scarce resources and opportunities are distributed asymmetrically, the greater likelihood is that those with more resources will employ them to gain additional ones, including ICTs (Freire, 1999). Poor countries have much lower levels of human capital than rich countries. They therefore have fewer people with the capacity to work with and benefit from ICTs. These few are likely to benefit disproportionately from ICTs. Meanwhile, the groups of disadvantaged individuals who have not had access even to basic levels of education are likely to be out of the race from the start.

The potentially devastating impact which unequal ICT access has for people of the South should not be underestimated, and yet neither should the equation of technology and development be accepted uncritically. Rather than creating 'new' dimensions of inequality and poverty, ICTs may actually exacerbate existing inequalities (McConnaughey & Lader, 1998). Yet it is not only a lack of access to the technology which is perpetuating existing inequalities; it also has to do with what Buffoni (1997) calls capabilities, i.e. the skills and resources (meaning not only the economic resources but also cultural and social resources) necessary to enact this access. Yet training people to use technologies in isolation from an identified need or desire to use such technologies is proving just as pointless as providing disadvantaged groups with the hardware and software to do so (Loader, 1998).

The key issue for both governments and donors is to ensure that ICT access reaches even the most marginalised groups, while at the same time ensuring that ICT projects meet the needs and demands of the target population. Under what conditions can ICTs be progressive and contribute to greater social equality? The cardinal challenge is to learn how to deploy ICTs reliably to promote human development in a sustainable and equitable manner. ICTs can play an enabling role in the alleviation of poverty, but will be of greatest value as a technology to provide information from and about the poor. ICTs may have a greater role to play in giving 'voice' to the poor; that is, in making the poor information providers more than information recipients. There is a general assumption within much writing about ICTs that the poor are merely recipients of technology, information and knowledge. Yet poor communities all produce their own information and knowledge. ICTs can play a positive role by allowing that information and knowledge to be more widely disseminated.

Madon (2000) argues that research on indigenous communication has concentrated on using indigenous channels to promote exogenous (increasingly ICT-based) innovations rather than on the dissemination of indigenous knowledge among communities. This has led to neglect of local initiatives in the design of development efforts and threatens the erosion of indigenous and informal systems due to the influence of formal, ICT-based, Western-oriented information systems. Alternative strategies must therefore focus not primarily on the technology *per se*, but on the

political relations that shape its social insertion, that is the actual control of both information systems and content.

4.7 ICTs for Development: Hope or Hype?

A growing stream of literature on ICT, poverty and development suggest that too many ICT projects in developing countries begin with high expectations for economic and social benefits but yield disappointing results (Bhatnagar & Bjørn-Andersen, 1990; Bhatnagar & Odedra, 1992; Odedra-Straub, 1996). Estimates by Heeks and Davies (1999) suggest that the majority of ICT-based initiatives end in *total failure* of a system that never works; *partial failure* in which major goals are unattained or in which there are significant undesirable outcomes; *sustainability failure* that succeeds initially but then fails after a year or so; or *replication failure* of a pilot scheme that cannot be reproduced. Heeks (2002b:101) explains that the "high rates of failure" of information systems in developing countries can be attributed to 'design-actuality' gaps, i.e. the mismatch between information system designs and local user actuality. An overview of the literature concludes that "successful examples of computerisation can be found…but frustrating stories of systems which have failed to fulfil their initial promise are more frequent" (Avgerou & Walsham, 2000:1). One study estimates that up to 80% of public sector ICT applications result either in partial or total failure (Heeks, 1999b, 2000). The study suggests flaws in the mechanisms through which governments and donors have sought to implement ICT projects in the public sector. As Bhatnagar notes:

> "The impact…on administration has been marginal because the task of changing the administrative culture is enormous. Although IT can be a tool for decentralized planning, integration across departments and reduction in workload, it cannot be the sole instrument of change" (Bhatnagar, 2000:1).

In spite of the high failure rate of ICT projects in the Third World, a great deal of hype about ICTs in general, and the Internet in particular, has emanated from a variety of sources, including politicians, public servants, academics and the computer and telecommunications industries. The proposition adopted by the techno-optimists is open to question. It is far from clear that ICTs are, or are considered to be by most people, a good thing *per se*. ICTs, and the uses to which they are put, are subject to social shaping and as such lend themselves to the achievement of a variety of possible outcomes, the desirability of which is contestable. What is clear is that for all but a

small minority of people ICTs, in and of themselves, have little or no intrinsic interest. There is little needs-based demand for ICTs *per se*. The needs-based demand that is out there in abundance is a multifarious demand for distinct types of information and communication-based content to which ICTs might facilitate access.

It would appear that ICTs have become an icon for modern development, turning use of ICTs within development into an end in itself rather than a means of achieving other development goals. The main development objective becomes bringing as much technology to as many people as quickly as possible so that they can obtain the claimed benefits it provides. The main development problem becomes inequality of access to ICTs. There are significant development opportunity costs to the investments the optimistic technology position promotes. Investing large amounts of resources in ICTs means explicitly not investing them in other development areas.

Chowdhury (2000) expresses the danger of becoming over-enthusiastic about the potential of ICTs to address issues of poverty without first considering whether poor people themselves will actually have access to these technologies. Fetishising the technology at the expense of people has been challenged by post-development writers such as Inayatullah and Milojevic (1999:78): "The ICT hype merely replaces the classical opiate of religion and the modernist idea of progress". Similarly, Loader (1998:6) challenges the hype of ICTs for development, saying that these arguments usually assume that technology is value-free and apolitical. This is not to dismiss the possibility of an important role for ICTs in development and poverty alleviation. It is simply to urge caution in terms of assuming a simple causal link between ICT, poverty and development.

A nuanced position between those naively embracing ICTs in development and others rejecting it as a new form of domination can be found in the work on 'knowledge societies' by Robin Mansell (Mansell, Samarajiva, & Mahan, 2002; Mansell & Wehn, 1998; Mansell, 2002; Mansell, 1999; Mansell, 2001; Mansell & Steinmueller, 2002). In their book, *Knowledge Societies: Information Technology for Sustainable Development* (1998), Mansell and Wehn provide details on different national policies that developing nations can put in place to take advantage of ICTs, while recognising the many pitfalls. Mansell (1999) stresses the role of government in creating an

environment in which ICTs can be beneficially applied. The emphasis is more on creating a social infrastructure of organisations and learning than on the physical infrastructure. Developing countries need to build the capacities for developing their own applications of ICTs based on the distinctive information and knowledge systems that each country possesses. ICTs can help, but they can also waste resources. The key factor is developing a critical understanding of the role of ICTs in development and poverty reduction and developing a purposeful local policy for their use (Mansell, Steinmueller & Wehn, 1999). This study accepts the position of Mansell and Wehn (1998). ICT policy can play a role in supporting national development, but only when this ties in coherently with national priorities and a pro-poor agenda.

Mansell (2001) warns against exaggerated hopes of what the Internet can do for Third World development, pointing to the institutional and infrastructural prerequisites for success. Similarly Kubicek, Dutton and Williams (1997) and Sussman (1997) suggest that the transformative nature of the new ICTs has been exaggerated. Proponents of the latter view urge decision-makers to exercise caution lest they embrace the new ICTs too enthusiastically and risk becoming disillusioned when the applications do not resolve their development problems. Others call for the implementation of national or regional ICT strategies aimed at maximising the benefits and minimising the risks associated with the use of these technologies (Mansell, 2002). The capacity to gain from the availability of the new technologies involves more than a reduction of the digital divide between (and within) countries. The institutional foundations for building capabilities that enable people and organisations to absorb the new technological systems must also be in place. The principal conclusion of the Mansell and Wehn (1998) study is that national or regional ICT strategies can be designed and implemented in ways that maximise the potential of existing resources to use ICTs in support of development goals.

At every stage in the discussion of how to use new ICTs for social and economic improvement, it is therefore essential to ask not only whether a particular problem is amenable to any improvement through the introduction of ICTs, given surrounding constraints, but also, assuming that the answer is positive, how to shape the broader environment in ways that may make particular applications and services as useful as possible in the struggle against disadvantage. In a more general discussion of the

struggle against poverty Lipton (1996) refers to this imperative as 'the principle of joint requirements', while Wolfe (1996) calls it the 'integrated approach to development'.

It is important to recognise at the outset that the causal relationship between ICT, poverty and development is complex, and that ICTs are certainly no panacea. The enthusiasm with which the development community has rushed into ICT-related programmes often seems to overshadow the question of precisely how ICTs contribute to national development. Exclusive emphasis on ICT projects, at the expense of careful analysis and consideration of the broader economic, social and political elements that interact to improve the lives of individuals, is likely to result in unanticipated failures and wasted resources. Unfortunately, technological change moves so quickly that it often surpasses substantive analysis, leading to an over-reliance on anecdotal evidence as justification for ICT projects. This in turn can lead to poorly designed programmes and haphazard implementation schemes that do not account for local conditions, resulting in projects which fail to meet their objectives or may even harm the welfare of supposed beneficiaries (Mansell, 1999; Fuchs, 1998). As Heeks notes:

> "[T]here are finite amounts of money, time and attention. Investing these in ICTs means explicitly not investing them in other development areas. Yet the ICT fetishists have so far been unable to demonstrate how ICT-based information represents a more important resource than water, food, land, shelter, production, technology, money, skills or power in the development process" (Heeks, 1999a:16).

Mundy (1996) raises the important question of whether the specific kinds of ICTs introduced by the international donor community are appropriate given the unique challenges facing many developing countries, and whether they represent the best use of scarce resources. The challenge of adapting ICTs to local needs and situations is a critical element in the ultimate ability of these technologies to benefit local rural communities. Information systems, when properly designed to take local needs and skills into account, may greatly increase the efficiency of service delivery at either the local or national level. Further, incorporating local users into the design and implementation process is likely to be a major determinant of success. Roche and Blaine concur:

> "Participation increases the likelihood [that] local skills will be used and systems will more closely satisfy needs; it also increases the probability…[that]…users will be motivated to acquire those additional skills necessary to maximize gains from these systems" (Roche & Blaine, 1996:23).

Kumar and Bjørn-Andersen (1990) and Markus and Bjørn-Andersen (1987) suggest that ICT-based systems embody the ideals and values of those responsible for their design. These may be at odds with the cultural norms of poor communities in developing countries (Goodman & Green, 1992). Further, information systems designed by 'outsiders' can often be irrelevant or of limited relevance to the specific conditions encountered in poor communities (Mundy, 1996). Moreover, the use of ICT equipment in poor communities requires access to resources that are scarce, such as technical expertise. Avgerou and Mulira (1996: 233) argue that there is often a disconnect between expectations and actual performance of ICT projects in many parts of the Third World, typically as a result of an "inadequate supporting environment in maintenance and operation skills, and an organizational culture which does not permit the technology-based system to be utilized as initially specified".

It is the contention of this study that in order to retain the 'hope' that ICTs can play a role in development, it is necessary not to succumb to the seductive 'hype' that surrounds these technological developments. In the words of Álvarez and Calás:

> "It is necessary then, to articulate multi-disciplinary and dynamic models capable of considering concurrently the multiple…realities, subjectivities, and political agendas enabled by information technologies…These approaches should recognise the context in which these new realities are appearing, and should also be dynamic and proceed beyond simplistic dichotomies" (Álvarez & Calás, 1996: 42).

4.7.1 Electronic Government

The discourses on e-government are often naively technologically deterministic, associating desirable states of government institutions to specific technologies (Krishna & Madon, 2002). For example computerisation projects in government organisations are often associated with conditions of transparency, accountability and democracy on the basis of the technical possibilities of flexible communication and access to information off the Internet; as if the historically developed relations between a state and its citizens, the power structures within bureaucratic organisations and the cultural setting of a country's institutions can be reformed by new technology.

Moreover, bureaucracies have shown resilience, retaining their dysfunctional characteristics even with ICT and it is quite possible to assimilate ICT into bureaucratic, inefficient and authoritarian practices (*vide* Avgerou & La Rovere, 2003).

Despite the potential opportunities for the implementation of e-government initiatives, there are a number of challenges that could prevent the realisation of these anticipated benefits. As Seifert and Petersen argue:

> "The ambiguous nature of electronic government (e-government) has resulted in hype and confusion, with little systematic consideration of the expectations and limitations of taking government online" (Seifert & Petersen, 2002:193).

E-government is still very much in an experimental phase in both the First and the Third Worlds. Strejcek and Theil (2002:305) state that, although a number of EU states have announced plans to use ICTs to create a more open, accessible and transparent administration, there remains "a wide gap between the announcement of such an ambitious project and its realisation". Britain, for example, through the Office of the Electronic Envoy (E-Envoy, 2001; Cabinet Office, 2000) within the Cabinet Office, has set explicit targets for making all government services available electronically, but according to Swartz (2003), British citizens are reluctant to use them and usage of e-government services has not grown in the past two years. Writing about the capacity of the Canadian federal government to effectively harness ICT, Allen *et al*. (2001) argue that the necessary transformation in public sector governance and accountability is likely to be blocked by an administrative culture that is ill suited for e-governance (i.e. an ICT-led reconfiguration of public sector governance) and by the way that knowledge and power are redistributed in light of new technological realities. Civil servants may be particularly resistant to cultivating the required shifts in skills, values and vision.

The challenges for an e-government transition are many, ranging from questions about citizen expectations and varying capabilities to the internal governance challenges of whether online services would be organisationally based or functionally integrated. The latter pledges of 'one-stop shopping' and service integration imply a degree of horizontal co-ordination and information sharing that is unlikely in a cultural context shaped largely by traditional public service values linked to

ministerial (read vertical) accountability (Seifert & Petersen, 2002). Herein lies an interesting quandary. Whereas much of recent public sector management reform has been about giving more autonomy to organizational units, e-government requires a tremendous amount of central co-ordination to yield system-wide adaptation and horizontal action (Fountain, 2001; Taylor & Williams, 1990). Yet, the unique challenge of e-government is not to make misguided pleas for re-centralising planning and decision-making within a few central (i.e. lead) agencies, but rather to frame the new types of collaborative mechanisms and decentralised decision-making models now required to encourage administrative cultural change.

Yet, perhaps the single biggest issue, in the short term, plaguing the government online agenda is the internal blockages to better co-ordination and the debate as to how best to proceed with the development of the new infrastructure required to link online government to its client base across industry and the citizenry. At the heart of the matter is a dispute over contracting and implicit questions of in-sourcing, out-sourcing and an appropriate private-public mix of ICT solutions (Bellamy & Taylor, 1998).

4.8   Conclusion

The hope is widespread that the Internet will provide a powerful new tool in the battle against poverty. These sentiments were echoed in the G-8's recent Charter on the Global Information Society that declared:

> "Information and communication technology (ICT) is one of the most potent forces in shaping the twenty-first century…IT is fast becoming a vital engine of growth for the world economy…Enormous opportunities are there to be seized and shared by us all" (G-8, 2000:1).

In this chapter we examined the extent to which ICTs will affect the quality of life of people in developing countries, especially the poorest and most vulnerable among them. The aim of this chapter has been to move beyond the current enthusiasm for derivative description and technological determinism, and to introduce a deeper, more balanced understanding of the relationship between ICTs and development. We identified some of the major components of the mainstream ICT, poverty and development discourse, and shown how the manner of their appropriation and discursive deployment amounts to the creation and systematisation of a set of

discursive relations that support and extend a particular worldview. It is a worldview which is associated with progress and rationality, and is underpinned by the assumption of ICTs as a neutral force in development. Such a worldview offers a powerful opportunity to further the interests of technocratic, often mainstream stakeholders, acting as a magnifier for dominant discursive interests by creating new subjects for objectification. The prevailing discourse masks submerged assumptions and interests regarding the nature and role of ICTs for development. Indeed, failure to examine the underlying assumptions of the ICT, poverty and development discourse may lead social scientists to become complicit in distracting attention away from the very *real* global economic, social and cultural inequalities to *virtual* inequalities, which merely hide an unwillingness to address the core failings of the development paradigm.

Many commentators have extolled the virtues of the new ICTs in reducing poverty and improving the quality of life of Third World citizens. The chapter's overall conclusion is, however, somewhat circumspect. While ICTs have the potential (e.g. a 'one-stop shop' in the form of integrated electronic public service delivery)[50] to make a transformational impact on the lives of the poor, as yet, there is little evidence to suggest that any process of overarching transformation is taking place. While there are direct benefits to ICTs, it is not often clear: (i) whether ICTs are more efficient and cost effective than traditional means, and (ii) whether the poor, generally, have the financial and educational wherewithal to take advantage of the opportunities provided by the new ICTs. A major goal of initiatives to implement ICT applications in developing countries is to alleviate poverty. Another is to ensure that the applications are perceived by their users as being useful. If these goals are *not* achieved there is little point in investing enormous amounts of money in the infrastructure for innovative 'information societies' in developing countries.

An integrated approach is required which sees ICTs as: (i) socially embedded, whose impacts are systematically shaped by contextual factors: political, economic, socio-cultural and institutional; and (ii) as a means to an end, not as an end in themselves. So what is the relevance of ICTs for development? If development is seen as the

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[50] A key success factor in achieving e-government is for all citizens to have access to technology and the necessary skills to exploit its use.

integration of developing countries into the global economy (Castells's [1996] 'space of flows') then ICTs are (almost by definition) of central importance. If the 'informatised' global capitalist society is viewed as largely harmful, then ICTs are to be opposed as they can serve as a 'Trojan Horse' bringing in elements of exploitation and domination. The global elite (many in rich countries, and a few in poor countries) are using these technologies to greatly increase their access to many forms of power. Poorer individuals and communities are largely excluded from these networks of information and as such are increasingly marginalised. There are global efforts to provide access to these technologies, skills, information and services – but in terms that may well further disadvantage poor communities and create new patterns of dependency. In this study, the focus is on human capability development (following Sen, 1999) of the poor and it remains an open question whether ICTs will contribute to overall positive or negative effects.

Following Heeks (2002a), the claims made by the advocates of ICT for development are debatable. This reflects real gaps in knowledge about the way different kinds of ICTs are being used in specific Third World contexts. Given the newness of many digital possibilities, there is often relatively little accumulated experience on which to draw. There thus exists a strong need for a critical and reflexive approach to inform the ICTs for development project. Information is a *necessary* resource for poverty alleviation, but it is by no means a *sufficient* one. Equally important are factors such as financial credit, skills, production technology, demand for outputs, plus other social resources. All of these have to be borne in mind when assessing the relative priority to give to ICTs in the development process.

The next chapter will describe and analyse a raft of South African government ICT policy initiatives between 1994-2003.

Chapter 5

The South African Government's ICT Policies, Strategies, Programmes and Projects: 1994-2003

5.1 Prologue

ICTs and their use for development have been high on the political agenda of the South African government since before the first democratic elections in 1994. The African National Congress (ANC) in exile, in the years prior to the elections, prioritised ICTs as a key area, and the *Reconstruction and Development Programme (RDP) Base Document* (ANC, 1994) that formed the election manifesto of the ANC-led alliance already included references to the importance of ICTs for development. The RDP Base Document deals with ICTs in several chapters. In the chapter on 'Meeting Basic Needs', access to telecommunications is defined as a basic need which has to be provided at affordable prices as rapidly as possible. Further, the telecommunications sector is:

> "an indispensable backbone for the development of all other socio-economic sectors. An effective telecommunications infrastructure, which includes universal access, is essential to enable the delivery of basic services and the reconstruction and development of deprived areas" (ANC, 1994:Section 2.8.3).

The same reasoning is to be found for ICTs in the chapter on 'Building the Economy'. As is the case for telecommunications, the upgrading of the ICT infrastructure can "facilitate an upgrading of education, health care, recreation and other services, by improving the quality of information available and providing communities throughout the country with access to expertise and usable data" (ANC, 1994:Section 4.6.1-3). The ANC strongly believed that the development of an advanced information network can play a crucial role in providing access to high-quality services to all South Africans. The vision of ICTs that underlies the RDP Base Document in many ways influenced future policy-making in the post-apartheid era. Although many modalities of policy and implementation differ, the main principles concerning *the relation between ICTs and development* barely changed during the period 1994-2003.

By 1995 the theme of the 'information society' started to surface regularly in political discourse and policy documents, and ICTs, including access to ICTs, found recognition in both policy formulation and implementation of government departments with a clear stake in ICT policy such as the Department of Communications (DoC) (previously called the Department of Posts, Telecommunications and Broadcasting [DPTB]); Department of Arts, Culture, Science and Technology (DACST); Department of Public Services and Administration (DPSA) and the Department of Trade and Industry (DTI). The ICT policy process had started under the neo-Keynesian economic policy of the RDP, but by the time the Telecommunications Act was passed at the end of 1996, the neo-liberal Growth, Employment and Redistribution (GEAR) policy (Department of Finance, 1996) was gradually being implemented.

Key leadership in post-apartheid South Africa, from ex-President Mandela, current President Thabo Mbeki, former Minister of Communications Pallo Jordan, former Minister of Posts, Telecommunications and Broadcasting Jay Naidoo and Director General of the Department of Communications Andile Ngcaba were all convinced that ICTs can have a profound impact on raising the standard of living of the previously dispossessed communities in South Africa (Cogburn, 1998). Many ICT initiatives started with the stated commitment of then Deputy President Thabo Mbeki to transform the country into an 'information society'. He formed an inter-departmental government committee to shape that direction and since then several government departments have been spearheading national policies and projects. The South African ICT strategy has been to try and address the concerns raised by the 'digital divide' and the emergence of the 'information society' at local, national, regional and global levels. At a national level it has engaged in a series of high-level consultative policy processes ranging from telecommunications to e-commerce.

At regional levels South Africa has attempted to share its lessons learned with its neighbours, both near and far. At the Southern African Development Community (SADC) level South Africa has helped to create a regional body of telecommunications regulators called the Telecommunications Regulatory Association of Southern Africa (TRASA). Within TRASA South Africa has helped to promote the concept of using its telecommunication policy as a sort of 'model law'

for the sub-region. A number of countries have looked to South Africa for guidance in establishing independent regulatory bodies and for other aspects of its information and communications strategy. Further abroad South Africa has played an important role in the major African regional initiatives, such as the *African Information Society Initiative* (AISI) developed and led by the UN ECA; *New Partnership for Africa's Development* (NEPAD) (Heads of State Implementation Committee, 2001); and the *Africa Connection* led by the Ministers of Communication and supported by the world Bank. Further, since 1997 South Africa has attempted to use the quadrennial Africa Telecom conferences as another organising point for African regional leadership in the 'information society'.

There is a great deal of debate over what the dominant ICT strategy for Africa should be for confronting the challenges and opportunities of globalisation, and harnessing the potential benefits of the 'knowledge economy'. There is a strong belief among policy-makers in the possibilities of ICTs to accelerate broad-based growth and sustainable development, and for reducing poverty not only in South Africa, but in Africa as a whole. The NEPAD document, for example, states:

> "The goals of achieving a Common Market and an African Union can benefit immensely from the revolution in information technology. In addition to fostering intra-regional trade, the use of ICTs could also accelerate Africa's integration into the global economy" (Heads of State Implementation Committee, 2001:20).

Further, the NEPAD document claims that ICTs can: (i) provide an impetus to the democratisation process and good governance; (ii) facilitate the integration of Africa into the 'information society'; (iii) be helpful tools for a wide range of applications, such as remote sensing and environmental, agricultural and infrastructural planning; (iv) be used to identify and exploit opportunities for trade, investment and finance; (v) be used to establish regional distance learning and health education programmes to improve the situation in the health and education sectors; and (vi) help towards the organisation of an efficient early-warning mechanism, in conflict management and the control of pandemic diseases, by providing the tools for constant monitoring of tension spots (Heads of State Implementation Committee, 2001:21). NEPAD deals with an array of actions under the rubric of 'investing in ICTs'. Emphasis is placed on developing partnerships with regional agencies such as the African

Telecommunications Union (ATU) and Africa Connection to design model policy and legislation for telecommunications reform, and protocols and templates for e-readiness assessment, as well as working closely with development finance institutions in Africa (such as the Development Bank of Southern Africa [DBSA] and the African Development Bank [ADB]), multilateral initiatives (G-8 DOT Force and UN ICT Task Force) and bilateral donors. A number of key players have been promoting the digital inclusion agenda of NEPAD, most notably the UN ECA, the NEPAD secretariat (e-Africa Commission) and the ADB.

The NEPAD document can be criticised on a number of fronts, including: (i) the fact that its political aims are targeted at satisfying the wishes of G-8 governments and donors rather than the realities of heterogeneous African value systems and institutions; (ii) at the heart of the programme is a neo-liberal economic framework that basically retains structural adjustment programmes while overlooking the enormous damage they have done over the past two decades; and (iii) its naïve belief in the overwhelmingly positive transformative powers of ICTs, which is likely to lead to false expectations. Moreover, NEPAD has underestimated the enormous challenge (particularly resources and political will) of: (i) building African infrastructure; (ii) harmonisation of policies and legal frameworks; (iii) organisation and dissemination of content, particularly socio-economic, geographic and statistical data; (iv) human resources development; (v) electronic government and capacity building initiatives; (vi) advocacy to raise awareness; and (vii) research to make ICT relevant to local needs.

South Africa has been represented in nearly all of the major international conferences and forums addressing ICT-related issues, including the Global Information Infrastructure Commission (GIIC), Global Knowledge for Development (GKD), ITU World Telecommunication Development Conference (WTDC), and the Internet Corporation for Assigned Names and Numbers (ICANN). Often South Africa has been thrust into a leadership role at international conferences and sometimes asked to 'represent' the interests and perspective of the developing world.

In 1996 South Africa hosted the Information Society and Development (ISAD) Conference. A year previously then Deputy President Thabo Mbeki had attended the

G-7 conference on the Information Society held in Brussels, challenging the rich countries to come to South Africa to consider how the impact of ICTs could benefit all of humanity. This led to the ISAD conference in May 1996. This was an international event bringing together the G-7 with over 30 developing countries. In preparation for this South Africa drafted a position paper stressing the importance of 'information society' issues for all developing countries (Cogburn, 1997). In the run up to the ISAD conference tensions over ownership of ICT policy became evident between different government departments. DACST led the process in drafting the position paper for ISAD, but Minister Jay Naidoo of the DPTB led the delegation at the conference. As issues of the 'information society' were clearly going to increase in profile, the DPTB had an interest in extending the remit of its portfolio to include wider information access issues and not simply concentrate on telecommunications. This shifted the debate away from providing universal access to basic telephony to including access to computers and the Internet.

Subsequent to the ISAD conference that took place between 13-15 May 1996, a second conference entitled *Empowering Communities in the Information Society* was held from 15-17 May 1996 at Helderfontein (Berlyn, 1996). At the latter conference civil society and government met to discuss progress towards an 'information society' in South Africa. The ISAD conference and the subsequent Helderfontein conference put the issue of telecom as an infrastructure for providing wider access to information systems (such as the Internet) and the 'information society' firmly on the national political agenda. This increased the importance of the telecoms sector and the interest of different government departments in having a stake in this new arena. Both conferences were instrumental in championing the idea of setting up telecentres and Multi-Purpose Community Centres (MPCCs) as a means to provide information, communication and other services at the level of the community. Although the definitions of telecentres and MPCCs proposed at both conferences differed to some extent, they nonetheless shared the common vision of using such structures to provide disadvantaged communities with access to ICT-related services. This resonated closely with the initiative of telecentres that the ITU was championing following its conference in Buenos Aires in 1993.

South Africa faces complex social and economic challenges as it copes with the legacy of apartheid and at the same time sets out to be a significant player in the emerging global economy. It is those challenges that shape the way it aims to exploit ICT and transform itself into an 'information society'. Addressing the 'digital divide' has been a major policy objective of the new democratic government in South Africa. During the period 1994 to 2003 South Africans have witnessed a major wave of reforms in policies driven by the larger concern of increasing inequality and in response to the unsatisfied demand for access to ICT infrastructure. During the period 1994-2003 the government adopted broad telecom reform measures as well as specific regulatory initiatives designed to accomplish universal service obligations and facilitate the emergence of competitive markets.

Currently there is no overarching South African government strategy towards creating the 'information society', though a *National Commission on the Information Society and Development* was recently appointed by the President. There are, however, a wide range of initiatives and policies, which are rapidly proliferating, by various national ministries aimed in one way or another towards promoting growth and opportunities in ICTs. In this process one can observe a growing complexity in terms of the number of actors and stakeholders involved as well as in the inter-linkages and overlap between processes.

The remaining sections of this chapter will attempt to answer the following question: what programmes, strategies and policies has the post-apartheid South African government developed to promote ICTs? The objective is to describe national government's ICT initiatives in the post-apartheid era and review progress on government-initiated projects wherever possible. It is important to bear in mind that most of these initiatives are still work-in-progress.

5.2   Government ICT Initiatives: 1994-2003

5.2.1   Telecommunications

Historically, telecommunications in South Africa was introduced and developed by South African Posts and Telecommunications (SAPT), a classic state-owned Posts, Telephone and Telegraphy (PTT) monopoly. In 1991 the telecommunications and postal operations of the SAPT were separated, with the telecommunications functions being vested in Telkom, a new 'commercialised' enterprise maintaining a monopoly in the provision of fixed telecommunication services. While operating as a business under the authority of the South African Companies Act, the sole shareholder of Telkom was the South African government (Kaplan, 1990; Cogburn, 1996, 1998). In 1996 a major legislative initiative established a new legal and regulatory framework for telecommunications in South Africa (Cogburn, 1998; Horowitz, 2001).

South Africa has embarked on a process of privatisation and liberalisation of telecommunications, while simultaneously aiming to extend telecommunications services to a larger proportion of the population (Moodley, 2000). Government has followed many other developing countries in undertaking a programme of corporatisation, privatisation and liberalisation of telecommunication services. Under such reform programmes regulation by the state is needed for meaningful competition to develop. Government faces the challenge of ensuring conditions for the continued growth of the more technologically advanced sub-sectors, while extending telecommunication services as widely as possible.

South Africa is characterised by an unequal provision of telecommunication services, reflecting the unequal distribution of income along racial lines (Morris & Stavrou, 1993:529). The provision of telecommunications in South Africa reflects the racially oriented access to all resources under apartheid. Inequality is reflected in low levels of service extension, although parts of the economy are highly sophisticated technologically. Use of the Internet and PCs has spread rapidly within the wealthier sections of society (see Tables 5.1 and 5.2) and South African companies are at the forefront of new technologies for electronic transmission of data and related activities. The largest and best known, Dimension Data, has spread through organic growth and international acquisitions, and was recently listed on the London Stock Exchange.

Table 5.1: Computers and the Internet

	South Africa		Upper-Middle Income Countries
	1995	2000	2000
Personal computers (PCs)			
Per 1,000 people	27.9	61.8	69.9
Installed in education (thousands)	93	365	n.a.
Networked PCs (%)	34.7	45.9	n.a.
Internet hosts (per 1,000 people)	1.2	8.4	2.1
Internet users (thousands)	460	2,400	49,393

    Source: UNDP (2001)

Table 5.2: Growth in Internet users in South Africa (millions)

	Feb 1997	Feb 1998	Dec 1998	Aug 1999	May 2000	Dec 2000	June 2001	April 2002
Dial-up accounts	n.a.*	n.a	0.5m	n.a.	0.65m	n.a.	1.4m	n.a.
Total users	0.7m	0.8m	1.26m	1.62m	1.82m	2.4m	2.6m	3.17m

* n.a. = not available
Source: South Africa online (2002); Media Africa (2003)

In 1996 a new Telecommunications Act (MPTB, 1996) set out the government's approach to achieving more efficient telecommunications services and, at the same time, wider provision of fixed-lines. The Telecommunications Amendment Act of 2001 (DoC, 2001) legislated the end of Telkom's monopoly in South Africa, with the requirement that a second fixed-line network operator made up partially of the communications arm of Transnet (Transtel) and Eskom's communications subsidiary, Esitel, be set up.[51] The new approach followed the practice in other countries of first undertaking corporatisation and partial privatisation under regulated monopoly before allowing competition to emerge. The rationale put forward was the need for a period to prepare the utility for competition while supporting greater roll-out of infrastructure.

To achieve these goals Telkom was awarded exclusivity in fixed-line voice telephony for five years (to 7 May 2002) with a range of conditions on service extension and

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[51] There is concern that if the telecommunications landscape is merely transformed from a monopoly into a duoply, however, the efficiency gains of competition may not be realised, especially if the new entrant is another parastatal enterprise expecting protection from the state.

upgrading of infrastructure.[52]   In the five-year period to May 2002 Telkom was required to provide 2.69 million new working exchange lines to add to the network, which amounted to just over four million lines in 1996 (ICASA, 2000:17).   A specified number of these new lines (1,676 million) were set aside for areas designated as 'under-serviced'. Service conditions were set on a range of criteria such as the time to install new lines, fault rates and response to complaints. Financial penalties were stipulated for failure to meet any of the targets. Targets were also set in terms of the upgrading of the network, including the digitisation of all exchanges.

As part of the reform process the government sold a 30% stake in Telkom in March 1997 to a 'strategic equity partner', Thintana Communications, formed by the US company SBC and Telekom Malaysia. The details of the shareholder contract remain confidential; however, SBC appeared to assume a significant degree of control over much of the strategic and operational decision-making, effectively meaning that Telkom is driven by private-sector imperatives. Government also committed itself to an initial public offering of shares by early 2002, decreasing its stake to around 50%.[53]

The 1996 Telecommunications Act also established the South African Telecommunications Regulatory Authority (SATRA), charged with monitoring and enforcing the licence conditions. The parameters for service conditions and pricing were stipulated in the Act for a five-year period, limiting the regulator's discretion. The price cap set (a version of the CPI-X formula) allowed for major 'rebalancing' of local, long-distance and international call charges, while setting the average increase at 1.5 percentage points below expected inflation. This resulted in charges for local calls increasing significantly over the period, while international and long-distance charges have been reduced.

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[52] Delays in establishing the framework for a second national operator to compete with Telkom means that, although Telkom's fixed-line monopoly ended in May 2002, a competitor is only likely to begin operating in 2004.

[53] The Initial Public Offering (IPO) has been postponed to 2003 for various reasons, including unfavourable conditions in the international telecommunications market.

5.2.1.1 Performance of Telkom

On the face of it, the provision of telecommunication services in South Africa has undoubtedly improved since 1996. Telkom fell just 11,448 short of the 2.69 million target for new lines to be installed between 1997 and 2002 (Telkom, 2002). The network was also almost fully digital by mid-2002 and times for installation and for the remedying of faults have decreased dramatically.[54] Telkom also appears to be more efficient, with the lines per employee measure rising from 75 in 1997 to 125 in 2002 (Telkom, 2002).

Although Telkom almost met the targets for new lines, the total number of lines did not increase by the same amount as lines have been disconnected. In 2001 and 2002 disconnections so far exceeded roll-out that the total number of lines actually fell by half a million (almost 10%) from 2000 to 2002 (Telkom, 2002). These disconnections were mainly of customers in under-serviced areas and were the result of non-payment (Barendse, 2003). Indeed, since 1998 the total number of fixed lines has increased only slightly, with the net increases accounted for by new lines to the corporate sector and Integrated Services Digital Network (ISDN) connections. Household survey data also suggest that the net increase in lines is not nearly as great as suggested by roll-out figures, especially with regard to lessening inequalities in service provision. In October 1999 just 7% of African households in non-urban areas had a telephone (including mobile phones) compared with 86% of white households. In urban areas 32% of African households and 88% of white households had a telephone. Roll-out of fixed-lines has not impacted on these inequalities when the disconnections are taken into account (Hodge, 2002). The biggest impact has come from mobile phones, which have grown much faster than expectations and in 2000 surpassed fixed lines (see Table 5.3).[55]

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[54] For not fully meeting the targets on installation times and times to clear business and residential faults Telkom paid fines of R3.3. million in 1998 and R300,000 in 1999. It expects to pay a fine of between R8 and R12 million for falling short of the target for new lines in 2002.
[55] While fixed-line teledensity in 2002 has been estimated at 11.4 per 100 inhabitants, for mobile phones it was estimated at 24.9 (Telkom, 2002).

Table 5.3: Growth in cellular phone subscribers (millions)

	Dec 1998	March 1999	June 1999	Sept 2000	March 2001	Aug 2001	June 2002
Total subscribers	2.55m	3.21m	3.8m	6.7m	8.3m	9.6m	13m

Source: Cellular Online (2003)

Telkom has been allowed to sharply increase the cost of local calls on the basis of the argument that there is a need to move towards more cost-based tariffs in order to prepare for competition. Local call charges were increased sharply by 28% in 1997, while between 1998-2002 the cumulative increase in peak-rate local calls amounted to a further 97%, or 49% in real terms (Table 5.4). Whilst the prices of local calls increased, the prices of peak-rate international calls were 32% lower in 2002 compared with 1998.

The price changes have been justified by favourable comparisons of South African prices with other countries such as the UK (ICASA, 2000:18). But comparisons with countries at a similar level of development are not so favourable. In 2000, South Africa had higher charges for local calls and residential rentals than Brazil, South Korea and Malaysia (Table 5.5). When the comparison is made using purchasing power parity exchange rates to reflect the equivalent buying power and costs across different countries, charges in South Africa are higher than almost all of the countries in the sample, including the UK and Germany. Further, measured as a percentage of GDP per capita, residential rentals in South Africa are significantly higher than all of these countries.

In addition, while the price of local calls in South Africa has been rising in real terms, in most other countries there have been large price reductions, due mainly to regulatory decisions. For example, in Malaysia local calls were more than 50% cheaper in 2000 than in 1994. The large price increases in South Africa between 2000 and 2002 have exacerbated the relative expense of services in South Africa. The price

Table 5.4: Summary of price changes controlled by licence conditions*

	Jan 1998 (%)	Jan 1999 (%)	Jan 2000 (%)	Jan 2001 (%)	Jan 2002 (%)	Cumulative change 1998-2000 (%)	Real cumulative price change (%)**
Permitted price increase (CPI – 1.5)	5.1	7.3	2.0	5.4	4.0		
Change in effective price of rentals							
Residential	12.0	11.0	3.0	10.9	3.0	46.3	10.2
Business	15.0	13.0	4.2	9.5	4.2	54.5	16.4
Change in effective price of calls							
Local (0-50km)							
Peak	25.6	10.7	10.5	16.3	10.5	97.4	48.8
Off-peak	0.0	16.0	10.9	18.3	10.9	68.8	27.2
National (50-100km)							
Peak	0.0	9.8	0.9	1.8	0.9	13.8	-14.2
Off-peak	0.0	10.7	1.7	3.6	1.7	18.6	-10.6
National (>100km)							
Peak	-8.5	1.8	0.2	-1.1	0.2	-7.5	-30.3
Off-peak	-4.7	7.6	-0.4	-0.2	-0.4	1.5	-23.5
International							
Peak	-5.4	-7.5	-11.6	0.0	-11.6	-31.6	-48.5
Off-peak	-11.5	-4.8	-6.7	0.0	-6.7	-26.7	-44.7
Megaline C Tariff (2 Mbit link)	25.5	24.6	22.9	7.8	-10.0	85.4	39.7

* Deflated by CPI for previous year
** Prices are as set in January for the calendar year ahead
<u>Source</u>: ICASA (2003)

Table 5.5: International price comparisons (2000)

	3 minute peak-rate local call (US$)	Residential monthly rental (US$)	Business monthly rental (US$)	Residential rental as % of GDP per capita (US$)	3 minute peak-rate local call (US$-PPP)*	Residential monthly rental (US$-PPP)	Business monthly rental (US$-PPP)
Brazil	0.04	7.7	12.0	2.3	0.05	10.2	15.9
Chile	0.12	10.8	10.8	2.9	0.29	26.0	26.0
Germany	0.10	10.0	10.0	0.5	0.08	7.5	7.5
South Korea	0.04	3.5	3.5	0.5	0.05	4.5	4.5
Malaysia	0.02	5.3	9.2	1.8	0.05	12.4	21.5
South Africa	**0.09**	**9.0**	**12.0**	**3.6**	**0.20**	**19.8**	**26.4**
UK	0.18	15.1	23.4	0.7	0.18	15.0	23.2
USA	0.00	20.8	41.8	0.7	0.00	20.8	41.8

* PPP = purchasing power parity exchange rate
<u>Source</u>: Calculated from ITU (2000); PPP exchange rates from World Bank (2000)

increases have undoubtedly worked against extension of services and account to a large extent for the high levels of disconnection. Although average incomes place South Africa in the upper-middle-income developing country bracket, in 1996 45% of the population were below the South African defined poverty line of R353 per month (UNDP, 2000).

Telkom increased the price of digital 2 mega-byte lines required by large company networks by more than 20% each year from 1998 to 2000. These lines are the capacity required by its competitors for providing data services and the price increases indicate either that they were previously priced significantly below cost or that Telkom abused its monopoly position to disadvantage competitors in value-added services where it had not been granted exclusivity.[56] Similar issues have arisen in Internet service provision. Telkom has repeatedly threatened to cut-off independent service providers on the basis that they are infringing Telkom's monopoly in voice telephony through the resale of line capacity or the possibility that users are engaging in voice-over Internet protocol. Meanwhile, Telkom owns an Internet service provider in competition with the independent providers. The regulator, i.e. the Independent Communications Authority of South Africa (ICASA) has not been able to resolve these issues and they have come to court many times.

The effect of corporatisation, partial privatisation and regulation has meant a shift in the orientation of Telkom's management, despite government retaining a majority equity stake. The Telkom strategy has involved moves to strengthen the commercial position of the company, including the rapid introduction of new technologies. It has also involved a clear pricing strategy aimed at maximising returns and strengthening Telkom's competitive position *vis-à-vis* potential rivals. The shift to a more profit-oriented strategy is evident in the steep rises in local call charges as well as sharp increases for the use of high bandwidth lines for data transfer. The negative impact of price changes on users is evident in the disconnection rates, while the increased prices for data lines constrain the growth of this sector and its related businesses.

Against the spatial as well as racial legacy of apartheid, the dimensions of the future growth path depend to an important extent on the telecommunications infrastructure. But while the number of telephone lines in South Africa rose from 8.3 per 100 inhabitants in 1989 to 11.4 in 2001, in Malaysia lines increased over the same period from 8.0 per 100 to 19.9, and in Chile from 5.0 to 23.9 (ITU, 2000, 2002). Performance in terms of residential main lines per 100 households has been even worse, with very small increases in South Africa compared with three and four-fold

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[56] The price cut at the beginning of 2002 immediately before the introduction of competition further suggests the exertion of its monopoly power during the exclusivity period.

increases in Malaysia and Chile since 1989. Clearly, the existing unequal income distribution in South Africa hampers service extension, but addressing these inequalities requires access to infrastructure. It is notable that Brazil, which has similar levels of income inequality to South Africa, has also performed much better in terms of penetration rates (Table 5.6).

Table 5.6: International comparisons of provision and investment in telecommunications

	Brazil	Chile	Malaysia	South Africa
Mainlines per 100 population, 2001	21.7	23.9	19.9	**11.4**
Residential lines, % of main lines, 2000	71.4	73.2	73.5	**56.0**
Residential lines per 100 households, 2000	41.6	64.0	64.5	**27.9**
Mobile phones per 100 population, 2001	16.7	34.0	39.9	**21.0**
Telecoms, fixed-line investment, 2000 (% of revenue)	34.8	43.1	23.4	**18.3**
Revenue per mainline, 2000 (US$)	822	754	596	**1368**

Source: ITU (2002)

In South Africa the main mechanism used to increase the provision of telecommunication services was the cross-subsidy implicit in the exclusivity given to Telkom for 5 years. The barring of competition in international and long-distance calls allowed Telkom to continue generating profits from these market segments to support the expenses of increased service provision. But investment by Telkom has not been particularly high by international comparison, while revenue per line has greatly exceeded the comparator countries of Brazil, Chile and Malaysia (Table 5.6). The South African experience highlights the weaknesses of the cross-subsidy approach, where it is combined with a shift to private incentives governing service provision. Profit maximisation means that there is no incentive to examine the sustainability of services – the targets will be met in the cheapest way possible with little regard to high rates of disconnection, which means a continued bias to urban and peri-urban areas.

Although Telkom (2001:n.p.) itself may claim that "[f]ew would disagree that telephony penetration is a key ingredient in economic growth and development", the evidence indicates that Telkom does not employ such criteria. Lines are cut-off due to short-term profitability considerations and price increases impact negatively on the affordability of the service. Government's desire to realise a high return from further

sales of its equity reinforces tendencies to pursue short-term profitability over longer-term development goals.

The combination of private ownership and regulation has not addressed the challenge of extending affordable telecommunications to the population as part of redressing entrenched inequalities. With the shift to profit maximisation by Telkom the trade-off of exclusivity for service extension targets has been self-defeating. Profit maximisation has meant hikes to local call charges and rentals, making the services less affordable to precisely those groups who are the target of increased extension. The exclusivity has, however, contributed to Telkom being a highly profitable enterprise. It has upgraded its network and strengthened its competitive position.

5.2.2 South African Information Technology Industrial Strategy (SAITIS)

The most significant overall initiative for promoting growth and opportunity in the ICT sector was the DTI's SAITIS (DTI, 2000a) project. This project was a 3-year US$ 3.5 million policy development initiative, originally conceived in 1995 by Jay Naidoo, then Minister of Posts, Telecommunications and Broadcasting. The project was sponsored by current President Thabo Mbeki (then Deputy President) and thus had support at the highest levels of government. The idea for this project emerged out of discussions emanating from the ISAD Conference which South Africa hosted in Johannesburg in 1996. As part of the preparations for this conference the need for an overarching government strategy towards the 'information society' was identified.

The formal project itself was launched in 1999, though by this time its goal had narrowed from promoting an 'information society' to focusing on the ICT sector: "To develop a strong South African ICT sector to contribute to sustainable economic growth, social upliftment and empowerment" (DTI, 2000a:1). It was launched as a bilateral development assistance project between the Canadian International Development Agency (CIDA) and the DTI, with consulting firm PriceWaterhouseCoopers providing management, research and technical assistance to the project.

Government, industry, trade unions, academia and a range of other sectors were represented on a 37-member stakeholder Advisory Committee meeting and a Project

Steering Committee. Working groups were established for the ICT industry, ICT usage, human resources and innovation. In addition, a series of workshops were conducted around capital mobilisation, infrastructure, international markets, women in ICT, small, medium and micro-enterprises (SMMEs), and management skills, along with provincial workshops designed to generate a greater appreciation for the status of ICT companies in different parts of the country. The project produced a broad 'baseline study', which conducted research on trends in global ICT industries, analysed the current status of the industry in South Africa, and identified broad opportunities for development of the industry.

The most important output of the SAITIS project was the preparation of a detailed policy framework for guiding the development of South Africa's ICT sector. It was acknowledged that in an era of globalisation and increased competition "the main challenge for countries outside of the developed world is to become increasingly proactive rather than reactive in the development of their indigenous ICT sectors" (DTI, 2000a:1). Accordingly, the overarching goal of this framework is to nurture "a robust, growing and sustainable South African ICT sector that directly supports, and contributes to, the GEAR challenge of sustainable economic growth, social upliftment and empowerment" (DTI, 2000a:2). There are two main thrusts to the framework, namely, "the development of the ICT sector and exploiting the capabilities of ICT in developing other sectors of the economy" (DTI, 2000a:19).

Concerning the goal of achieving a "robust, growing and sustainable South African ICT sector with equity", several different objectives and strategies are highlighted. In particular, four major objectives are put forward for developing South Africa's ICT sector. First, the need to build local capacity in terms of the key players in the economy, namely large locally-owned enterprises, state-owned enterprises, multi-national corporations (MNCs) and SMMEs. Second, the framework seeks to establish an enabling policy that would make South Africa an attractive environment for investment in the ICT sector. Third, the framework aims to build a world-class support infrastructure for the ICT sector. Fourth, it aims to promote exports and facilitate the capture of a growing proportion of the global ICT market by South African enterprises (DTI, 2000a:23).

The very nature of the SAITIS project is focused on broad strategic directions, leveraging other existing programmes and building a greater understanding of development in the ICT sector. The extent to which the framework has an impact on building the ICT sector will depend on how the broad objectives are translated into actual policy initiatives and the resources that are used to back them up. One thing that is clear, however, is that very little attention is being paid to any of the potentially disruptive impacts of ICTs (see, for example, Benner & Brownstein, 1999; ILO, 2001). The portions of the strategy focused on stimulating usage of ICTs in different sectors of the economy and among community organisations make no reference to any disruptive elements this strategy may have. In discussions about promoting the adoption of ICT in other sectors, no mention is made of trying to do this in ways that expand and promote employment, rather than replace employees. The SAITIS project almost entirely neglects any possible negative implications of the diffusion of ICTs and minimises opportunities for implementing ICTs in ways that can maximise economic competitiveness without job loss. Despite a stated concern with socio-economic development and addressing inequality, these policies largely fail to address the social problems associated with ICTs.

Perhaps one of the greatest challenges for South Africa's ability to harness ICTs comes in the form of human capacity. There is a severe shortage of persons with the skills necessary for growth in the economy in general, and in the ICT industry in particular (DTI, 2000a, b). This shortage is seen as the result of apartheid policies as well as a continued lack of co-ordination between the education system and the labour market (DTI, 2000a). The SAITIS (DTI, 2000a) study also argues that this problem is exacerbated by the shortage of blacks qualified in the field of study relevant to the ICT sector (DTI, 2000a).

It is important to note that in the process of focusing on developing an industry strategy, the explicit goal was to directly support and contribute to government's GEAR (DTI, 1996) macroeconomic strategy. The GEAR strategy, despite a stated goal that includes social upliftment and empowerment, is a highly controversial policy that prioritises public sector fiscal austerity and deregulation in the process of international integration over domestic social programmes (see Section 6.1.1). This

narrowing of social goals is also reflective in the process of developing the SAITIS industry strategy.

5.2.3 White Paper on Science and Technology

During 1995 and 1996 DACST undertook a green paper-white paper process to develop a new science and technology policy. The White Paper (DACST, 1996) was presented in November 1996 and forms the basis of the present National System of Innovation (NSI). According to the White Paper, government has an important role to play in creating a stimulating environment in which science and technology lead to innovation, prosperity and improvement in the quality of life. The document proposed the restructuring of institutions of science and technology, and their financing mechanisms, to promote their more effective use in terms of national development. Five priority themes were identified:

1. The promotion of competitiveness and employment;
2. Improving people's quality of life;
3. The development of human resources;
4. Promoting environmental sustainability; and
5. Promoting the 'information society' (DACST, 1996).

The White Paper states:

> "South Africa currently lacks a national policy to facilitate the country's optimal integration into the global information society and outlining clear responsibilities, goals and targets. This is a serious defect in our overall innovation drive and must be remedied as soon as possible. Information society planning must now take place at the highest levels within South Africa to develop a national vision, policy and strategy for meeting our specific needs" (DACST, 1996:1).

This prioritisation led to a reallocation of research funding, including an 'information society' focus. An Innovation Fund was set up, as recommended in the White Paper. This has, since its inception, included an 'information society' focus. It is significant to note that both the ISAD position paper and the White Paper on Science and Technology called for a consultative green paper-white paper policy process on the 'information society'.

5.2.4 Universal Service

One of the objectives of the ANC-aligned groups that emerged at the National Colloquium on Telecommunications, held in November 1995, was that a body should be set up to focus on providing telephones to the disadvantaged section of the population in the country. The RDP, for instance, stated:

> "Telecommunications is an information infrastructure and must play a crucial role in South Africa's development programmes. The RDP aims to provide universal affordable access for all as rapidly as possible within a sustainable and viable telecommunications system; to develop a modern and integrated telecommunications and information technology system that is capable of enhancing, cheapening and facilitating education, health care, business information, public administration and rural development, and to develop a Southern African cooperative programme for telecommunications. In terms of the RDP, telecommunication services must be provided to all schools and clinics within two years" (ANC, 1994:Section 2.8).

It was argued that the usual forms of regulation that had been established in other countries would not focus sufficiently on ensuring universal access (Horowitz, 2001). This position was pushed strongly by the Post Office and Telecommunications Workers Association (POTWA). The body proposed to address this concern became known as the Universal Service Agency (USA). The USA is a statutory body established by the Telecommunications Act No. 103 of 1996 (MPTB, 1996). Launched in 1997, it was given the responsibility for ensuring universal access to telecommunication services (voice, fax, Internet, etc.). The USA defines universal access as:

> "A telephone within a reasonable distance. The ultimate aim would be to have universal service for all in South Africa, but this will not happen soon. A more realistic goal is to provide telecommunications where everyone in the country can have access within 30 minutes' travelling. This can only be achieved with co-operation from business, government and the broader community" (USA, 2003:n.p.).

The first chapter in the White Paper on Telecommunications addresses "Telecommunications and Development in South Africa" (MPTB, 1996:7). This chapter outlines the need for a Universal Service Agency:

> "It will be important to keep in mind the concern…that classic approaches to managing the implementation of telecommunications policy would not be sufficient to keep the focus on the goal of universal service long enough to redress the existing imbalances. The apartheid system left the vast majority of black South Africans, particularly in rural communities, without access to basic communications services…The potential development impact of telecommunications would be limited; the opportunity would be lost for South

Africa to leapfrog traditional stages of development through the use of telecommunications to foster the application of new information technologies" (MPTB, 1996:8).

The White paper goes on to say:

"Members of historically disadvantaged communities, and particularly those in rural areas, must be the immediate targets for the delivery of universal service. The universal service agency is a South African response to this very particular South African social, economic and political environment" (MPTB, 1996:9).

The Telecommunications Act stipulates that the USA will promote universal service, monitor and research, and manage the Universal Service Fund (USF). To help develop universal access, the USA rolled out an ambitious programme to establish hundreds of telecentres within the first two years, with funding provided by the USF and augmented from the international donor community.[57] However, the actual implementation of these centres proved more difficult than originally thought. Although the USA managed to set up 65 telecentres by 2001, it is largely accepted that it did not deliver on its original promises (Benjamin & Dahms, 2001). Further, as the USA mainly focused on implementation, it largely neglected its mandate in terms of research and policy preparation. The internal capacity of the USA was not sufficient to cope with its plans and commitments, nor was the skills mix the correct one for the changed focus to an implementation agency.

The 65 USA telecentres fell into one of four categories:

1. *21 not operating*: basically the telecentre has shut down and is not functional;
2. *12 partial with phones*: the centre is operating, but only with telephone services, i.e. effectively a phone-shop;
3. *2 partial without phones*: the centre is operating, but with no phone connection, and therefore no fax or Internet connection. However, it has computers and a photocopier; and

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[57] In addition to community telecentres, the South African Post Office (SAPO) together with the DoC has initiated a programme called Public Internet Terminals (PITs) to contribute to its universal access goals. PITs are stand-alone kiosks where people can access the Internet, as well as personalised services in terms of e-commerce, distance education, e-government, etc. After a test phase, it bid out the design and implementation to the private sector. These services have yet to be evaluated and are at a very early stage of roll-out.

4. *30 phone and computer*: the centre offers both computing and telephone services (Benjamin, 2002; Benjamin & Dahms, 2001).

The USA proclaimed the telecentres as a means of providing access to telecommunications and other information services. However, the USA does not appear to have been clear what this meant beyond supplying ICT equipment. It is a truism in the field of ICTs for development that the equipment is a tool and not an end in itself. The potential value of ICTs for poor communities lies in the information and not in the technology. However, the USA did not: (i) develop or support information services; (ii) encourage information brokerage; (iii) conduct information needs-analyses; or (iv) supply training and templates for developing local information. 21 of the 65 USA telecentres were not operating at all in 2001. The primary reasons for not operating were as follows: (i) burglary/theft; (ii) lack of power supply for rural areas off grid electricity where generators or other alternative supplies were not possible; (iii) telephone lines not supplied by Telkom; (iv) lack of skills to operate the computers and/or no demand for the computers; (v) unskilled or otherwise incompetent management; (vi) financial problems stemming mostly from inability to pay Telkom bill; and (vii) major tensions in the community between different factions over who should own the telecentre led to the centre closing down (Benjamin, 2002:56).

Only 49% of the telecentres had working telephones. Just under half (47%) of the telecentres had both computers and phones working, though all had been provided with this equipment from the start. This evidence emphasises the difficulties of maintaining ICT equipment in rural areas and townships, combined with the difficulties of centralised procurement. Repair and maintenance problems were also mentioned (Benjamin, 2000; Benjamin & Stavrou, 2000). It would appear that full USA telecentres are not an appropriate model for poor communities, if the intention is to supply only telephony. The investment is too large. Payphones or Vodacom-type phone-shops provide a better model for telephony provision.

In the telecentres without computer-literate staff, the computer-based services were rarely used. In a number of telecentres the computers and modems gathered dust and were never connected. Scanners and overhead projects were rarely used. By far the

most popular service was telephony followed by the use of the fax and photocopier. The demand in rural communities appears to be largely for telephones on the basis of the evidence from the studies conducted by Benjamin (2000, 2002) and Benjamin and Stavrou (2000). Based on the analysis of the USA telecentre experience, the evidence shows that electronic information services were not prioritised by poor communities themselves. Most of the USA telecentres have been found to be weak or failing. Without greater support they are very unlikely to be sustainable. Their long-term viability is uncertain, especially as replacement equipment will be needed.

The telecentre model was regarded as too sophisticated (and unaffordable) for many rural communities, where basic telephony is more of a need than Internet access. The growth in cellular telephony has changed the face of telecommunications in South Africa. The advent of prepaid cards has increased rural access in particular. This has never been taken into account in redefining universal service and access. The USA's telecentres found that they were competing with cellular telephony in many areas where this had not even been considered a few years ago, when the USA was planned. Benjamin laments that:

> "Much of the community ICT work in South Africa seems more interested in the technology than people. To use American slang, we 'dig' all the broadband, multi-media, real-time, interactive systems before seeing how they will be applied. There is a 'dig-it-all' divide – a division between the hype of the technology and how it can be used by people in poverty…Placing a few more computer centres in poor areas might benefit a fortunate minority with the ability to learn, get jobs and leave those disadvantaged areas. However, to use ICT to benefit wider development will require a different agenda" (Benjamin, 2002:69).

The telecentre approach is concerned only with access to infrastructure, yet it is becoming increasingly evident that infrastructure is but one aspect of access. Simply having ICT infrastructure in a community does not mean that people will have the skills or capacity, the finances, or even the need to use the technology. In addition, for access to ICTs to be optimised for economic purposes parallel development strategies such as micro-lending and skills development schemes needs to be deployed. Further, the local economic environment needs to support the introduction of ICTs, and the policy and regulatory environment needs to be supportive of large-scale community ICT use. Community access to ICTs is most likely to be meaningful where it offers access to public and community services mediated by ICTs. We need

to see access as far more than just the *availability* of technological infrastructure and consider how the technology may be *useful* in the particular context in which it is to be used. Provision of infrastructure is a necessary but not a sufficient condition for ICTs to play a role in sustainable development efforts.

5.2.5 ICTs and Schools

In February 1996 the Ministry of Education commissioned a group of experts to develop a national framework and strategic plan for technology-enhanced education. The result of the commission's deliberations was a report called *Technology Enhanced Learning Investigation in South Africa* (TELI Strategic Planning Committee, 1997). The main thrust of the TELI report was that technology as such would not contribute to the quality of education. It should become part and parcel of the whole educational system, which meant that changes would have to take place at all levels of the system. The Ministry and the sector broadly welcomed the TELI report, even though it would not be developed into a concrete policy document. Nonetheless, it resulted in the establishment of the *National Centre for Educational Technology and Distance Education* in early 1997.

TELI identified 6 'lead' projects which can serve as an effective platform to create a 'technology-enhanced learning network'. These projects are as follows:

- Supporting curriculum development and delivery in three key areas at Grade 8 level;
- Delivering technically oriented vocational education in three areas of national priority, combining on and off the job training;
- Developing a generic information literacy course for use in schools, community centres, industry-based training sites and other appropriate sites of teaching and learning;
- Professional development of educators in the use of technologies in education and training;
- Training and supporting managers of learning centres of different kinds; and
- Running a pilot provincial project to test new strategies for introducing technology to support the management and administration of education and training.

A study in 1996 showed that only 2,000 (out of 27,000) South African schools had the electricity, telephone lines and computers necessary even to contemplate the use of IT in their educational processes (EPU, 2000). Current estimates suggest that of the 28,798 schools in South Africa, only 5,000 have computers, and of these only a fraction have Internet access (DoE, 2003). Deployment remains patchy, uncoordinated and constrained by cost and support barriers. Table 5.7 provides a snapshot of the uneven diffusion of computers in schools in the nine provinces.

Table 5.7: Computers in schools by province (2000)

Provinces	Schools with Computers	Schools with Computers for Teaching/Learning	Learner/Computer Ratio
Eastern Cape	8.8%	4.5%	373:1
Free State	20.6%	8.6%	181:1
Gauteng	82.5%	41.4%	65:1
KwaZulu-Natal	18.6%	10.0%	228:1
Mpumalanga	8.7%	8.7%	298:1
Northern Cape	57.3%	25.3%	95:1
Limpopo	11.3%	4.6%	463:1
North West	21.7%	7.6%	254:1
Western Cape	78.3%	45.2%	66:1
National	24.4%	12.3%	164:1

Source: DoE, 2003

To address this challenge several initiatives are underway in South Africa.[58] The most important are Gauteng Online and the Khanya Project of the Western Cape government. Further, the national Department of Education (DoE, 2003) is planning to construct a national education portal. In the foreword to the *Strategy for Information and Communication Technology in Education*, the Minister of Education states emphatically:

> "Advances in information and communication technology (ICT) globally are rapidly expanding the learning opportunities and access to educational resources beyond those immediately or traditionally available. It is therefore critical that our education and training systems takes advantage of these technological changes. The programme for improving the quality of education cannot be based on 'whether we should introduce ICT in teaching and learning' but 'how we can successfully introduce ICT in schools'" (DoE & DoC, 2001:3).

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[58] However, there is a lack of a coherent and systematic plan for implementing ICTs in South African schools.

This assumes that there are teachers with the enthusiasm to take on new technologies and perhaps even change their pedagogic process. Also, the effort is not yet co-ordinated and lack of basic data means that policy decisions do not have a strong grounding. Moreover, the cost of implementing ICT infrastructure (computers, connecting to the Internet, etc.) in all South African schools, with the concomitant training and maintenance costs, is likely to be enormous.[59] The estimated cost of bringing access and connectivity to all schools in South Africa, over a 5-year period, lies in the range of R40-50 billion (Moodley & Kahn, 2003). These figures are based on the total cost of ownership of the electronic systems, i.e. hardware, software, space, security, connectivity, upgrades, training, etc. It is for this reason that the Minister of Education calls for public-private partnerships to pave the way for investment in the provision of ICT in education (DoE & DoC, 2001). Whether the private sector will be willing to make such large investments in rolling-out ICT for schools is of course a moot point.

Against a background where upwards of 30% of schools lack the most basic amenities, universal access to Internet and computers remains a long-term goal (Moodley & Kahn, 2003). Even where free hardware and software have been provided, experience shows that the ongoing cost of connectivity remains a barrier. The dissemination of ICTs in support of teaching, learning and administration is complex and depends critically upon the people involved: learners, teachers and administrators are central to effective use of the technologies (Moodley & Kahn, 2003). The highest returns on ICTs in education appear to come when ICTs are seen as part of a strategy for solving an important problem rather than as an end in itself. The desired ICT infrastructure for schools should be defined in terms of pedagogical goals, translated to types of ICT usage desired rather than to physical terms such as student/computer ratio or number of classrooms connected to the Internet. Moreover, pre-service education of teachers should include lessons on evaluating electronic materials for pedagogical value as well as content. Both infrastructure and teacher competencies are required for successful implementation of ICTs in schools.

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[59] SchoolNet South Africa estimates that just under 6,000 schools, out of the 27,100 schools in the country, have one or more computers (SchoolNet South Africa, 2003).

Successful implementation of ICTs, however, is not simply a technical issue. It requires a vision for education and the specific educational goals that ICTs are to support. For instance, the biggest challenge confronting Gauteng Online is not the creation of computer networks, which is being supported with equipment and skills by major South African and international ICT companies (GDoE, 2002). Rather, the real challenge will prove to be the incorporation of a common web-based set of curricula and the development of a curriculum development methodology, including organisational mechanisms and technological tools. The aim is to facilitate curriculum revision and adaptation *vis-à-vis* the integration of ICTs in learning, teaching and assessment. Another substantive challenge will be teacher training at two levels: (i) introduction to the technologies and preparation to operate and manage the hardware; and (ii) training in the pedagogical use of the technologies. The latter poses a particular challenge, since it remains a relatively new area of teacher education with further research needed into the most effective ways of using ICTs to promote learning.

The *Computers in Schools* document produced by the Education Policy Unit (EPU) of the University of the Western Cape (2000) sketched the magnitude of the challenge in the context of extreme variation in ICT infrastructure and skills induced by apartheid policies. No miracles derive from the mere presence of ICTs in a school. Years of research on school change show that the implementation plans that work best for any school are a function of the attitudes and abilities of the staff, the quality of leadership, the role played by parents and the community, and the resources available (Elmore, 2000; Fullan, 1999). Further, successful implementation of ICTs in schools is not simply a technical issue. Quality education does not need to change to accommodate the particularities and power of technology. Instead, technology needs to change to accommodate good educational practices.

Even for schools in the highly industrialised countries, the front-end costs of developing a high-tech classroom are often prohibitive. Investments in hardware, operating platforms, applications and connections to Internet Service Providers (ISPs) must be weighed against existing infrastructure requirements such as facilities and books. Further complicating the issue is the speed at which technologies become

obsolete. Educators face difficult choices in ensuring that ICT investment is both appropriate to the needs as well as self-sustaining. As one observer notes:

> "Care should be taken to avoid allowing the novelty of technology to drive decisions regarding the most appropriate delivery mode…If a country's conventional education or teacher training program is not effective, using a new technology to deliver that education or training will not make it any more effective" (Potashnik & Capper, 1998:45).

In the South African schooling system the long-term challenge for government is to:

- Introduce ICTs into the curriculum, assessment and learning environments, and in teaching practice;

- Roll-out infrastructure – including connecting schools to the network, providing internal infrastructure within schools, i.e. local area networks (LANs), hardware and software, and technical support including maintenance, planning and logistical support;

- Make learning material available including software, pedagogical tools and online content;

- Emphasise initial and ongoing teacher training in the pedagogical use of ICTs;

- Develop innovative funding opportunities and collaborative opportunities;

- Develop an evaluative and monitoring framework, and undertake a process of ongoing assessment and evaluation;

- Develop a strategic framework/model for co-ordinating and implementing ICTs in schools on a provincial and national basis;

- Strive for sustainability through: capacity building, continued financial support, government ownership and informing policy and curriculum;

- Develop needs-driven applications. There is a need for more and improved interactive educational software, including software which evaluates the learners' strengths, weaknesses and learning personality, and adapts the tuition accordingly; and

- Use ICTs for teacher pre- and in-service training. In interacting with ICTs, teachers will gain experience of learning with ICTs and be more prepared to integrate it into their teaching as computers start to be diffused into schools.

5.2.6   Industrial Policy

Carmody (2002:270) asserts that the "South African government has identified high technology as a strategic sector of the economy as it attempts to move towards an 'information society'". In line with this the DTI issued a discussion document in 2001 to inform a new industrial strategy for South Africa, entitled *Driving Competitiveness: An Integrated Industrial Strategy for Sustainable Employment and Growth* (DTI, 2001). The central argument of the document is to extend the traditional boundaries of manufacturing strategy so as to embrace upstream design and development aspects as well as downstream functions such as marketing. A fundamental theme is that manufacturing firms are facing a myriad of changes occasioned, among other things, by changes in ICTs, the use of the Internet by suppliers, manufacturers and customers, rapid advances in innovation and changing customer demand. It notes a shift in world trade away from commodity production and raw material-intensive, simple manufactured goods to increasingly knowledge-intensive goods and services. Accordingly:

> "Our industrial strategy cannot…focus solely on production. It will seek to integrate both backward and forward linkages with production. Of particular importance here will be the development and enhancement of our existing capacities in knowledge-driven activities. This will rest upon the development of leading edge logistics – an essential foundation for this integration" (DTI, 2001:3).

Further, the DTI states that:

> "Government support to all manufacturing firms and sectors will increasingly take the form of policies that are designed to enable firms to effectively produce and assimilate knowledge. Government will seek policies which, for example, facilitate the more effective use of knowledge on the part of internationally competitive raw material-intensive manufacturers. Such policies will aim at further enhancing their competitive position in existing activities, but also encourage them to engage in those activities downstream and closer to the market, which tend to be more knowledge-intensive, and that could generate higher returns, employment and value-added. For those industries that are not currently competitive, policies will similarly progressively seek to enhance their competitive position by facilitating the more effective production and use of knowledge" (DTI, 2001:1).

These extracts reflect a strategy that will rely increasingly on the application of ICTs, and particularly those aspects of ICTs related to knowledge management, so as to enhance global competitiveness and increase employment in the country. The DTI is also in the process of developing initiatives geared towards diffusion of ICTs into

priority industrial sectors. The purpose of this project is to provide a better information base for those in vertical markets for ICT and also to provide local ICT vendors and service providers with better information on what the future ICT requirements are likely to be. Three sector areas have been selected:

1. Traditional sectors such as mining, agriculture and manufacturing;
2. Service sectors, which would include government services, as well as others such as education and tourism; and
3. 'New economy' sectors, which would cover sectors such as telecommunications, e-commerce, biotechnology and software manufacture/systems development.

The DTI has also produced an *ICT Cluster Strategic Plan* (2002) geared towards developing the ICT sector as a platform for exploiting growth and job creation opportunities. One important facet of the public policy debate on ICTs in South Africa is concerned with maximising the employment benefits of the 'information revolution'. This notwithstanding, apart from rhetorical commitment to job creation in the ICT sector, government has yet to release a policy document which explicitly maps out a detailed, co-ordinated framework for creating ICT-related jobs in South Africa. The DTI SAITIS Project released a document entitled *Status of IT-Related Jobs and Skills* (DTI, 2000b), which discusses the issue of creating employment, re-skilling workers, and dealing with potential job loss in the ICT sector. The SAITIS document, however, does not explicitly propose a detailed programme of action to tackle the issue of job creation in the ICT sector head-on.

5.2.7 Electronic Commerce

In 1998 the Ministry of Communications launched an extensive policy formulation process on e-commerce. The starting point was a discussion paper on e-commerce and included a wide range of public and stakeholder consultations. A major component of this policy initiative was a green/white paper process. The 'green paper' phase of the process was designed to raise important questions, posed both to experts and to users of e-commerce. This process was expected to involve the perspectives of all in South Africa, including the "previously marginalised majority of our people" (DoC, 2002b). The 'white paper' phase was supposed to explain the draft government policy on e-commerce. As the lead agency in this policy process, the

DoC saw this process as part of a strategy to make South Africa a 'knowledge-based' society and help create an 'information economy' (DoC, 2002b). The key principles driving the e-commerce policy process in South Africa are summarised in Table 5.8.

Table 5.8: Key principles driving the South African e-commerce policy process

Quality of life	To improve the quality of life of people through the optimal use of e-commerce, thus ensuring socio-economic development and facilitating equitable development.
International benchmarking	To ensure international consistency, alignment and harmonisation. South Africa needs to be in line with international treaties and develop an e-commerce policy that is based on international trends and benchmarks while taking cognisance of South Africa's special requirements.
Consultative process	To be consultative, transparent and to balance the interests of the broader spectrum of stakeholders through the solicitation of the public to participate in the deliberations.
Flexibility	To be flexible in establishing rules and regulations for governance. The introduction of new measures and elements into law will take place within the relevant branches of law.
Private sector led	Where possible, the e-commerce policy should support private sector-led initiatives.
Promoting public-private sector partnerships	To establish public-private sector partnerships that will promote and encourage the development and use of e-commerce. The private sector will remain a critical driving force in the effort to optimise the potential of e-commerce.
Supporting SMMEs in the ICT sector	To facilitate the promotion and development of SMMEs and the informal sector, and contribute to their speedy adoption of e-commerce.

Source: Compiled from the DoC (2000a)

The *Electronic Communications and Transactions Act 25 of 2002* was promulgated to "enable and facilitate electronic communications and transactions in the public interest" (DoC, 2002a:1). Key objectives include:

• Promoting universal access to electronic transactions;

• Removal and prevention of barriers to electronic communications and transactions;

• Development of electronic transaction services which are responsive to the needs of users and consumers;

• Promotion of SMMEs within the electronic transactions environment;

• Promoting legal certainty and confidence in respect of electronic communications and transactions; and

• Development of a safe, secure and effective environment for the consumer, business and government to conduct electronic transactions (DoC, 2002a).

Despite having a very broad definition of e-commerce, the *Electronic Communications and Transactions Act 25 of 2002* (DoC, 2002a) deals primarily with legal and contractual aspects of e-commerce, including contractual and trade laws, taxation, intellectual property rights, consumer protection and security. Significant social issues such as implications for job creation/destruction, use of ICTs in the workplace, and representation of workers and disadvantaged sectors of the society are almost entirely neglected in the DoC's approach. The DoC has been heavily criticised for these omissions, especially by COSATU (2002).

Stavrou, May and Benjamin (2000) concluded that for the immediate future e-commerce will have little impact on people in greatest poverty, although it can be a tool to support SMME development if other issues such as training, credit and general business support are also dealt with. The fact that the Internet, apart from being expensive to access, is a tool that requires fluency in English, a fairly high level of education and computer literacy to use constructively, is conveniently underplayed in the *Electronic Communications and Transactions Act* (DoC, 2002a). The Internet is also problematic as an efficient tool for the utilisation of unskilled labour, the type of labour that most of the poor have to offer. It might have some use as an information tool for connecting unskilled workers with employers who have a demand for them, but as a direct source of income-generating activities, the Internet is a tool for skilled, or at least computer-literate employees. Poor people's use of more advanced Internet operations such as e-commerce faces an even greater number of barriers. Poor people do not have the requisite credit facilities, they are far from logistics services that could deliver goods, and the types of goods that they would want to buy or sell have limited outlets online (Moodley, Morris & Velia, 2003).

A major capacity issue, therefore, involves human resource development and specialised technical skills. E-commerce is computer and network intensive, requiring skilled programmers and applications development personnel. Educational systems like that in South Africa, which cannot provide sufficient technical training will hinder the country's ability to adapt to e-commerce. In addition, for business-to-consumer (B2C) e-commerce and government services online to succeed, consumers require both basic literacy and computer skills.

The dominant trend in the commercial world of electronic commerce and electronic markets is exclusivity (Moodley, 2002a, b). The majority of business-to-business (B2B) e-commerce sites on the Web are 'walled', i.e. they are for members only (Moodley & Morris, 2003). Even when these sites are open to all potential buyers and sellers, they do not always deliver the information and business support services they claim to provide at their home pages (Moodley, 2002a, b). This is inconsistent with the goal of ensuring that the new ICTs offer opportunities for learning and participating in the global economy that are inclusive. It is for these wide range of reasons that UNCTAD's survey of e-commerce use in developing countries, in the *2002 E-commerce and Development Report*, was able to find only a few examples of substantive e-commerce development in the Third World, largely serving niche markets (UNCTAD, 2002).

5.2.8   Info.com 2025

The Info.com 2025 programme of the DoC (1998a) was conceptualised as a modular approach to the implementation of ICT services and applications. The objective is to showcase the possibilities of ICTs. The programme itself consists of 5 main components:

1. *Policy management and institutional framework*: to create specific institutional support for managing the process of policy-making;
2. *Information access and infrastructure*: to facilitate the creation of physical infrastructure for information access;
3. *Government information technology*: to facilitate the development of specific Internet-based public service delivery applications;
4. *Education and training*: to facilitate and promote education and training through the use of ICTs; and
5. *Private sector development*: to enhance policies and facilitate activities that have direct impact on labour market demand and opportunities for private sector entrepreneurship (DoC,1998a).

To date only some of the envisaged pilot projects have been implemented and reasons for the partial implementation of the *Info.com 2025* are difficult to ascertain. Several factors probably played a role:

- Limited capacity for the conceptualisation and implementation of projects within DoC;

- Some programme components and related projects were better conceptualised than others, more specifically those projects where the Department had a direct responsibility;

- DoC needed the support of many other departments to implement the 2025 programme. Without a clear mandate from government to provide the overall co-ordination for *Info.com 2025*, overall implementation was difficult;

- The responsibility for some projects has shifted between implementing agencies and departments. In some instances the responsibility has shifted from DoC to other departments; and

- The initiation of other priority projects such as the e-commerce policy, development of an ICT strategy, and the Telkom IPO may have diverted energy and resources away from *Info.com* projects.

5.2.9   Electronic Government

ICTs in the public service did not appear to be a central issue during the early years of the first democratic government. This is surprising, as the ANC-led government inherited a fragmented public service in which almost every department had its own IT infrastructure and IT department. By 1994 South Africa had 17 wide area networks (WANs) at the national level. These networks were not integrated, did not communicate and were largely unable to exchange information and data (Kahn & Swanborough, 1999). Although DPSA was officially responsible for IT policy within government, until 1997 there was little progress towards a more integrated approach concerning IT in government. A first document stressing the problematic situation is the report by the Presidential Review Commission (PRC) presented in February 1998 (PRC, 1998). The PRC was specifically set up by President Mandela to analyse the working of government and the administration.

Although there was a massive investment in IT, there was no appreciable benefit in the form of greater service delivery or a more efficient and effective public service. The PRC summarised the problems as follows:

- A widespread use of incompatible platforms, networks and applications;

- Information not shared and re-used in any organised manner;

- An unsustainable, broad set of technology skills needed to maintain the systems;

- Unacceptably varied and non-standard priorities and approaches to the use of systems, technology and knowledge and information management (KIM) practices; and

- Unnecessary duplication of functions and systems between line departments (PRC, 1998: Section 6.2.3).

The PRC had this to say:

> "It is clear to the Commission that the Government lacks an overall vision and strategy for IMST [Information Management, Systems and Technology] and that, in the absence of such a strategy individual departments are finding it difficult to define their own IMST strategies. Most departments are therefore pursuing their policy agendas independently, with IT systems being developed and/or operated to meet only the specific departmental policy objectives. In the absence of effective policy coordination, IMST strategy is likely to remain incoherent. The cost implications of this situation are enormous" (PRC, 1998: Section 6.2.1).

As far as e-government is concerned, the PRC concluded that:

> "The implementation of electronic government is probably the best way to build capabilities that enable the public not only to access information but to conduct transactions with government departments. The Government already owns most of the infrastructure for the implementation of electronic government and the private sector has the technology products. The Commission therefore recommends that Government give serious consideration to migrating to completely electronic communication within the next five years" (PRC, 1998: Section 6.4.4).

South Africa through the offices of the DPSA participated in the drafting of the report entitled *Roadmap for E-Government in the Developing World: 101 Questions E-Government Leaders Should Ask Themselves* (Working Group on E-Government in the Developing World, 2002). Further, in April 2001 DPSA produced a discussion document entitled *Electronic Government – The Digital Future: A Public Service IT Policy Framework* (DPSA, 2001). The foreword by the Minister states:

> "The object of the e-Government Policy is the co-ordination of all government efforts on information technologies across the three tiers of Government for greater impact and enhancement of the delivery of services to all citizens…e-Government should also present us with an opportunity to roll out

comprehensive services to under-serviced areas and areas without services"
(DPSA, 2001:Foreword).

The DPSA (2001) discussion document underscores the importance of and need for a systematic and methodical approach, informed by clear understanding of the objectives, affordable scale and interdependence of issues. To this end, it notes that policy should:

• Spell out the e-government vision;

• Define clearly how progress is to be measured in terms of the benefits to be achieved;

• Set priorities by identifying focus areas for immediate attention;

• Define the generic prerequisites (in areas like human resources, research, legislation, etc.) that must be in place for advancements in the key areas to succeed; and

• Give specific recommendations on how to deliver results in each focus area.

The DPSA (2001) discussion document identified the following focus areas as being essential for the success of e-government policy:

• *Interoperability* of government IT systems including networks, platforms, applications and data;

• *IT security* to provide an environment in which all government electronic documents and data are protected from unauthorised access, malicious code or denial-of-service attacks;

• *Economies of scale* so that government can leverage its buying muscle to promote compliance with other key IT focus areas; and

• *Elimination of duplications* to ensure that similar functions, projects and resources are used with improved efficiency and effectiveness.

Key e-government projects in South Africa include:

• The *DPSA Gateway Project*: This is a citizen services portal. DPSA maintains that all public services provided electronically should be offered via the Gateway.

It is claimed that a national backbone of fully integrated, one-stop Gateway Service Centres (GSCs) will be established to provide value-added services to citizens across all spheres of government (CPSI, DPSA & SITA, 2003).[60]

- The *Home Affairs National Identification System* (HANIS): in the first phase of the HANIS project 40 million paper identity records will be converted to digital format. The second phase is to shift from paper-based citizen identity documents to an electronic version through the issuing of 'smart cards'. It is believed that the electronic system will help in combating identity document fraud and that citizens will benefit through faster processing of pension and welfare payments.

- *Gauteng Online*: a project to provide all Gauteng schools with a minimum of 25 networked computers, free Internet access and an e-mail address for each learner as well as a learning portal by 2004. Likewise, the Western Cape Department of Education (WCDoE) has launched its *Khanya* Project, which aims to deliver education in the classroom through technology. A total of R40 million has been approved for the project. It is envisaged that approximately 100 schools will be equipped with computer labs in the 2002 financial year.

- The *National Health Information System (NHIS)*: a project to manage health information and epidemiological statistics for policy making and operational planning.

- The national Department of Health (DoH) is running a *Telemedicine Pilot Project* aimed at developing a basic cost-effective solution that could be replicated throughout the country, with a particular focus on disadvantaged people especially in rural areas who have not previously had access to specialist health care.[61] The NHIS has been tasked with co-ordinating the work. It is envisioned that after one year the provinces, the national office and the NHIS Committee would evaluate the Telemedicine Pilot Project and produce a report that will guide further roll-out of the project.

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[60] The provincial government of the Western Cape has established the Cape Gateway project, which is supposed to be the first step in the staged introduction of e-government in the Western Cape (Bridges.Org, 2003).
[61] Quality and cost-effectiveness of telemedicine is a common concern (Heeks, 1999c). Government must weigh the varying needs of the national system in relation to available resources. Many health problems can be addressed through basic infrastructure improvements such as clean water and sanitation facilities rather than expensive technical solutions. As one study notes: "although information and education can raise people's awareness of the problems…information in itself is an insufficient remedy if people lack the means to implement what they learn" (Uimonen, 1997:21).

The objective of DPSA's e-government programme is to build comprehensive government portals that people can use to find information or to carry out transactions without having to deal directly with the various agencies that can be involved in a 'life event' such as setting up a small business. To succeed in e-government public agencies will need to learn to see the citizen as their customer, which represents a radical change in mindset for many public agencies. E-government strategies should be guided by the following considerations:

- Technology for e-government does not need to be complicated, but it must be fast and reliable;
- As long as a large part of the population remains without easy access to the Internet, traditional channels such as counter service or the telephone will retain an important role;
- The advocates of e-government will need to keep in mind the problems of inadequate telecommunications infrastructure in under-serviced areas; poor computer and general literacy, and the general lack of awareness of the potential of the Internet among historically disadvantaged communities;
- E-government poses a complex challenge that calls for political commitment and a clear strategic vision at the highest level.

Although government can use ICTs to improve the quality and efficiency of public services and to strengthen government information flows internally (Cloete, 2003a), there are simultaneously significant risks: (i) institutional failure, (ii) expense, (iii) poor design and (iv) low levels of consumer access (Heeks, 1998). Another complication is the issue of complementarities between government departments and services. Normally, a wide variety of computer-based systems support different government activities. However, these systems are usually implemented as components of separate projects responding to specific needs, with little appreciation of requirements in other areas and little thought given to critical interrelationships. As a result the information systems are often disparate and segmented, with little or no capacity for sharing data. In addition, they have overlapping and sometimes conflicting functionality and provide incomplete coverage, particularly for managerial information requirements that normally span several functional areas.

As a result of the ANC's reliance on e-government in its modernisation plans, government would do well to pay heed to what Heeks and Bhatnagar (1999) calls the 'concept-reality gap'. This is the gap between technological aspiration and political reality which accounts for the disappointing performance of large-scale government ICT projects (Heeks, 2000:200). In a sobering article Kouzmin (2000) cautions against an unbridled acceptance of ICTs in government:

> "Failure in IT development is a major reality but an extremely limited discourse amongst government and business elites – there are electoral and shareholding implications from any candid assessment of high failure rates amongst large IT project developments across the public-private sector divide" (Kouzmin, 2000:169).

In a similar vein, Bellamy and Taylor caution:

> "[H]eroic scenarios for reinventing government through the application of ICTs are fundamentally misleading. The institutions of governance will mould and fashion the revolutionary potential of ICTs into an evolutionary reality…The heady images which are so often associated with ICTs, together with the technologically determinist expectations that they will transform the nature of relationships in and around governance, are balanced by the relative insusceptibility to the change of the normative and assumptive worlds which suffuse political institutions. The information polity is, in consequence, an arena which will display the same kinds of political compromises and policy confusions that characterize other important arenas of society. For all these reasons, the intoxicating visions of government in the information age should be allowed to dissipate in the thin air from whence they came (Bellamy & Taylor, 1998:170).

The author attended a recent meeting of the Government Information Technology Officers' Council (GITOC) (2003) during which it became clear that the lack of back-office integration and standardisation, i.e. a common IT infrastructure and architecture standard across government, is a major constraint to realising the vision of what Taylor, Snellen and Zuurmond (1997:1) refer to as the "administrative holy grail [i.e.] the simultaneous delivery of enormous cost savings together with huge gains in the quality of service provided". E-government is dependent on departmental IT systems which are interoperable so that data and information can be exchanged and processed seamlessly across government. The scale of change required to bring integrated, transactional services online is immense. A major challenge for the South African government is to: (i) ensure back-office integration with front-end service delivery; (ii) adopt common standards; and (iii) adopt a common IT infrastructure and architecture across all government departments and agencies. Successful service

delivery portals require coherent integration of government infrastructure, systems, processes and services and must focus on the needs of the citizens. Further, a key success factor in achieving e-government is for all citizens to have access to technology and the necessary skills to exploit its use.

5.1.9.1 Government Communication and Information System (GCIS)

The 1995 Task Group on Government Communications (COMTASK) recommended that the South African Communication Services (SACS)[62] be replaced by a new communications structure, *viz*. the Government Communication and Information System (GCIS) (COMTASK, 1996). Within this agency the responsibility for government communications would be decentralised towards the ministerial and provincial level. The GCIS would have departments responsible for media liaison, communication services and support, and provincial and community liaison. It would build up strong contacts with the different government branches and with civil society. In general, the GCIS would take responsibility for 'development communications', especially for disadvantaged communities. Apart from its co-ordinating role the GCIS would have the capacity to provide for specific services and campaigns and for subcontracting services.

Based on the outcomes of the COMTASK (1996) report, the GCIS was established in 1998. It consists of 4 components:

1. *Communication Service Agency*: responsible for the production and distribution of government media. The department is responsible for the bulk-buying of media space, etc;

2. *Media Liaison Section*: responsible for the relation between the media and government;

3. *Policy, Research and Strategy Section*: responsible for research into public opinion on the function of government. This section is also responsible for policy development concerning media diversity;

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[62] SACS, a structure for government communications inherited from the National Party government, was for obvious reasons viewed with a great deal of suspicion by the ANC.

4. *Provincial and Local Liaison Section*: responsible for the provision of information at the level of the provinces, and thus entails working closely with the provincial governments. It is envisaged that this agency would play an important role in terms of development communication and the provision of information through ICTs (GCIS, 2000).

According to the Office of Thabo Mbeki, the then Deputy President:

> "The GCIS will develop ways to ensure that there is delivery of information to the people of South Africa and that a two-way system is set up to facilitate a dialogue between government and provision of information to disadvantaged sectors, such as people living in rural areas where information is scant. Electronic technology, indisputably the most efficient and most cost-effective way to achieve this, will play a major role. This has been shown in other countries with mixed economies and large rural populations to be a highly effective way of reaching large numbers of people at relatively low cost (Office of the Executive Deputy President, 1997).

The GCIS assumed responsibility for the South African Government Online portal site (South Africa Online) in 1999 (GCIS, 2000). From 1999 the GCIS was mandated by Cabinet to establish MPCCs as points for integrated service delivery. By early 2001, around 15 telecentres had been established. The models differ, with some owned by government departments, others by community organisations, but all of them have a range of different government services. These include a Home Affairs office, welfare payment point, housing or water information, small business and employment advice centre, library, post office, training and government information. All of them have phones, computers, email and photocopying facilities, which are made publicly available. It is intended that these centres will generate much of their running costs, with some support from the government departments involved. The MPCCs are all quite recent, having been established less than 3 years ago; they have not been assessed independently, so their impact or sustainability is difficult to gauge.

5.2.10 National Research and Technology Foresight Project

The *National Research and Technology Foresight* (NRTF) study was initiated by DACST in 1998. The aim of the study was to help identify those sector-specific technologies and technology trends that would best improve the quality of life of all South Africans over the following 10-20 years (DACST, 1998). The project encompassed technologies that impact on social issues and wealth creation through

product or process development. The outcomes of the Foresight project will supposedly contribute to new directions for science and technology in South Africa. Working groups of 20 to 30 people each were formed to represent diverse interests and experience in each of the following sectors: ICTs, environment, bio-diversity, education, youth, health, mining, energy, business and finance, agriculture, manufacturing, tourism and safety.

The aim of the Foresight study was to identify emerging technologies and market opportunities that could be beneficial to South Africa in the following 5 years or so. The results of the Foresight study were to be used to:

- Sharpen choices in allocating funds from the Innovation Fund;
- To lay the basis for sound institutional capacity to conduct Foresight in both the government and private sectors;
- Identify priorities for publicly funded research;
- Encourage greater R&D investment in industry;
- Improve technology awareness and uptake in SMMEs; and
- Identify skills shortages in science and technology, and their action initiatives (DACST, 1998).

The major finding of the Foresight study was that the next 10-20 years will see a fundamental shift towards a 'knowledge economy' and an 'information society' (DACST, 1998). The results of the study suggested that there are signs of the birth of a 'bio-economy' driven by developments in bio-technology, and the combination of bio-technology and information technology, i.e. bio-informatics. This economy is expected to impact on a number of sectors such as: (i) agriculture (i.e. recombinant DNA and genetically modified foods); (ii) health (i.e. transgenic foods, gene therapy and micro bio-sensors); and (iii) materials (i.e. molecular mapping and atomic architecture). It is expected that by the year 2010, these developments will change the majority of South Africans' way of life. According to the study, the key challenge in South Africa is one of how the country deals with a declining industrial economy, especially its social and economic impacts, and how to prepare the nation's skills base and human resource development for the opportunities and challenges presented by the 'digital and bio-economies' (DACST, 1998).

The ICT Sector Working Group (ICT SWG) of the NRTF undertook international and local technology scans which represented snapshots of the ICT sector between 1997-1998 (DACST, 1999). The ICT SWG set about defining its scope and mandate by using the background of the technology scans to define a mission and a set of sector foci. ICT was seen as: (i) "extraordinarily complex, rapidly changing and all-pervasive" (DACST, 1999:3); and (ii) a fundamental enabler of economic and social activity in all sectors of the economy (DACST, 1999). An important finding to emerge was that:

> "an aggressive national ICT vision is urgently needed to counteract obstructive policies, uncoordinated efforts, a lack of funding, inadequate skills and training, and the absence of a culture that fosters the development and effective use of ICT" (DACST, 1999:1).

Further, the ICT SWG argued that South Africa is lagging behind the developed world in technology terms, but has the capability to partner and adapt technology for local needs.

5.2.11 PNC on ISAD

In 2002 the President established the Presidential National Commission on the Information Society and Development (PNC on ISAD) and the Presidential International Advisory Council on the Information Society and Development (PIAC on ISAD). The PNC on ISAD has a very optimistic view of the potential of ICTs in development:

> "A major challenge for the South African government is to ensure the development of a more effective ICT sector strategy and policy framework for the country in order to harness the potential of ICTs, ensure better governance, deepen democracy and accelerate growth and development, especially job creation and poverty alleviation for the country, the region and the continent and in so doing, create an information society that improves the quality of life for all citizens" (PNC on ISAD, 2003a:1).

The PNC on ISAD has been mandated with making recommendations to the President on: (i) bridging the 'digital divide'; (ii) the establishment of an overarching co-ordination structure for government-led ICT-related initiatives; (iii) an integrated structure for fostering co-operation, co-ordination and joint action between local, provincial and national government with a view to building the 'knowledge economy' and the 'information society'; (iv) priority areas, i.e. SMMEs, e-governance, open source software, education and health; (v) appropriate ways of building a rich base of

electronic learning materials with local content; (vi) strategies to make government a model user of ICTs; and (vii) a champion for the development and implementation of ICT strategy (PNC on ISAD, 2003a).

Further, the Commission has been tasked with investigating:

• Current government ICT strategies;

• Future work to be done on building the 'information society';

• Future skills to enable South Africans to be equal and active citizens in the global 'information society';

• Strategies to build the national information infrastructure (NII);

• How to develop and support ICT-related SMMEs;

• How to encourage the use of ICTs by SMMEs;

• Policies for creating an environment that encourages, nurtures and rewards innovation and a spirit of entrepreneurship;

• Ways of enhancing e-literacy among the different sectors of society; and

• The optimal application of ICTs in all sectors for purposes of developing a strategy for each sector of the economy (PNC on ISAD, 2003a).

5.3   Conclusion

This chapter has described, and analysed wherever possible, a range of government ICT policy initiatives between 1994-2003. It was argued that the overall goals, priorities and actions related to such initiatives have to be consistent with the superordinate development goals for the country, and accordingly the particular circumstances of South Africa, with especially the legacy of the apartheid era being kept at the forefront. The public policy debate on ICTs in South Africa is concerned primarily with: (i) promoting growth in ICT industries; (ii) expanding application of ICTs in other economic sectors; (iii) maximising the employment benefits of the 'information revolution'; and (iv) addressing social problems such as inequality and the dislocation associated with diffusion of technology through the economy, with some acknowledgement that the regulatory environment needs to be transparent and fair.   This   ambitious   agenda   of   simultaneously   addressing   socio-economic

development and inequality has been explicitly articulated in most ICT-related initiatives in the post-apartheid period.

At national level ICT initiatives fall into two groups. First, a suite of programmes relate to either (i) enhancing the human resources or skills base for the ICT sector; or (ii) supporting the development of an 'information society', including infrastructure, that would incorporate South Africa's previously marginalised and disadvantaged communities. Improvements in the creation of a physical infrastructure for access to information are of central importance and include, for example, the initiation of community information centres (community telecentres and Public Internet Terminals [PITs] in post offices) designed to increase the access of previously disadvantaged people in townships and rural areas to information services. A second category of national level initiatives for supporting the ICT industry relate more firmly to expanding the competitiveness of existing enterprises as well as fostering new ICT enterprise development, especially in terms of SMME development.

It is evident from the discussion that ICT policy is entering a state of considerable flux with a wide range of ICT-related projects, programmes, policies and strategies underway by a number of national government departments. Obviously with this wide array of initiatives in a range of different ministries, co-ordination and communication between the various initiatives is a critical challenge, as well as the need for this all to fit within a broader national development strategy. The problem, however, is that a coherent and co-ordinated response by government that cuts across both traditional departmental boundaries and areas of responsibility within departments, is lacking. The lack of an effective co-ordination mechanism at the central level, in particular, has meant that national ICT policy is often uncoordinated. Systemic inefficiencies impede the elaboration of multi-sectoral programmes and the development of a coherent national policy framework. Poor integration of policy at the national level, moreover, is exacerbated at the provincial and local levels, where administrative capacity is even more limited. Thus, leadership on policy formulation and implementation is urgently needed, as well as the enforcement of strategic synchronisation and co-ordination procedures involving key government departments and agencies to minimise wastage of resources, and duplication and fragmentation of effort.

In Chapter 6 we will use critical discourse analysis to expose the discursive power relations and the underlying assumptions and rationale of the South African government's ICT, poverty and development discourse. The objective is to identify some of the major components of the South African government's discourses on ICTs for development and to show how the manner of its deployment in speech and text amounts to the creation and systematisation of a set of discursive relations that support and extend a markedly Western modernisation-related worldview.

Chapter 6

A Critical Analysis of the South African Government's ICT, Poverty and Development Discourse

6.1   The South African Context

6.1.1   Income Inequality and Poverty

South Africa has a medium HDI of 0.702 and is ranked at number 94 in the UNDP's (2001) listing of 162 countries. Apart from having a mediocre human development rating, South Africa is also one of the most unequal societies in the world (Table 6.1). In South Africa society is stratified along four major lines of inequality, i.e. class, gender, race and 'spatially'. Although inter-racial inequality is declining, South Africa still has the first or second highest rate of income inequality in the world, and this is rising (Stats SA, 2000).[63] This narrowing of inter-racial inequality is mainly the result of the creation of a new African entrepreneurial and managerial class and the absorption of African people into paid employment by the state (Nattrass & Seekings, 2000). An emerging African bourgeoisie is now benefiting from white corporate unbundling and the privatisation and commercialisation of state assets (Adam, Van Zyl Slabbert & Moodley, 1997).

A Human Poverty Index (HPI) of 20.2 means that poverty affects at least 20.2% of the population. As a result of the AIDS pandemic, life expectancy at birth is only 47.8 years. Apartheid policies, by engendering a situation of inequitable access to employment, service delivery, infrastructure and resources to the majority black population, have resulted in poverty being characterised by a strong racial dimension. Further, poverty is geographically concentrated, with the largest share of the poor (72%) residing in rural areas, especially the former 'homelands'. There is a marked tendency for poverty to be more prevalent among female-headed households and among children (Klasen, 1997; Aliber, 2003; May & Carter, 2001). In the context of high formal unemployment (generally estimated at between 30-40%) and jobless

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[63] Brazil's may be higher.

growth, the situation of these households is desperate (Altman, 2003).[64] Further, Altman (2003) estimates that between 1994 and 2001 the number of underemployed citizens increased from 14% to 21%.

Table 6.1: General social data profile for South Africa (2000 figures)

Total population (millions)	42.8
Urban population (% of total population)	55.0
Population growth (annual %)	1.6
GDP (US$ billion)	125.9
GDP growth (annual %)	3.1
Human Development Index (HDI)	0.702
Human Poverty Index (HPI)*	20.2
Share of consumption	
Poorest 10%	1.1
Poorest 20%	2.9
Richest 20%	64.8
Richest 10%	45.9
Inequality measures	
Richest 10% to poorest 10%	42.5
Richest 20% to poorest 20%	22.6
UNDP Gini index**	59.3
Life expectancy at birth (years)	47.8
Adult literacy rate (% ages 15 and over)	85.3

*The HPI is an attempt to capture a broader measure of poverty, by going beyond just money or income. The HPI was computed on the basis of deprivation in longevity, living standards and knowledge.
**The Gini index measures inequality over the entire distribution of income or consumption. A value of 0 represents perfect equality and a value of 100 perfect inequality.
Source: World Bank (2001) Development Indicators Database; UNDP (2001)

Based on a per adult equivalent poverty line of R352 per month, in 1995 61% of Africans were poor, 38% of 'coloureds', 5% of Indians and 1% of whites (May, Woolard & Klasen, 2000). There is also a strong geographical dimension to the incidence of poverty. Based on the same data set, 72% of those below the poverty line reside in rural areas and 71% of all rural people are poor. Aliber (2003:479-482) identifies a number of groups who are likely to be classified as 'chronically' poor[65], *viz.*: the rural poor, female-headed households, people with disabilities, the elderly, retrenched farm workers, cross-border migrants, the 'street homeless', and AIDS orphans and households with AIDS sufferers. According to Aliber (2003:482), "at least 18-24% of all households nationwide are presently living in chronic poverty or

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[64] The unemployment data cited by Altman (2003) emerge when the narrow or strict definition of unemployment is used, namely where people are considered unemployed only if they are actively looking for work.
[65] Aliber (2003:473) argues that the 'chronically poor' are intuitively those who are most likely to remain in poverty in the absence of outside assistance.

are highly susceptible to chronic poverty". From this brief discussion of income inequality and poverty, it should be clear that after 10 years of democracy, social cohesion remains extremely fragile.

There is evidence that countries with significant inequality experience lower growth rates than others because lack of access to physical, financial and human assets constrains poor people from participating effectively and efficiently in the economy (May, 1998). In an influential study Whiteford and Van Seventer (1999) explored in detail the income disparities within South Africa. The researchers found that the rich continue to become richer, while the poorest members of the community, found mainly in the black community, become even poorer. The income of the poorest 40% of black households was 20% lower in 1996 than in 1991. Whiteford and Van Seventer (1999) show that the only blacks to benefit significantly from the transition to democracy in South Africa are the elite top 10%. The economic condition of most of the remaining black community worsened during the same period.

In 1994 the ANC-led government inherited an economy marked by deep economic inequality, high levels of poverty and low living standards characteristic of much poorer economies. Assuming power in 1994, the ANC initially adopted a leftist, basic needs-oriented *Reconstruction and Development Programme* (RDP) (ANC, 1994) as the popular foundation of its economic policy. The RDP White Paper, however, differed from the RDP Base Document in placing greater emphasis on "financial and monetary discipline", the "establishment of an economic environment conducive to economic growth" and "trade and industry policies designed to foster a greater outward orientation" (Government of the RSA, 1994:21). Hence, within a short period of time the ANC shifted from its long commitment to structural transformation through democratic developmental means towards structural adjustment using neo-liberal economic means.[66] That said, the tripartite alliance partners (i.e. COSATU and the SACP) are attempting to constrain the rightward drift of the ANC and to keep it accountable to its left wing allies.

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[66] In neo-liberalism the main restriction on an inherent tendency for free capitalist economies to grow is market failure resulting from perverse governmental policies (Wade & Veneroso, 1998).

Within two years of assuming power the ANC had switched to a neo-liberal *Growth, Employment and Redistribution* (GEAR) (DoF, 1996) macroeconomic policy stressing privatisation, deregulation and trade liberalisation. The ANC's alignment with the so-called 'Washington Consensus' (Habib & Padayachee, 2000), or what Wade and Veneroso (1998) call the 'Wall Street-Treasury-IMF complex', has drastically reoriented its policy from *growth through redistribution* to *redistribution through growth*. Questions have been raised about whether an orthodox neo-liberal policy is appropriate or legitimate, given South Africa's long history of inequality, poverty and dispossession (Padayachee, Smith & Valodia, 2000; Gibson, 2001; Carmody, 2002). The problem in South Africa, as elsewhere in the Third World, is the lack of a viable development programme that achieves economic growth through redistributing incomes and satisfying basic needs. Therefore in the years since the 1994 elections South Africa has, with some minor exceptions (labour policy, for example), followed a fairly orthodox, neo-liberal economic programme (Habib & Padayachee, 2000). This despite the fact that President Mbeki once argued that:

> "globalisation, deregulation and the information society…all originate from the developed countries of the North [and as such] reflect the imperatives of the economies and levels of development of these countries and therefore…serve the purposes of our rich global neighbours" (cited in Van Audenhove, 1999:5).

It would appear that the South African government is attempting a compromise between globalisation and social democracy (Koeble, 1998; Padayachee, Smith & Valodia, 2000). However, this is being undermined as the state is increasingly characterised by embedded or institutionalised dependence on global forces. As the state globalises, the success of government's development strategy depends on private sector actions and investment (Carmody, 2002). Habib and Padayachee argue that:

> "the ANC's implementation of neoliberal economic policies has meant disaster for the vast majority of South Africa's poor. Increasing unemployment and economic inequalities associated with the neoliberal economic policies have also pushed even more of South Africa's population into the poverty trap" (Habib & Padayachee, 2000:259).

Government's GEAR macroeconomic strategy has thus far failed to create the 833,000 formal sector jobs that it claimed it would between 2000-2005, thus putting more pressure on government to address poverty directly. In a context of sluggish growth, net job losses and escalating poverty, state expenditure programmes have so

far failed to provide an adequate social security net for South Africa's poorest and most vulnerable groups, especially the unemployed, women, children and the elderly (May, 2000).

The central thesis of Daniel, Habib and Southall's book entitled *State of the Nation: South Africa 2003-2004* (2003) is that South African society is still characterised by a 'two-nations' dichotomy, although the apex of the class structure (i.e. the first nation) is undergoing a limited degree of deracialisation. The second nation continues to be poor, marginalised and overwhelmingly black. The control of the post-apartheid state by narrow class interests imposes limitations on the transformation potential of the state. This state of affairs will persist as long as the ANC government remains committed to its existing set of economic policy prescriptions.

Sampie Terreblanche in his insightful book *A History of Inequality in South Africa: 1652-2002* (2003), argues that post-apartheid South African society is as unequal, if not more so, than before 1994. His trenchant critique converges with the central thesis propounded by Daniel, Habib and Southall (2003), namely that present-day South African society is increasingly multiracial and rich at the upper echelons and is still overwhelmingly black and poor, disempowered and marginalised at the bottom. Terreblanche (2003) refers to the current system as 'neo-liberal democratic capitalism'. He calls for a policy shift towards social democracy in which the state should play a more active role in alleviating poverty, redistributing wealth and attending to social welfare.

6.1.2   South African ICT Policy Landscape

A notable feature of the South African ICT policy landscape is the sheer number of major projects and in particular the fact that they are all at relatively early stages of development (see Chapter 5). One reason for this is that South Africa is responding rapidly, like many other developing countries, to the recent unprecedented focus on the role of ICTs as a vehicle for gaining a competitive advantage in the global economy and for social upliftment and poverty alleviation. Another reason is the focus on ICTs as an enabling technology in the country's macroeconomic strategy and development trajectory, and the subsequent visible support at the highest levels of government (see Appendix 2).

While South Africa has focused extensively on policy formulation over the last few years to deal both with issues of redress and to align the country with global trends, there is concern that there has not been the capacity within state institutions to implement ICT policies, which has resulted often in the undermining of its own policy objectives. A major weakness of the South African ICT policy environment is the lack of meaningful co-ordination, leadership and integration of the various efforts currently under way. In addition, there is often a wide gap between vision and action, insofar as many of the policy documents are often not successfully translated into realistic programmes of action. A measure of good policy is that it takes into consideration the capacity of government to implement decisions. While often hailed as an example of good policy, in practice South African ICT policy has not been conducive to implementation and failed to recognise the limitations of government institutions responsible for implementation and the fact that South Africa is a developing country. Another weakness is the fragmented nature of ICT policy-making in South Africa, which often results in duplication of effort. The lack of an integrated national ICT policy with leadership and vision is a serious shortcoming, especially considering that a large amount of resources has been invested in ICTs since 1994.

Although Gillwald (2000:4) argues that "South Africa appears to be struggling to transform itself into an informational society despite considerable political will", as measured by all available ICT indicators, it is evident that South Africa has firmly established a leadership role within Africa (DTI, 2000a, b; Creamer, 2001). Moreover, President Mbeki has made several statements that the development of telecommunications and ICT is a major priority for South Africa in terms of eradicating poverty and nurturing sustainable growth and development (Erwin, 2001). Finally, two presidential commissions (i.e. the PNC on ISAD and the PIAC on ISAD) have been established to ensure that South Africa does not lag behind the rest of the world in respect of ICT diffusion and building the 'information society'. Both of these structures include prominent public and private sector representatives, with the PIAC on ISAD including the Chief Executive Officers of major international ICT corporations (Dobson, 2001).

6.2 Discourse Analysis

6.2.1 Techno-Centric Optimism

Table 6.2: Digital optimism (extracts 1-10)[67]

Extract 1: "Government is determined to promote the diffusion of ICTs as widely as possible because there is irrefutable evidence that access to ICTs can have a direct impact on raising living standards and quality of life of the poor" (interview transcript).
Extract 2: "The challenge is to truly and fully mainstream ICTs as a powerful tool of accelerated development" (interview transcript).
Extract 3: "ICTs are developmental because they contribute to building the information society in which the lives of the poor are empowered and enriched by access to information and knowledge…and they offer social, political and economic opportunities for the poor. Therefore this government has made ICTs a top priority for development" (interview transcript).
Extract 4: "The International Advisory Council on Information Society and Development met recently in George to discuss, among other things, economic growth and competitiveness, research and development and the implementation of an e-government programme…The key focus areas were identified. These are: health and telemedicine; small, medium and micro enterprise growth and development; and education. It was agreed that we would also focus on e-government as an overarching and cross-cutting element common to all three areas and because e-government is a necessity for the efficient and effective operation of government" (Mbeki, 2002:n.p.).
Extract 5: "I am sure you will agree with me that the growth and development of small, medium and micro enterprises can and must benefit from the available technology so that we are able to expand access to technology to the wider community of our business people to encourage business growth and improve the level of competitiveness even among the smaller corporations" (Mbeki, 2002:n.p.).
Extract 6: "I have no doubt that the work we are doing and will do in this country, supported by the National and International Advisory Councils, will also be of enormous benefit to Africa as a whole" (Mbeki, 2002:n.p.).
Extract 7: "At the national level, as we are certainly aware that the effective use of ICT in any country impacts strongly on the productivity and competitiveness of that economy as well as the ability of government to deliver on its social goals" (Mbeki, 2002:n.p.).
Extract 8: "All our efforts have been directed at ending poverty and broadening access to a better life. In recent years, the focus has also been more specifically on an Integrated Sustainable Rural Development Strategy and urban renewal programmes. The ICT sector in particular was identified as having the tools with which we can accelerate our own development and also which enable us to participate on a more competitive basis in the world economy" (Matsepe-Casaburri, 2003:n.p.).
Extract 9: "The knowledge revolution could truly belong to everyone and advance our social emancipation as South and Southern Africans and eliminate the marginalisation of Africa from world development" (Matsepe-Casaburri, 2003:n.p.).
Extract 10: "[W]orking towards universal access [to ICTs] is a given and a principled position, thus the crucial focus on ending poverty and underdevelopment" (Matsepe-Casaburri, 2003:n.p.).

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[67] The extracts in Tables 6.1-6.8 are derived from the interview transcripts and government documents. For references to the latter, see the bibliography. Further, for the convenience of the reader, Appendix 2 includes a list of salient government documents that deal with ICT for development.

Table 6.3: Digital optimism (extracts 11-20)

Extract 11: "ICTs can and must help to fast-track development, to challenge existing definitions, and we will do all we can to meet the challenges that we have inherited as Africans and the new ones that arise every day in this new world" (Matsepe-Casaburri, 2003:n.p.).
Extract 12: "[E]-government and e-governance may contribute in the process of creating digital opportunities for all…The demands on government service delivery today require the constant investigation and implementation of innovative mechanisms to deliver public services…In today's world ICT is seen as a basic necessity and is critical in enabling the fast tracking of development…The dream to utilise technology as a means to effect government service delivery is indeed the best path if we want to achieve accessible government" (Fraser-Moleketi, 2002:n.p.).
Extract 13: "ICTs are now, more than ever before, a basic need in advancing socio-economic development. Without the use of ICTs, as countries we will lose whatever competitive advantage we have in global trade…[We need to] [t]ak[e]…responsibility [for] exploiting the opportunities presented by ICTs…to facilitate sustainable development, democracy, efficiency and transparency. Some of these opportunities include the use of ICT in the area of education and health" (Fraser-Moleketi, 2002:n.p.).
Extract 14: "[A] critical and pervasive element in economic development in the current age is the optimum utilisation of information and communication technology. In addition to the many programmes we have introduced in this area, including tele-centres, we shall as a matter of urgency complete the work towards the establishment of an ICT University" (Mbeki, 2002:n.p.).
Extract 15: "The vision of the Universal Service Agency is to be the leader in promoting and creating an enabling environment for the achievement of universal service and universal access to Information and Communication Technologies (ICT) services as an empowerment vehicle for disadvantaged communities. The Universal Service Agency will monitor, evaluate and promote the provision of affordable universal service and universal access to ICT services for disadvantaged communities in South Africa to facilitate development, empowerment and economic growth" (USA, 2002:4).
Extract 16: "We believe that [the Electronic Communication and Transactions] Bill because of its emphasis on disadvantaged communities will go a long way in allowing rural producers to participate in international trade and commerce. It will facilitate active participation in the economy by rural men and women who are involved in arts and crafts and cannot afford transport to urban centres to market and sell their products. We envisage that e-commerce will bring a large majority of our people into the mainstream economy" (Matsepe-Casaburri, 2002b:n.p.).
Extract 17: "For the e-commerce legislation to make an impact on sustainable economic growth, all South Africans should become active participants in electronic communication and transactions" (Matsepe-Casaburri, 2002c:n.p.).
Extract 18: "Governments around the world are embracing electronic government. In every region of the globe – from developing countries to industrialized ones – national and local governments are putting critical information online, automating once cumbersome processes and interacting electronically with their citizens" (Working Group on E-Government in the Developing World, 2002:1).
Extract 19: "The spread of information and communication technology bring hope that governments can transform. And indeed, forward looking officials everywhere are using technology to improve their governments" (Working Group on E-Government in the Developing World, 2002:6).
Extract 20: "The recent and dramatic developments in ICTs provide an opportunity to better the lives of all the people of South Africa…The result is a community that uses ICTs for accelerating the country's social and economic development" (PNC on ISAD, 2003a:1).

The benefits of ICTs for the poor are seen as intuitively self-evident and universally valid. It is clear that government has invested a great deal of faith in the power of ICTs in development (see Tables 6.2 and 6.3). The optimistic view of government focuses too heavily on technology potential rather than on adapting appropriate information systems to meet the real needs of poor communities in different environments. Further, this rose-tinted view of technology fails to adequately deal with the constraints for accessing and applying ICTs by the poor. What is urgently needed is a more integrated framework for understanding both information and ICTs in relation to poverty alleviation and development.

Technology alone does not create change. It takes commitment by people and requires a long implementation period. Further, it takes time for people to comprehend the potential benefits of ICT-mediated information, or to be willing to trust information that does not derive from personal networks. Even when initiatives are successful (i.e. bring measurable benefits), there remains the issue of financial sustainability, lack of local demand for ICT-based information and the problem of how to ascertain what value citizens attach to services provided. Moreover, constraints to expansion of the Internet are considerable and include lack of basic connectivity to telephone networks, high connection charges and low computer skills.

The optimistic view needs to be tempered in the light of evidence showing that learning is a critical feature of technological change (Bell, 1984; Bell & Pavitt, 1993; Lall, 1992). Further, the importance of ICTs for addressing the real information needs of the poor has tended to be overstated and there is a danger of the policy debate becoming too strongly focused around the capabilities of emerging technologies. Government is also guilty of overlooking, or at least underplaying, the constraints that make it difficult for the poor to access, assess and apply information through ICTs. These include lack of human capabilities (i.e. literacy, English language skills, and technical and computer competence); urban/rural inequities; gender inequalities; affordability; and lack of relevant information content.

Discussion in government about e-government suggests that it has grown larger than government *reform* and carries with it greater expectations and possibilities of *transforming* government. As we have argued in Chapter 4, although ICT has the

potential to improve service delivery, enhance government accessibility and citizen participation, there are a number of challenges that could prevent the realisation of these anticipated benefits. Further, it is at a very early stage of its development and many forces could intervene to affect its direction. It is still too soon to predict how the role of electronic public service delivery will evolve.

For small entrepreneurs the most valued sources of information are friends, family and business networks (Heeks & Bhatnagar, 1999). By contrast, ICT-mediated information often lacks proximity and the element of 'trust, confidence and security' that is gained through business networking and personal contacts (Duncombe, 1999; Duncombe & Heeks, 1999). ICT-mediated information is also not easily applicable to the existing knowledge base and small-scale entrepreneurs will generally lack the wider knowledge and experience that are necessary to effectively assess, apply and act upon ICT-mediated information.

The information needs of poor households, communities and small-scale enterprises should be understood in advance of proposing ICT-based solutions. Significant 'financial opportunity costs' for poverty alleviation strategies are likely to arise, since large amounts of limited resources are being diverted to poorly conceived ICT-related investments that might not have a direct impact on the needs of the poor. There is also the risk that introducing digital information systems may supplant existing systems that may be more appropriate and more cost effective in terms of access and coverage. Moreover, over-emphasis on technological solutions can have the effect of drawing attention away from the underlying causes of poverty such as inadequate health and educational facilities.

As part of an integrated development strategy ICTs can contribute to socio-economic development, but investments in ICTs alone are not sufficient for development to occur. ICT applications are not sufficient to address problems of rural access without adherence to principles of integrated rural development. Unless there is minimal infrastructure development in transport, education, health and social and cultural facilities, it is unlikely that investments from ICTs alone will enable rural areas to cross the threshold from poverty to growth.

Government has over-enthusiastically embraced the application of ICTs and telecentres to address the pressing needs of the poor. The major problem is that there is a widespread misunderstanding about how substantial benefits can be derived from ICTs for the poor. Persistent poverty, at both an individual and societal level, has deep and systemic roots. Chronic poverty, limited growth and inequality are primarily the result of uneven access to material and financial resources. The material deprivations of the poor are compounded by their lack of access to education, information and knowledge; their lack of voice in the institutions and societal processes that shape their lives; and their inability to communicate effectively their needs, hopes and expectations to those who have control over them. These deprivations are mirrored at the societal level by institutions and markets that function poorly, that are often unresponsive to the needs of the disadvantaged and disenfranchised, and that are all too frequently captured or are excessively influenced by economic, social or cultural elites.

Government's discourse on ICTs and development is couched in the upbeat 'we will all benefit from this' language. Uncritical acceptance of the promise of ICTs for development and poverty reduction is quite pervasive in government circles. There are times when it would seem as if government regards ICTs and Internet connectivity as the solution for poverty. Technology is seen as the panacea for development. The technological utopianism of government maintains that the digital world of the new ICTs holds the potential for breakthroughs in resolving the social problems of poverty and inequality in South Africa. The isolation of the poor can be ended and radical new approaches to poverty and social inequality can develop directly through the cyber-world. The digital world holds potentials for conferring enormous economic benefits on society as a whole and its low-income segment in particular. It is for these reasons that government sees exclusion from the digital world as disastrous for those excluded.

There are strong expectations in government that the social and economic implications of ICTs create a very bright future for the poor. The difficulty with this scenario is that these claims are difficult to substantiate empirically. The current ICT discourse focuses to a great extent on the implications of the adoption of these technologies for processes of social change. Since these processes are difficult, if not

impossible, to foresee, it would seem more beneficial to concentrate on the social and institutional changes that are required, if the potential for pro-poor human development of ICTs is to be guided in the preferred direction. A major problem for policy-makers is the general tendency to adopt and deploy ICTs within pre-existing social and institutional (conceptual and organisational) frameworks. ICTs will not by themselves change existing institutional settings. This will need processes of political decision-making that are guided by the genuine aspiration to bring about sustainable and democratic human development. Once it has been accepted that ICTs should be (re-)shaped to suit scenarios of preferred futures, then the social and institutional changes required for the technologies to achieve the preferred future have to be identified and ways to bring about these changes have to be found. This is an urgent matter because the use of ICTs within conventional social and institutional frameworks may not only hamper the realisation of potential benefits, but may also reinforce the possible social risks.

6.2.2   Technological Determinism

There is a distinctive view in government that technology determines the nature of society (see Table 6.4). ICTs have become idolised as a force that can 'fix' the economy, raise the general standard of living and human well-being in the country, and deliver on poverty alleviation. According to Smith and Marx (1995), it is not technology that drives history, but rather the decisions people make about how to use technology, as well as the ways in which powerful sponsors influence specific innovations. For help in explaining the social pressures acting upon technology, historians (Smith & Marx, 1995) and sociologists (Wajcman, 2002) have drawn on a theory called 'social constructivism' which calls attention to a large body of previously ignored evidence that shows how different cultures have reacted in vastly different ways to the same innovation. Social constructivists have also illuminated the ways in which individuals create technologies that reflect their own biases and needs. Technologies as diverse as household appliances, missile-guidance systems and computers have resulted from a myriad of social choices, with innovators facing open-ended turning points.

Table 6.4: Technological determinism

Extract 1: "ICT has vast, untapped potential in fighting the scourge of poverty in our country…ICT plays a crucial role in the empowerment of people, and in development in general. It is true that ICT impacts on every aspect of our lives, from the way we work to how we live…the 'digital divide' needs to be reduced to bring opportunities to countries like ours, and to create conditions for maximum benefits from new services that are aimed at accelerating development…the…consensus is that universal or all-round access is the gateway to economic prosperity. It…contributes to higher productivity and ultimately general well being. ICT is…a necessity" (Zuma, 2002:n.p.).
Extract 2: "The decision to establish [the Presidential International] Advisory Council [on Information Society and Development] was based on the realisation that information and communication technologies are key drivers for growth of the economy as well as for socio-economic upliftment…In this regard, Government should establish a shared vision for the ICT sector around which to rally the country" (Ministry of Communications, 2001:n.p.).
Extract 3: "Information and knowledge are the guarantee of our freedom, the guarantee of openness, accessibility, accountability, and the vehicle for social transformation" (Naidoo, 1998a:n.p.).
Extract 4: "[We need to]…build a digital, fibre optic, broadband high-speed backbone that would build the Internet economy and promote e-commerce…deliver tele-medicine and tele-education" (Naidoo, 1998b:n.p.).
Extract 5: "Technology is a potent equalising and transformative force in bridging the legacy of apartheid" (Naidoo, 1998c:n.p.).
Extract 6: "Technology is the master of a country's destiny…ICTs will be the basis for global competitiveness…in essence ICTs determine the prosperity and success of countries…including South Africa" (interview transcript).
Extract 7: "The positive effects of the Internet permeate every aspect of society ranging from social, economic, technology, education, health, and welfare to the business and academic fields with a common outlook for development and growth" (DoC, 2000a:Section 12.1).
Extract 8: "E-commerce presents unique opportunities for less developed countries to greatly expand their markets both internally and externally…E-commerce technologies carry the potential to reshape the geographic boundaries and the location of commercial business centres…[physical space] may become less relevant, as companies and workers conduct business with equal effectiveness from almost any location. Electronic commerce will transform and help to shape society as a whole especially in the areas of education, health and government services (DoC, 2000a:Section 12.2).
Extract 9: "Welcome to an African revolution…The modern world demands that, if a country wishes to provide a quality social environment, it must have a robust information, communication and technology infrastructure" (PNC on ISAD, 2003c:n.p.).
Extract 10: "E-government is about transformation that helps citizens and businesses find new opportunities in the world's knowledge economy" (Working Group on E-Government in the Developing World, 2002:12).
Extract 11: "ICTs will lead to a more egalitarian society in South Africa…for reinventing democracy…as a result of the vastly expanded opportunities for accessing and exchanging information…as well as making government services more accessible and responsive " (interview transcript).

For government, the transfer of technology to poor communities is seen as unproblematic. It is not realised that such a transfer would depend not merely on technical elements, but on social and cultural factors as well. Technology is seen as neutral, not as an instrument for the creation of cultural and social orders. The

understanding of technology as part of a wider socio-economic system is particularly important when the technology is adapted within environments very different from those for which it was originally intended (Schumacher, 1973). When technology is transferred from one society to another, it reflects the social values, institutional forms and culture of the transferring country.

Greater clarity is needed on the part of government in deciding what community telecentre projects are aiming to do. Community telecentres are a form of technology transfer, either from Northern countries to countries of the South, or from richer urban to disadvantaged (often rural) areas within a country. In South Africa telecentres can be seen as a form of technology transfer from urban areas to disadvantaged areas (both in townships and rural areas). The approach adopted by government is one of 'technology push'. As international experience has shown, technologies that have been transferred to new contexts often do not function as expected (Bell, 1997). The key issue is the degree to which the local context can assimilate and adapt the technology for its own ends at a number of levels. If government does not carefully think through these issues, there is a risk that telecentres will fail and waste valuable resources.

It would appear that government has latched on to telecentres as a 'good thing' rather than critically examining the claim that they represent a way of providing a wide range of developmental services. Telecentres are often seen as ends in themselves rather than as tools to support services in areas such as education, health and small business support. Government will need to focus on a number of dimensions: (i) What services can telecentres provide that will be of use to the communities they serve? (ii) What ICTs are appropriate for rural and poor areas? (iii) What ownership and management is appropriate to create a dynamic, socially acceptable and sustainable telecentre? and (iv) How much money is required to establish the many thousands of telecentres that are required and how can ongoing costs be met?

Government has started with the technology rather than with an integrated development strategy. When considering the use of ICTs for development, it is essential to have a clear development strategy at the outset. Whilst the strategic thinking can be informed by an appreciation of the capabilities of ICTs, it is essential

to have clear poverty-alleviation targets that are specific to the context before the form of use of the ICTs is defined. Additionally, in considering the development strategy, it is important to note that bottom-up, demand-driven development objectives are usually preferable to top-down, supply-driven objectives, so that goals begin with an appreciation of the needs of development recipients, as they would themselves express them.

Since the outcomes of ICTs are open-ended, we have no reason to expect the emerging socio-technical system built around ICTs to remedy social inequalities in our society or to relieve the plight of the poor, any more than other major socio-technical changes have had such effects in the recent past. The three previous 'communication revolutions', for example, have had significant impacts on society but failed to deliver the optimistic predictions first hoped for. The railway was believed to spark the *dictatorship of the proletariat*[68], the telegraph to engender world peace and the television to revolutionise education. It is highly unlikely then that ICT alone will end global poverty. In the long-term widespread adaptations to the new technological system will likely take place, just as broad social adaptations have been made to other socio-technological shifts (e.g. railways, automobiles and electricity). But these adaptations are unlikely to remedy the fundamental, structurally based inequality between the poor and the well-to-do. Structural inequalities can be solved only by attacking them within the larger historical, cultural and socio-economic matrix that generated them.

ICTs are seen as an all powerful agent of change, i.e. as a primary causal agent of social change. Government claims that the use of ICTs will relieve people of drudgery, improve access to information and result in greater social justice. In order to realise this utopian vision, it is necessary to promote access to ICTs, especially the Internet. Thus, policy initiatives start from the assumption that access to the technology is necessarily desirable and hence *access* is the policy challenge to be met in order to realise the socio-economic potential of ICTs. It is assumed that once barriers to access are overcome, poor people will embrace the technology wholeheartedly.

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[68] In Marxist theory the 'dictatorship of the proletariat' refers to the ideal of proletarian supremacy following the overthrow of capitalism and preceding the classless state.

There are undoubtedly 'informational developments' globally, as in South Africa, and through interaction with other social developments these will have an impact on how the future of such societies shape up in different ways dependent upon different historical circumstances. In government's 'utopian scenario' these developments have overwhelmingly positive effects on poverty reduction. It would appear that government is driven by a deterministic perspective on social development: technological innovations have a direct impact on social processes. There is no space for reflection on the myriad of complex ways in which technology and society are dialectically linked.

A technological determinist view often dominates the subject of ICTs for poverty reduction. This can be detected at all levels of discussion, both descriptive and predictive. The fact that technologies almost always have unintended and unplanned consequences is ignored. As much in its development as in its application and use, technology is intrinsically shaped by its economic, political and social environment (Williams & Edge, 1996). In other words, context matters. Referring to the Third World, Hamelink notes:

> "[S]ince conditions in different countries vary, no global solutions can be proposed. Country studies are needed in order to explore the specific policies, programs and technological solutions likely to be effective in specific social and economic conditions" (Hamelink, 1997:34).

There is a widespread approach in government that seems blinded by the 'newness' and novelty of digital ICTs, and which, by emphasising the 'revolutionary' character of the Internet and related technologies, tends to become (either deliberately or by negligence) ahistoric. The term 'information revolution' underscores a notion of historical discontinuity. The emphasis on historical discontinuity runs the danger of underestimating the continuities involved in the process, as much in the technological innovations as such as in their adaptation in the economic, social and political contexts.[69] Further, terms like the 'information society' and 'information revolution' tend to imply that the technological discontinuity goes hand in hand with a revolutionary discontinuity in social and political relations. As discussed in Chapter

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[69] ICTs are based on a long list of technological innovations and evolutions that took place earlier. Effectively, ICTs are characterised by a complex process of technological convergence between microelectronics, telecommunications, computing and broadcasting. Thus there is no single historical moment that can be named as its starting point (Everard, 2000; Hamelink, 1997).

3, the empirical evidence does not live up to the proclaimed epochal dimensions of change. This then raises the question of what should change, thus opening up a wide field for ideological preferences of all sorts.

To conceptualise technology and technological change outside of any social, economic, political or cultural context can have several consequences. The first is that the approach becomes one of technological determinism, in which the technology is seen to act as an autonomous agent that has a direct effect on other social systems. Such accounts ignore the social shaping of technology and the fact that technologies and social life are interconnected (Schmidt, 2001:1; Groper, 1996). These approaches disregard the political, social and cultural processes that necessarily accompany the development of any technological innovation, not least in the form of values, judgements and interests in operation that help structure Internet access and use (MacKenzie & Wajcman, 1999). Technological development comes to be seen as autonomous and self-generating. Technologies, however, are always situated within circuits of human action which provide their context and shape their direction.

6.2.3   Modernisation

Technological modernity is by definition a positional good. Since in a capitalist economy the central impetus of technological innovation lies in the achievement of competitive advantage over other companies or nations, the reproduction of the technological divide, though on always-changing levels, is an inherent part of the global capitalist system's normal functioning. Further, given the far higher investments in R&D activities in the industrialised countries, there is little doubt that the process of new technological innovations is driven forward at a much faster rate in the industrialised countries than in the Third World. The discourse of the South African government proclaiming the 'digital inclusion' of Africa in a system that hardly allows for an equal inclusion for all is therefore problematic.

Modernisation theory attempts to construct a totalising vision of society which tries to provide a rational basis for understanding all aspects of development. Such theories, however, neglect much of the richness and diversity of development by reducing it to some fundamental essence. ICTs are seen as products of 'rational discourse' and are

Table 6.5: Modernisation

Extract 1: ICTs are very closely tied with globalisation and the new economy. As such we need to integrate ICTs into our manufacturing and services sector…in order to remain globally competitive…and to create jobs for the poor. A modern and efficient economy is critically important to generate the jobs and to form the basis for redistribution" (interview transcript).
Extract 2: "The whole global economy operates on the basis of electronic networks of information and communication. South Africa therefore has to ensure that we are at the cutting edge of ICTs in order to compete in this new economy. The risk of not being connected is exclusion and marginalisation…this will have dire consequences for any redistributive policy" (interview transcript).
Extract 3: "Accordingly, we have formed two structures to facilitate discussion and common action in the area of ICT as part of our quest to develop a modern economy and society. These are the Presidential National Commission on Information Society and Development as well as the Presidential International Advisory Council on Information Society and Development" (Mbeki, 2002:n.p.).
Extract 4: "I am certain that [ICTs] will help us the more effectively to impact on the identified area of health especially to improve the lives of our people in the remote areas of our country, demonstrating that modern technology provides us with a tool to fight and defeat disease and underdevelopment" (Mbeki, 2002:n.p.).
Extract 5: "[T]he recognition of the centrality of the IT sectors in economic development and in enabling Africa to leapfrog into the future" (Matsepe-Casaburri, 2003:n.p.).
Extract 6: "The rollout of telecentres became another way in which the historically disadvantaged could be the beneficiaries of modernisation and enable large numbers of people in rural areas to have access to telephones and basic ICT" (Matsepe-Casaburri, 2003:n.p.).
Extract 7: "[T]he need [is] for developing countries to leapfrog development…into the high technology of the leading societies and continue along the traditional path of industrial development" (Fraser-Moleketi, 2002:n.p.).
Extract 8: "ICTs offer us the possibility to render services in ways that are unimaginable without technological intervention. Services can be rendered on a 24-hour basis thus offering citizens a choice as to when and how they intend to interact with government…With ICTs, it appears, that possibilities of service delivery are limitless – the choice, convenience and cost benefits in the long run make a compelling case for…advanc[ing] the programme of modernising government" (Fraser-Moleketi, 2002:n.p.).
Extract 9: "The Department of Public Service and Administration (DPSA) has embarked on a process to develop IT policy for Government to ensure that modern technology is utilised to improve systems and infrastructure to enable better service delivery" (Fraser-Moleketi, 2000).
Extract 10: "We need to broaden the values that underpin the current modernisation…We need to…harness the power of the most modern technology to catapult all the citizens into the 21st Century" (Naidoo, 1998b:n.p.).
Extract 11: "Information technology (IT) plays the role of a key enabler of this modernisation of government…IT brings endless possibilities for improving the internal operational and support functions within the realm of government…Information technology is a powerful enabler for delivery of services to the public" (DPSA, 2001:4, 7).
Extract 12: "Africa is lagging far behind in crucial areas such as telephones, broadcasting, computers and the Internet…and needs to modernise" (Mbeki, 2001:n.p.).
Extract 13: "Another important area being addressed under NEPAD is the issue of using Information and Communication Technology to leapfrog the development of the continent forward. In order for Africa to benefit from the globalisation process and the information age, ICT infrastructure development on the continent is vital" (Mbeki, 2001a:n.p.).

thus universal in scope and not bound by particular historical or cultural conditions. In modernisation theory Western values are universalised and linked with progress, which can be seen as an adjunct of the hegemonic power of the advanced industrial countries.

The desire by government to bridge the 'digital divide' between rich and poor has led in recent years to a number of initiatives to harness ICTs for poverty reduction. The successful experience of East Asian countries has lent support to an 'ICT-led' development thesis implying that South Africa can adopt 'leapfrogging' strategies. According to this view, ICTs represent a 'window of opportunity' for South Africa to move from a situation of 'limited' technology to widespread adoption of 'sophisticated' technologies, without going through the stages of technological adaptation and learning experienced in the advanced, highly industrialised countries. East Asian industrial development, as exemplified by the four dragons (i.e. South Korea, Taiwan, Hong Kong and Singapore), emerged from a unique confluence of a particular set of socio-cultural, historical and geo-political factors, many of which are not found in present-day South Africa (see Wade, 1990). Even if the same economic institutions were to be duplicated, they are likely to have very different consequences in distinct contexts.[70] Simply put, the rules of the game have changed since the time when the East Asian industrial development began (Wade, 1996). Globalisation, for example, has involved a profound and comprehensive restructuring of the world productive apparatus.

In the government's discourse ICTs have become inextricably bound up with ideas of social progress in the transformation of human nature (see Table 6.5). There are similarities in government's ICT discourse and the vocabulary of 'the Enlightenment', the name given to the movement of intellectuals committed to the superiority of scientific (or instrumental) rationality in the era, roughly, between 1750 and 1825 (Marx & Mazlish, 1996). The 'Enlightenment Project' marked the great watershed between the feudal era and the emergence of democracy, the market economy or, in a word, modernity. The doctrine of universal progress expressed the belief that history

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[70] Nor is the endpoint of development institutionally identical. Even among OECD countries there remains a considerable variety in institutional structures and government-business interaction patterns.

itself is a record of the steady, continuous, cumulative expansion of human knowledge of and power over nature, exemplified above all by advances in science, engineering and technology, and that it will result in a general improvement in the human condition (Nye, 1990).[71]

In government's ICT and poverty alleviation discourse one hears 'technology' invoked as if it were an entity that possesses autonomy and agency, and an independent capacity to change things. Inherent in it is a capacity to generate progress and to determine the direction of social change. It is not surprising, under the circumstances, that many in government invest hope in the new ICTs as a cure-all for deprived communities. If the historical record is any indication, these innovations by themselves are most unlikely to ameliorate the deprivations that afflict the poor (Marx, 1988; Noble, 1977). Only by confronting their problems within the larger historical, cultural and socio-economic milieu that generated them are the poor likely to devise effective ways to use the new technologies. Meanwhile, the chief lesson to be drawn from the history of technological innovation and its social consequences is largely cautionary (Smith & Marx, 1995). Although the new ICTs will effect many radical changes in society, it would be foolish to rely on them as a 'technological fix' for the afflictions of economic injustice, deprivation and inequality.

The mission is modernity, with a liberative dimension: to liberate poor communities from ignorance. This thinking is based on the postulation of an evolutionary scenario in which those left behind in the race for progress could, with the aid of government, catch up and also become modern and developed. The discourse of progress is constructed on the basis of the 'information superhighway'[72] concept and the false polarities of the information 'haves' and 'have-nots'. These false and mutually exclusive polarities are united in an evolutionary discourse that postulates them as sequential stages of development. The suggestion that technology is a linear progressive process is misleading.

Financial systems, for example, differ substantially between the US and the EU countries, and between Japan and other OECD nations.

[71] The universality of the 19th century belief in progress is indicated by the fact that it was embraced by both the most ardent apologists for industrial capitalism and by its most cogent critics, the Marxists (Marx & Mazlish, 1996).

ICTs, it is believed, have the potential to enable South Africa to leapfrog over industrialisation into a post-industrial society. This belief is being driven by a strong fear of being left behind and cut off from the global 'information superhighway'.[73] According to the trickle-down view, there may be inequalities of access and use during the early stages of a technology, but it is assumed that these disappear, or are at least much reduced, as the technology becomes more widely diffused. This is not unique to the Internet. Similar claims can be found in much literature and in policy statements about industrialisation and modernisation more generally. Individuals, regions and nations will 'catch up'; those who are not connected now, will or should be soon. The assumption is that the entire world shares a single timeline of development in which some groups are further ahead than others along a single, shared path. These views of trickling-down or catching-up are based on the flawed premise that growth is evenly distributed.

The expectation that innovations in telecommunications and computer technologies would improve industrial performance and increase economic productivity has become firmly established among government officials. The common position is that ICTs will allow the country to leapfrog over the industrialisation of the economy into a post-industrial society. Simultaneously, there is a fear of being left behind and cut off from the emerging global digital economy. This 'threat/opportunity' duality is quite pervasive in government's discourse on ICTs. The general belief seems to be that without adequate access to the global 'digital economy', South Africa cannot hope to be economically competitive in world trade. Thus the competitive position of local manufacturing and service industries should be improved. In South Africa, the 'digital rush' is on to ensure connections with the electronic networks for trade, finance, transport and science. This phenomenon has been inspired by the obvious benefits that digital ICTs seem to offer, at least in principle. This position bypasses the question of whether the deployment of ICTs does indeed lead to growth in

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[72] In September 1993 the US government launched its National Information Infrastructure (NII) initiative. Although this was a broad and rather vague 'agenda for action', it invoked the powerful metaphor of the 'Information Superhighway' (Kubicek, Dutton & Williams, 1997).

[73] It was the 'information superhighway' metaphor which projected the Internet into public consciousness in the mid to late 1990s. The engineering metaphor (of highways) suggests that there are policies government can adopt in order to promote access and use, such as training for individuals and small businesses, public facilities for those without home or office access, regulation of connection costs and investment in infrastructure. A more organic, evolving metaphor was omitted because it does not offer any clear policy prescriptions.

economic productivity and, if so, whether such growth will be equitably distributed. As discussed elsewhere (Chapter 4), it is very difficult to provide solid empirical evidence to support this conclusion.

It may well be an illusion to think that South Africa could catch up or keep pace with technological progress among Northern countries, where the rate of technological development is very high and is supported by considerable resources. This is not to say that South Africa should not upgrade its ICT systems. Rather, government should not act with the unrealistic expectation that those countries that are ahead are planning to wait for us to catch up with them.

Many of the basic tenets of modernisation theory, in revised form, are still very much alive in government's ICTs for development discourse. A simple unlinear progression is invoked, reflecting the teleological nature of modernisation theory. The belief is built on the optimism of the 1950s that the transition from tradition to modernity is primarily a *technical* problem. And that this advance from tradition to modernity would be a simple unilinear progression based on importing solutions from the advanced industrial West (Hirschman, 1967, 1981). As discussed in Chapter 2, there have been numerous critiques of the ascribed unilinear and teleological nature of modernisation theory, especially its view of development as a set of ends or achievements, its ideological and ethnocentric character, and its ineffectiveness as a policy tool (Higgott, 1980).

In spite of the critiques of the theoretical suppositions of modernisation theory (Munck & O'Hearn, 1999), it nevertheless constitutes the dominant worldview of government as well as the major international development agencies. Government continues to display an inordinate Comtean[74] faith and confidence in the ability of positivistic social science to provide 'technicist' recipes for controlling and managing the trajectories of social change and economic growth in poor communities. The overall teleological evolutionary goal of ICT-based modernisation is never questioned. This faith is based on an undemonstrated and unwarranted assumption of

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[74] Of or deriving from Auguste Comte (1798-1857), French philosopher and founder of positivism.

the government's ability to control and direct the process of social change in poor communities.

6.2.4   Information Society

Table 6.6: Information society

Extract 1: "The information society is upon us and as government we must be prepared to meet the challenge. The promise is for a knowledge-based society which will yield considerable benefits for education, health, development, democracy and much more. Seamless networking and knowledge flows will be possible…even for the rural poor" (interview transcript).
Extract 2: "Government is looking at ways to build the information society in South Africa…particularly strategies to build the NII [National Information Infrastructure] for the information society…ways of enhancing e-literacy among the different sectors of society…and the optimal application of ICTs in all sectors for purposes of developing a strategy for each sector of the economy" (interview transcript).
Extract 3: "What will decide how the 'information society' evolves in South Africa is policy regulation, the market and a number of projects from government, business and communities" (DoC, 1998b:1).
Extract 4: "We are at the brink of the 21st Century that will be driven by the information society…The economic survival of the country is heavily dependent on our ability to become part of the information society. Sophisticated telecommunication services are a pre-requisite for growth, foreign investment and international competitiveness" (Naidoo, 1998c:n.p.).
Extract 5: "We are committed to using the power of the Internet, to bring our communities, our people into the global information society" (Naidoo, 1998d:n.p.).
Extract 6: "The transition of the global economy from an industrial focus to one based on knowledge and information presents numerous opportunities and challenges to countries, especially in the developing world" (DoC, 2000a:Section 1.1).
Extract 7: "We may generally define an Information Society as one that has built the necessary capacity to maximally use ICTs to accelerate social and economic development…It is in South Africa's best interests to get connected to the Information Superhighway" (interview transcript).
Extract 8: "There is…a crucial public policy dimension which rests on the shoulders of the government…ensuring that this Information Society supports and enhances the objectives of development, empowerment, economic development and preserves the constitutional values on which the whole national edifice is built" (Mbeki, in PNC on ISAD, 2003c:n.p.).

It has become common practice in government to describe 'modern' societies in terms of the concept of the 'information society' (see Table 6.6). As discussed in Chapter 3, this concept refers in a general sense to increases in available volumes of information, the significance of information processing in ever more societal domains and to the view that ICTs provide a basic infrastructure upon which societies become increasingly dependent. As mentioned previously (Chapter 3), the concept of the 'information society' is flawed and contested. It is questionable whether one can adequately describe societies with one comprehensive variable only and, even if this

were possible, whether information is a more precise category than capital. Further, it should be noted that societies pursue very different paths of development, information being only one path.

Table 6.7: Market determinism

Extract 1: "Government-led initiatives have had mixed results…there are several drawbacks in terms of financial and technological sustainability. Private sector initiatives are most successful. In a sufficiently competitive and liberalised market the private sector is most effective in providing commercially viable communication services, even in rural or less viable areas. And in areas where providing services is not financially viable, regulators can use a number of instruments such as service requirements, special financing mechanisms and investment subsidies to provide incentives to the private sector to promote public access" (interview transcript).
Extract 2: "The current wave of globalisation…the trend towards worldwide integration of markets…is spurred by the development of information and communication technologies, including the Internet, mobile phones and satellite networks…Building the infrastructure for the Information Superhighway is a responsibility of both the state and the market. The private sector has both the skills and the capital to provide an impetus for rapid roll-out…with the state playing an important role in regulation and monitoring social obligations" (interview transcript).
Extract 3: "It is critical for growth and development that South Africa gets on the Information Superhighway…and that we stay there. We will all benefit from this. Building the NII [National Information Infrastructure] is an absolute imperative. The private sector should lead the deployment of the NII. Private investment is critically important to construct and extend the NII into under-serviced areas. Competition is the single most important means of encouraging that private investment" (interview transcript).
Extract 4: "Fostering partnerships between government and the private sector…focusing on national development priorities such as: growing the economy, job creation, health, rural development, agriculture [and] the diversification of production and exports, with a focus on market access for goods to industrialised countries" (PNC on ISAD, 2003c:n.p.).
Extract 5: "It is…therefore important that we work on Public-Private-Partnerships with the private sector" (Mbeki, 2001b:n.p.).
Extract 6: "Beyond the status of an information technology user, industry and trade must encourage training, foster internal communication by using modern technologies, invest in long term initiatives, and assist schools and hospitals with communication and information equipment and systems…" (Mbeki, 1996:n.p.).
Extract 7: "In the short term, the most viable (and perhaps desired) e-government partners may be multinational companies that have proven experience and capabilities to deliver" (Working Group on E-Government in the Developing World, 2002:28).

It takes great faith to look forward to the beneficent workings of the 'information superhighway' for the poor when the stark reality is that the information infrastructure is increasingly under corporate/market control (see Table 6.7). This probably reflects the ANC's shift in policy from its long commitment to structural transformation through democratic developmental means, towards structural adjustment using neo-liberal economic means. The shift has taken place in a geopolitical context in which Left alternatives to free market capitalism, whether communist or social-democratic,

have all but disappeared as viable opportunities. As one commentator has put it: "Capital is all-powerful; national policy must pay obeisance or pay the cost" (Nattrass, 1996:25).[75]

While government ratifies the private construction of the NII, it claims that it will not ignore the needs of the poor. A Universal Service Agency (USA) and a dedicated Universal Service Fund (USF) together with an independent regulatory authority (ICASA) will ensure that the needs of the poor are catered for. Private ownership and competition in the use of the 'information superhighway' are government's basic prescriptions for building the NII that promises to carry all the images, messages and data flow that the country produces. While admitting that it has a key leadership role to play in NII development, government assumes that the private sector will build and run the NII. Government insists on free and fair competition as a necessary prerequisite to the establishment of the 'information society'. The apparent repositioning of interventionist regulation remains consistent with technological and market determinism, as it does not displace the primacy of the competitive market.

This view reflects the consensus of the key actors in international ICT policy-making for leaving the construction of the global information infrastructure to private initiative and market forces. This is also reflected in the trend towards corporatisation, deregulation and privatisation of telecommunications in developing countries (Melody, 1997, 1999). The current institutional framework with its reliance on private initiative, corporate control and market orientation does not support the development of ICTs in a direction more suitable to the needs of the poor. The stakes for a democratic society are high and market forces alone will not ensure that societal goals are met. Centuries of capital development have pointed to the inadequacy of market forces in providing social needs (Mansell, Samarajiva & Mahan, 2002). Without adequate regulatory intervention to ensure accountability to the general public, market forces that respond to those groups with purchasing power are bound to generate unequal development. This means that the 'information superhighway' may well become a 'blind alley' for the poor.

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[75] Nattrass and Seekings argue that since 1994 "South Africa's growth path has not been especially pro-poor…[and]…government remains committed to policies that keep the economy growing along an

The exploitation of ICTs in a narrow neo-liberal conception has a double impact: (i) applied in the economy at large, it tends to empower the rich and fortify big business. Conversely it disempowers the poor, making them the outcasts of the 'information club'[76]; and (ii) within the ICT sector, it tends to exclude disadvantaged people from access to important media through prohibitive entry costs and other barriers. In the absence of an active and substantive policy stance covering access, training and content development aimed specifically at the poor, it is likely that the new ICTs such as the Internet will be a force for income divergence. On the other hand, it is likely that such a programme would be both complex and very expensive. Depending on one's view of the benefits of direct Internet access for the poor in South Africa, this programme could be either a distraction from more important priorities or a vital step towards equality of opportunity.

Government believes that the 'information society' is a reality. But this is little more than rhetorical posturing. There appears to be very little substance underlying government's 'information society' project. The policy statements are silent on the implications of ICT policy designed to promote rural livelihoods and relieve poverty. The trend of planning ICT policy from the perspective of an 'information society' as a *fait accompli* leads to a pre-emptive, deterministic policy design process. The complexity of the relationship between ICTs and development (see Chapter 4) and the macro-social perspectives of technology dynamics (see Chapter 3) needs to be confronted and dealt with. Otherwise state resources are likely to be wasted unnecessarily. The policy challenge is to ensure that those who have been marginalised historically have access to ICTs and to the information that can be harnessed from these technologies. Given the cost and complexity of introducing ICTs into government services, the threat of the growing risk of exclusion of those who do not have access to government services, and the limited studies to date of the cost-effectiveness of the new ICTs in many sectors such as health and education, the introduction of ICT should be planned very carefully.

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inegalitarian path, with a large section of the poor being shut out of income-generating activities"
(Nattrass & Seekings, 2000:494-495).

[76] The phrase 'information club' refers to the privileged few who use ICT as an elitist tool and is attributed to Dertouzos (1998). In a provocatively titled article, Korac-Kakabadse, Kouzmin and Korac-Kakabadse (2000:171) refer to the ICT insiders as belonging to 'IT harems'.

Much of the discussion in government over the 'information society' remains largely rhetorical; meanwhile policy initiatives continue to reflect the interests of a range of powerful interest groups. The South African government's current emphasis on information and knowledge largely bypasses the fundamental question as to whether information and knowledge are primary resources for social development. Government has embraced the popular myths that fuel the uncritical enthusiasm of information and knowledge societies. Important questions are left unanswered: Who controls the 'information society'? Who benefits, who decides, who participates, and who is accountable? Government's discourse on the emerging 'information society' is based upon a series of popular myths, such as:

- More information is better than less information;
- More information creates more knowledge and understanding;
- More information means less uncertainty and more adequate choices;
- If poor people are properly informed they act accordingly;
- More information equals more power (PNC on ISAD, 2003b; GITOC, 2003).

A very popular assumption is that information equals power. Information becomes a source of power only if the necessary infrastructure for its production, processing, storage, retrieval and transportation is accessible and when people have the skills to apply information to social practice and to participate in social networks through which information can be used to further one's interests. The assumption proposes that poor people were never able to exercise power because they were ill-informed and ignorant. The fact that poor people lack the material and strategic means for attaining power is downplayed. All of these very attractive assumptions about the role and effects of information and knowledge are based upon seriously flawed cause-effect models. Information and knowledge are conceived as key variables in social processes and depending on how they are manipulated, certain social effects will occur. Social science research, however, has taught us that information and knowledge sharing do not occur in the linear mode of simple stimulus-response models that propose linear, causal relations between information/knowledge inputs and social outputs (Hamelink, 1997, 2000).

There are two issues which the 'information superhighway' concept brings to the fore: cultural colonialism and the problem of environmentally sustainable development (Hamelink, 1997). The uniform consumer lifestyle being aggressively marketed across the globe is resource- and energy-intensive and tends to disregard local culture and values. This raises the key question for policy-makers, *viz*. can ICTs be developed and deployed in a way benefiting socio-economic development, particularly of the poor? The 'techno-centric' perspective of government is liable to ignore ICT's social origins and see decision-makers' options as limited to reactive policies of adapting to technical change.

Whatever its precise meaning may be, the South African government sees the 'information society' as a standard for the country to aspire towards. There are many in government who argue that we are moving towards an 'information society' or a 'knowledge-based economy' (PNC on ISAD, 2003a; DTI, 2001:1) in which the role and significance of information and knowledge as inputs to economic processes have fundamentally changed. It is argued that this rests on advances in ICTs that are leading to a 'paradigm shift' (DTI, 2001). In other words, the rise of ICT technologies is coterminous with the move to an 'information society'. The idea seems to be that there are basic changes in economic functioning, and changes in the economic rules of the game. However, the term 'information society' is used in a superficial and uncritical way. It is never coherently defined and appears to be little more than a slogan or a metaphor for technological 'progress'.

6.2.5   Digital Divide

Table 6.8: Digital divide

Extract 1: "Government has given priority to bridging the digital divide between the technology haves and the have-nots in South Africa…this will lead to a continued drive toward universal and affordable access. We recognise the advantages of ICTs…to modernise the economy and for social progress. A key challenge is to build an inclusive and democratic information society. Otherwise the poor will be locked out of the information revolution and will remain in a state of information poverty. The gap between the information elites and the poor will increase greatly…if we do not diffuse the technology to everybody" (interview transcript).
Extract 2: "Government must become a model user of IT. We need to establish an ICT-related overall co-ordination structure in government…and a champion for the development and implementation of ICT strategy. The most pressing concern is how to close the digital divide and how to use these technologies to optimise the pace and extent of addressing our country's development challenges" (interview transcript).
Extract 3: "Although much is being done in attempting to bridge the gap between the information haves and the information have-nots, the task remains daunting" (Mandela, 1998:n.p.).
Extract 4: "[T]he establishment of the Presidential International Task Force on Information Society and Development [will] assist government in narrowing the digital divide with the rest of the world" (Matsepe-Casaburri, 2001c:n.p.).
Extract 5: "The [Electronic Communications and Transactions] Bill seeks to address the following policy imperatives…bridging the digital divide by developing a National e-Strategy for South Africa…maximising benefits…especially for members from previously disadvantaged communities…[and] encouraging electronic communication with government" (DoC, 2002:98).
Extract 6: "The objective is to maximize the benefits the Internet offers by promoting universal and affordable access by all to its possible applications, with a view to bridging the digital divide" (DoC, 2002:99).
Extract 7: "Digital divide refers to inequalities in ICTs distribution between developing and developed economies. North-South digital divide is real and needs to be addressed. It also refers to the gap in the information sphere between most developed parts of the country and underdeveloped rural parts, including disadvantaged groups. The challenge is how to narrow down the gap between 'information-haves' and 'information have-nots' through addressing inequalities and inequity" (DoC, 2000a:Section 12.2).
Extract 8: "The [Presidential National Commission on Information Society and Development] PNC on ISAD…has been tasked with: recommending strategies on bridging the digital divide, advising on the development of an overall government policy framework on ICTs, advising on the use of ICTs to optimise the pace and extent of addressing South Africa's development challenges – and thus enhancing South Africa's global competitiveness, and advising on the integration of sector specific ICT strategies" (PNC on ISAD, 2003c:n.p.).

There is a great deal of concern in government circles about the 'digital divide' that separates individuals who are able to access computers and the Internet from those who have no opportunity to do so (see Table 6.8). Government has identified the 'digital divide' as a key issue of the *fin de siècle* and the new millennium, and much effort has gone into 'bridging' that divide by helping poor communities gain access to new digital technologies. Government has tended to propose a technology solution

before conducting a proper diagnosis. These efforts have tended to be top-down, technology- and supply-driven, lacking adequate attention either to the broader economic, social and policy context into which the technology was being inserted or to its sustainability and appropriate use over time. The community telecentre movement, despite some successes, offers abundant examples of this problem (see Chapter 5).

The term 'digital divide' has been a leitmotif in the international ICT, poverty and development debate (see Chapter 4) as well as a feature of the South African government's discourse on ICTs for development. It is a position of this study that the 'digital divide' provides an insufficiently rigorous framework for either analysis or policy-making. The concept of the 'digital divide' tends to isolate the issue of the new ICTs from the much broader question of uneven economic and social development within South Africa itself and globally, i.e. between the North and the South. The 'digital divide' is not a new phenomenon; rather it continues the established patterns of structural inequality, locally, regionally and globally. Further, the notion of the 'digital divide' implies a binary division between those who have access and those who do not, which does not take into account the qualitative dimension of what this 'access' might mean. Hargittai (2002), in her analysis of the differences in people's online activities in the US, suggests five dimensions along which qualitative differences in ICTs can be focused: (i) *technical means*: the availability of software, hardware and quality of connectivity; (ii) *autonomy of use*: location of access and freedom to use the medium for one's preferred activities; (iii) *use patterns*: types of uses and the purpose for which the technology is employed; (iv) *social support networks*: availability of others one can turn to for assistance with use or to share the results of use; and (v) *skill*: an individual's ability to use the technologies effectively.

These efforts to stretch the 'digital divide' concept are an implicit criticism of the flawed assumption that meaningful access to ICTs entails simply providing computers and Internet connections. By being wedded to a reductionist notion of a 'digital divide', government attaches overriding importance to the physical availability of computers and connectivity, rather than to issues of content, language, education, literacy and community and social resources. Moreover, framing the problem as a

'digital divide' tends to connote 'digital solutions', i.e. the provision of more and better computers and telecommunications, without engaging the important set of complementary resources and complex interventions to support social inclusion, in which ICT applications may be enabling elements, but are certainly insufficient when simply added to the *status quo* mix of resources and relationships. Seen from this perspective, the developmental goal is less to overcome the 'digital divide', but rather to embrace a vision of ICTs as a supporting tool, where appropriate, to enhance the human capabilities and expand the human freedoms and choices of the poor. To reiterate, ICTs are not an end in themselves, rather they should be seen as a tool (among many others) to reach development goals. Thus, the perspective shifts from the technology to that of human development, underscored by the notions of social justice and equity.

6.2.6   The Foucauldian Power-Knowledge Analytic

Government's ICT for poverty alleviation discourse is largely one-sided. This tendency towards monologue rather than dialogue is rooted in the unequal power relations that still characterise the social production of knowledge. It almost appears as if government perceives poverty as a technical problem, as a matter of rational decision-making and management to be entrusted to government functionaries whose specialised knowledge allegedly qualifies them for the task. The coherence of effects that the ICT, poverty and development discourse achieves is the key to its success as a hegemonic form of representation, *viz*. the construction of the poor as pre-constituted subjects, based on the privilege of the 'representers' (see Table 6.9). Foucault (1979) has referred to this as the production of 'docile bodies' and it is an example of discursive homogenisation. This entails the erasure of the complexity and diversity of poor communities in South Africa.

Table 6.9: Power-knowledge

Extract 1: "The new ICTs are driving globalisation…the downside is that the gap between the information 'haves' and the 'have-nots' is widening and there is a danger that the poor in South Africa will be excluded from the gains of the information society and the knowledge economy" (interview transcript).
Extract 2: "The information revolution promises to change the world like never before. Information superhighways are bringing about profound changes in the way people work, learn and live…it is inevitable that the rural poor will be affected by these profound changes. The task of government is to maximise the opportunities that ICTs offer for the advancement of our economy and society. The approach of government will be to include the disadvantaged sectors of the population into the ICT domain. After all, knowledge is critical for emancipating the poor…lack of information and knowledge is the root cause of poverty" (interview transcript).
Extract 3: "[ICTs are an]…unstoppable revolution" (Ministry of Communications, 2001:n.p.).
Extract 4: "[ICTs are a]…critically necessary condition for economic and social development" (Fraser-Moleketi, 2000:n.p.).
Extract 5: "[There is]…increasing inequity between an 'information elite' and a majority living in 'information poverty'" (DoC, 1998b:1).
Extract 6: "We will ensure that we will put in place a digital, fibre-optic, highspeed broadband backbone that links every city and town in our country. And we will use what is the most advanced technology such as the…Internet, to deliver a range of new services that will allow all our people, even the poorest of the poor, access to the applications of tele-medicine, of tele-education, of distance education or electronic commerce" (Naidoo, 1998d:n.p.).
Extract 7: "We need to ensure that the path to the Information Society does not widen the gap between rich and poor, in developed and developing countries. The tragic irony we might confront, is that this technology which has enormous potential to benefit all humanity could serve to entrench and widen this gap" (Mbeki, 1996:n.p.).
Extract 8: "Government must implement ICTs rapidly…there is no time to waste…You either adopt ICTs or perish. There are not many choices, there is only one way to go…We have to use ICTs as a tool for spreading the gains of globalisation to the poor. Government must leverage the power of ICTs to spearhead a sustainable, 'high road' growth path which is employment-creating, growth-oriented and uplifting of the poor" (interview transcript).
Extract 9: "One of the distinctive features of rural poverty is lack of information and knowledge to develop and escape from the confines of poverty. The state needs to use ICTs as a way of linking the poor to modern modes of agriculture, industry and ways of living...and integrating the poor into the modern economy so that they can develop and enjoy the fruits of education and improve their livelihoods" (interview transcript).

This chapter has furthered our understanding of developments in ICT policy by shifting our attention to the nature of discourse as a mode of social action within the policy debate. The chapter has shown how the South African government actively constructs the development of the 'information society' and their role within that development. The construction of the debate with reference to the dominant discourse discussed has implications beyond the realm of language because it affects the ways in which policy solutions are actually derived; and it also, ultimately, has implications for the type of 'information society' that will be achieved as a result.

The power-knowledge analytic enables us to: (i) unravel the intricate connections between the production of specific systems of knowledge and the exercise of power in its many forms; (ii) examine the relationship between power and knowledge, and the implication of government in the reproduction of hegemony, with its imperatives of power and social control over poor people; and (iii) explore the increasing growth of instrumental rationality as a crucial and perhaps even dominant component of modernity.

Government talks extensively about the benefits that the 'information society' will bring and also constructs the needs of the poor. The discourses identified function to structure a set of discursive norms and conventions whereby a 'neo-liberal consensus' is manufactured in relation to information policy. Technological change is defined as both a threat and an opportunity. Thus, a set of distinct binary oppositions (information 'haves and have-nots'; 'information-poor' and 'information-rich') is constructed whereby radical change is presupposed, making it difficult to raise the possibility that technological change can be incremental change, and simultaneously justifying the call for the abandonment of traditional policy instruments while acting as a vehicle for new policy initiatives. By then constructing both the market and technology in a deterministic manner, governmental action becomes largely restricted to the role of facilitator in the creation of a free and competitive marketplace.

By utilising discourse analysis, we have shown that not only are the information policy outcomes broadly neo-liberal, but also that the discourses described function to effectively preclude alternatives to neo-liberalism being enacted within the regulatory process. This draws attention to the importance of discourse use itself as a form of social action. Although the approach of the South African government to technological change is capable of delivering certain social and economic benefits, it is based upon a set of discourses that act to limit both the scope of debate and the resulting goals and aims of information policy initiatives. In other words, constructing the debate in a narrow and deterministic manner can only result in a narrowly conceived set of policy solutions which cannot hope to achieve the various social and cultural benefits suggested by the technological potential of the new technologies. Paradoxically, it is this wider-ranging set of social and economic benefits that is driving the debate forward, giving it urgency and becoming part of the

political rhetoric that is used to justify policy changes while, at the same time, the political discourse effectively precludes their realisation.

The discourse of technological determinism is continually sustained within the orders of discourse that have been established in government. Rojo and Van Dijk argue:

> "The crucial element in most forms of social and political legitimation is that a powerful group or institution…seeks normative approval for its policies or actions…In such legitimating discourse, institutional actions and policies are typically described as beneficial for the group or society as a whole" (Rojo & Van Dijk, 1997:528).

The core elements of the discursive order upon which the hegemony of government rests is linked to the establishment of the 'information-poor' as an object of legitimate intervention, and on the construction and normalisation of the 'information-poor' as subjects. Government establishes its ICTs for development approach as pragmatic, inevitable and non-ideological, and sets up a direct link between government and the problem of 'information poverty', thereby silencing detractors and replicating the legitimacy of the construction, normalisation and integration of the poor within government's ICT, poverty and development framework. Further, ICTs are neutralised and are regarded as a natural and inevitable extension of international market capitalism into the rural arena. Neutralised like this, ICTs do not threaten but actually strengthen and vindicate government's neo-liberal economic development paradigm.

Government's discourse is characterised by an unproblematic treatment of the role of ICTs in development. There is also evidence of the replication of government's subjugation of technology as instrument of technocratic developmentalism. The non-problematic linking of ICTs to opportunity is manifested in a top-down, technology-push approach. The poor are represented as passive 'information recipients'. This is an example of a masking device, where:

> "the cumulative effect of the transformations is that the direct commander-commanded relationship has been changed into a relationship wherein the commander plays the role of an information giver and the commanded is assigned the role of an information receiver" (Ng & Bradac, 1993:163).

Government has defined the problem, *viz.* 'information poverty' in disadvantaged rural areas and townships, and the means to address it, *viz.* community telecentres.

The poor are represented as passive and disempowered. The poor are perceived as having 'needs' and 'problems' but few choices and no freedom to act. A paternalistic attitude toward the poor is discernible. ICTs for development function as a regime of representation. This regime of technological progress is a quintessential aspect of modernity and it is reflected in an objectivist and empiricist stand.

As a result of the power ICTs have gained in government policy-making, a particular discourse has been generated which functions in a self-perpetuating fashion, leaving no space for critique. This discourse then goes on to feed the power from which it derives its existence. ICTs are seen as important, powerful and all-pervasive within the development agenda. The wellspring of government support for ICTs is a clear indication of the ways in which its role is perceived within the development agenda. Government has provided a rationale which extols the virtues of the specific characteristics of these technologies making them worthy of investment. Chief among them are that ICTs provide ways in which the marginalised can be integrated and that they empower poor people as individuals and as communities. This resonates with Foucault's analysis of "a new 'economy' of power, that is to say, procedures which allowed the effects of power to circulate in a manner at once continuous, uninterrupted, adapted and 'individualised' throughout the entire social body" (Foucault, 1980:19). In this sense ICTs not only wield power in themselves, but also become exemplary vehicles for the exercise of power within larger structures. Their inherent virtues then become the very ways in which the pervasive aspect of the exercise of power is accentuated and operationalised.

With the lure of markets coming into play, commercial organisations too have become deeply implicated in the world of agenda setting. This has resulted in the formation of a deep link between the interests of the state and industry. With the image of individual, commercial and government well-being all coming together in this way, the idea that everyone benefits is invoked. The idea is that the 'information revolution' is inclusive, in the sense that the marginalised and the disadvantaged can gain from the possibility of fundamental technological change. For those who wield power are not threatened, the *status quo* remains undisturbed. In other words, nothing changes and the premise "that one can perfectly well conceive of revolutions which

leave essentially untouched the power relations which form the basis of the functioning of the state" (Foucault, 1980:123) is confirmed.

The knowledge produced remains knowledge defined by government. To say that lack of knowledge and information is the main reason for poverty and underdevelopment is an easy way to exclude from the discussion the social, political and economic causes of poverty. This strategy is based on a predetermined definition of knowledge which is produced by and for existing power structures, through the elites, with the pretence that it is universally applicable. In practice, all it does is further its own cause, while at the same time detracting from issues that are clearly more fundamental to the problems of poverty and injustice. The combined effect of unequal social structures and exclusivist state policy effectively prevents the very people whom ICTs are meant to serve from being a part of the discourse that is built around them. The authors of the discourse remain the elites, who act as guardians of the 'information society' ideal.

This strategy effectively shrinks the emancipatory space into a single dominant form. As an emancipatory vocabulary, the ICT, poverty and development discourse offers answers rather than raises questions. The exaggerated claims of ICTs contributing substantially to create the 'information society' ignores the single most important reason behind poverty: people are not poor because they are ignorant, but because they are trapped in social structures which are unjust, politically, socially and economically. Standardised solutions cannot be effective and emphasising a single approach for resolving problems which are deeply embedded within the social fabric is not going to achieve much success. This is especially true if ICTs are seen as the solution; then the 'problems' must be defined in such a way as to suit those 'solutions' to prove this belief. The pre-existing solution is then imposed on poor communities irrespective of what the real needs and problems of the poor are. Such an approach is not only short-sighted, but it ignores the fact that most problems exist in a local context and a 'one size fits all' solution is a very limited way of attempting to resolve them. It promotes emancipation by propagating an unbearably normative, earnest and ultimately arrogant mode of thinking and speaking about what is good for poor people.

The 'information society' paradigm invokes the sense of the ethic of information, one that predetermines the world. Tucker explains:

> "It is a process whereby the lives of [poor] people, their plans, their hopes, their imaginations, are shaped by others who frequently share neither their lifestyles, nor their hopes nor their values. The real nature of this process is disguised by a discourse that portrays [ICTs for] development as a necessary and desirable process, as human destiny itself" (Tucker, 1999:1).

ICTs are not a natural process, although they have been accorded such a status in government discourse. Regarded as natural, ICT is accepted without question because it bears its own legitimisation. The 'information society' is not a transcultural concept that can claim universal validity. It is, rather, a set of practices, beliefs and myths that have been woven into the fabric of Western culture and is specific to it. Such shared beliefs play an important role in mobilising government resources and energies for social reproduction and in legitimising the actions of the believers. Development is conceived of as economic growth and industrial development, which resonates strongly with modernisation theory. The instrumental rationality of 'progress' provides the motivation and legitimisation for transforming poor communities in the name of 'development'. The central issue here is control over the destinies of poor communities through state structures of power and ideology.

6.3   Critical Assessment

It is difficult to see how government will be able to make good on its promise of diffusing ICTs to disadvantaged communities, given its continued implementation of neo-liberal economic policies. Government's failure to pursue an agenda of redistribution and economic justice (see Section 6.1.1) brings into question its commitment to a pro-poor ICT policy agenda. For example, in examining the SAITIS (2000a, b) document as well as the DTI's (2001, 2002) industrial strategy, we argue that, while the ICT sector development framework may contribute to continued economic growth in ICT industries, it pays little attention to the potentially negative impacts of ICTs on labour-intensive industry sectors and provides little guidance on how to help mitigate the negative impacts of these technologies.

Government emphasises economic growth and the deployment of prefigured technologies over issues of equity, social development and the need for a broader conception of the potential of ICTs. The rhetoric is consistent with a focus on the 'knowledge economy' in which hardware, software and human capital become replacements for raw materials and for certain kinds of workers. The rhetoric privileges the 'new' economy and implies that policy should focus mainly on how the workforce can acquire new capabilities for managing electronic businesses, since the prospects for economic growth depend on reaping benefits from the organisation of commerce around networks . Unless these shortcomings are addressed, national ICT policy in South Africa seems likely to further contribute to the disruption of existing employment opportunities while contributing to growing inequality.

The concept of the 'information society' has been accepted on faith and is regarded as a 'natural' evolution. Further, South African government policy regarding the 'information society' is very unclear as to precisely what this conception will entail, how it will be implemented and what the real effects might be. A careful reading of the various policy and discussion documents relevant to ICT, poverty and development in South Africa (see Appendix 2) reveals the lack of clear implementation plans, specific budgets and detailed cost-benefit analyses that extend beyond infrastructure provision and telecom market functioning.

Moreover, there is clear evidence of technological determinism, which is steeped in a modernisation discourse arranged around political rhetoric and informed by a discursive power which rests on the universalisation of a particular, interpreted, theorised and valorised regional (i.e. Western) experience. The imposition of policy legitimacy in terms of linking formalised systems of ideas with a recognised interpretation of a dominant Western experience formed within relations of power is set down in a hegemonic tradition (*pace* Gramsci, 1971) and widely accepted as proven and universally applicable. The South African government's 'information society' project, which is phrased in universalistic value formats to marshal broad patterns of consent, constitutes an archetypical hegemonic ideological formation. There is also a clearly evident fixation on the concept of the 'digital divide' in government circles. The fact that the so-called 'digital divide' in South Africa is, to a

large extent, an outcome and ongoing process of the broader 'development divide' is ignored.

By and large what emerges from a reading of government's ICT policy documents is a very optimistic view of the benefits to be harnessed from ICTs for poverty alleviation in South Africa.[77] This is surprising, given the recency of ICT developments and the paucity of solid empirical investigation of trends and impacts to date. Very little attention is paid to the costs, risks and constraints that ICT diffusion is likely to entail. The fact that the poor face multiple barriers both to Internet utilisation and to benefiting from that utilisation, since they have little to spend on communication; live in areas where the Internet is costly and complex to provide; have low rates of education and speak languages that are not very well represented on the World Wide Web, tends to be played down in policy debates. At best, this selective reading of ICTs for development oversimplifies a complex reality; at worst it is likely to result in wasted resources, poorly thought-out projects and false expectations.

Policy-makers have stressed that ICTs, by their own dynamic, that is, more or less automatically, will generate gains for the poor. Technologically deterministic and optimistic market-led scenarios have tended to dominate. This is problematic, because the reality is that computer networks are deeply embedded in pre-existing relationships, with social structures of the real world inscribed in online networks of the virtual world (Slack & Williams, 2000; Rantanen, 2001). Further, a poorly informed ICT discourse has given rise to a policy rationale suffering from short-sightedness and accommodation of market and 'global' imperatives. Such policy in effect abdicates decision-making and delegates it to the 'automatic pilot' of market forces. To achieve a balanced transition to the conditions of the techno-economic paradigm a strong and responsible policy agent is required. Carefully researched ICT prospects and measured steps of a socially accountable policy approach should focus on a coherent pro-poor agenda *apropos* ICTs and development.

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[77] Government sees an array of positive developments emerging from the 'information society', with increased productivity and better quality employment, decentralised and increased access to political decision-making and potential for e-government and e-commerce to improve the lives of the poor.

What can be done to influence the direction of government's 'information society' project to ensure the development of more just and equitable access to ICTs? Strategic issues to consider for ICTs to be pro-poor include *inter alia*:

- *ICT policies* – currently biased against poor and vulnerable groups in society. There is a need for ICT policies specifically targeted at the poor, especially the poorest of the poor;
- *System design* – must consider language, cultural and socio-economic issues, and conduct participatory needs assessments to ensure relevant information systems and content, as well as most appropriate technologies;
- *Capacity building* – need to build capacity at all levels;
- *Applications* – current applications are of limited value to the disempowered and marginalised. There is a need to provide access to information and resources that the poor need which should be informed by regular information needs assessments. Moreover, encourage local ownership of content and elicit feedback to ensure relevant content;
- *Research* – prudent understanding of the potential of ICTs for development informed by rigorous, independent monitoring, evaluation and documentation in order to develop models of best practice.

Government has avoided unpacking the 'principles, values and norms' of the 'information society' regime. Questions that need to be confronted include:

- What stakeholder interests will be represented?
- What will be the rules of the 'information society' and how will they be decided upon and enforced?
- Which societal interests will win and which will lose in the 'information society'?

The extent to which ICTs will affect the quality of life of the poorest and most vulnerable communities and individual actors will depend on a careful consideration of factors such as:

- High telecommunication costs in rural areas, particularly fixed-line applications;
- Lack of local content and the language barrier;

- High rates of illiteracy in rural areas; and

- Gender bias – new technologies are often seen as men's exclusive domain.

Finally, a major task of government is to adopt: (i) a more systemic and consistent approach across different, traditionally disparate areas of policy-making; (ii) an explicit, strategic national vision and understanding of ICT, poverty and development; (iii) the institutional means to strategically co-ordinate the implementation of such a vision; and (iv) the institutional means to effectively monitor, assess and review ICT, poverty and development policy processes. In order for the vision to be translated into reality, government must upgrade and integrate internal, back-office IT capabilities (processing, management, mining and warehousing of data), and systematically integrate them with front-office systems, to enable integrated service delivery, and the monitoring and reporting of progress in real-time (Cloete, 2003a, b).

6.4   Conclusion

'Information poverty' is a process of discursive homogenisation of the poor. The information 'have-nots' are perceived as an underdeveloped subjectivity endowed with features such as powerlessness, passivity, poverty and ignorance as if waiting for government to rescue them with technology. This image universalises and homogenises poor communities in an ahistorical fashion. It exists as a sign of power over the poor rather than a truth about them. This entails specific constructions of the 'information-poor' subject in ways that allow government to exercise power over it. For example, government has created a space for 'information-poor' subjects in the form of community telecentres, which government regulates through systems of power.

As Wajcman (2002:348) argues, "governments everywhere legitimate much of their policy in terms of a technological imperative". Rhetoric and discourse about the 'information society' and the 'digital divide' reinforce and frame these very arguments. Common buzzwords such as the 'information-poor' and the 'information-rich', the 'digital divide'[78] and the 'information society' pervade government's

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[78] As mentioned in previous sections of this study (see, for example, Chapter 4), the 'digital divide' is not an independent phenomenon, but an integral part of the structure of inequality at all levels: international, regional, national and local. The 'digital divide' tends to reproduce the basic elements of

discourse. Endless such repetitions of the same visions, the same possibilities, the same projected hopes and the same fears across all the constitutive elements of the discourse reveal the paucity of critical insight. The South African government suffers from an undeveloped understanding of the complex relationship between ICT, poverty and development. Government needs to think critically about the social implications of ICTs. An understanding of both their risks and their benefits is essential. Further, there seems to be a conflation of the terms information and knowledge.[79]

ICTs will have an effect only to the extent to which the development strategy is effective. If the underlying poverty alleviation strategy is faulty, then ICTs are unlikely to have any impact. If the interviewees' concerns about the exclusion of the poor from the 'information society' are to be dispelled, then government needs to better understand the relationship between technology and development. The focus for government should not be with the technology itself, but should begin with the development strategy. Only when the poverty-reduction strategy is fully articulated should ICTs be used to support its implementation. The role of ICTs as a powerful tool to fight poverty is, at best, a working hypothesis. Yet, over the last nine years it has virtually become part of 'received wisdom' and 'conventional thinking' in government circles.

Contra the South African government, the key to integrating ICTs in the fight against poverty, then, is not to begin with ICTs, nor to posit them as an essential need. Rather it is to determine the impediments to poverty alleviation and to reducing inequality in society and, thereafter, to ascertain the information, communication and knowledge components of these impediments. In the light of this, the task is to: (i) assess, on the basis of global experience, how ICTs, broadly deployed and properly adapted, could help address these impediments; and (ii) to develop and implement a strategy for encouraging and supporting the deployment of ICTs, in support of, and subordinate to, a national poverty-reduction strategy.

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the structure of inequality along the lines of traditional patterns of socio-economic stratification. The gap in access to and use of ICTs often follows and reinforces *existing* inequality and poverty patterns.
[79] Information becomes knowledge when it has been processed and understood by the recipient in a way that is useful and it is adapted to the existing knowledge base.

Government has a great deal of faith in ICTs, which it believes will amplify material progress. There is a pervading sense in government that the impact of the new ICTs will be positive and that the technology itself is the cause of that impact. Sweeping statements are made about the opportunities that ICTs bring for poverty alleviation, reflecting a powerful belief in the transformative power of ICTs. Government has turned the Internet into an icon of modern development and ICTs are associated with largely positive impacts. ICTs are strongly associated with modernisation and Western rationalism, and are part of a technically-rational and technologically-determinist agenda that focuses on the 'digital divide' and the 'information society'. Government's emphasis on ICTs as a tool of development could benefit from greater focus and discipline, particularly by focusing more concretely on how ICTs, and their effective spread and use, could advance the super-ordinate goal of reducing poverty and inequality in society.

The next chapter, Chapter 7, will seek to move away from the "heroic scenarios" and "intoxicating visions" (Bellamy & Taylor, 1998:170) characterising much of the government's (as well as the wider international development community's) discourse on ICTs for development, and will attempt to re-conceptualise the complex and multi-layered relationship between ICT, poverty and development.

Chapter 7

Guidelines for Rethinking ICT, Poverty and Development, and for Formulating Pro-Poor ICT Policies

7.1 A Strategy for Rethinking ICT, Poverty and Development

7.1.1 The Social Shaping of Technology

The idea that technology, specifically ICTs, is the most important cause of social change permeates the analysis of the 'information society' advocates. Castells (1996), for example, explicitly builds on theories of post-industrialism (Bell, 1973; Touraine, 1971), moving beyond a teleological model and giving the analysis a global reach. However, while he explicitly attempts to distance himself from technological determinism, he does not entirely succeed (see Chapter 3). The result is a rather reductionist view of the role of technology in society.

Similarly, technologically determinist understandings of the economy and society play an increasingly important role in political discourse in South Africa (see Chapter 6). The South African government tends to legitimate much of its ICT policy in terms of a 'rational' technological imperative. Simple technological fixes are sought for complex social problems. Rhetoric about the 'digital divide' serves to camouflage pre-existing patterns of social and class inequality. This study suggests that most interpretations of the causes and consequences of the 'digital divide' are inadequate. Correspondingly, the appropriate actions to alleviate the manifestations of this 'divide' remains to be identified. Since its initial use in the US to describe uneven access to advanced ICTs, and particularly to the Internet (US Department of Commerce, 1995), the 'digital divide' has become a rhetorical device for: (i) focusing policy discussion on how disparities in access to the new ICTs between and within countries can be overcome; and (ii) mobilising financial and other resources in an effort to remove barriers to wider adoption of the new ICTs.

Much government discourse invokes new ICTs as an autonomous and largely unassailable force. In this process technocratic discourse, globalisation and free market economics coalesce into an extremely powerful ideological force. The view

of technology as an external, autonomous force exerting an influence on society narrows the possibilities for democratic engagement with ICTs. It presents a limited set of options: (i) uncritical embracing of technological change or (ii) defensive adaptation to it.

ICTs are a socio-technical product, patterned by the conditions of their creation and use. A technological system is never merely technical: its real-world functioning has technical, economic, organisational, political and even cultural elements. The idea of 'interpretative flexibility' captures the malleable character of ICTs (Pinch & Bijker, 1987). *Interpretative flexibility* refers to the way in which different groups of people involved with a technology can have different understandings of that technology, including different understandings of its technical characteristics. It emphasises that there is nothing inevitable about the ways technologies evolve. Rather, technological change is a thoroughly contingent and heterogeneous process.

If we are to attempt a more objective, detached analysis of ICT, poverty and development, then it would seem appropriate to move beyond the linear 'cause and effect' model of technological determinism and explore alternative perspectives on society and technology. There is clearly a pressing need to move beyond the limitations of previous analyses if we are to gain a deeper understanding of the relationship between ICTs and poverty reduction. It is worth reconsidering Qvortrup's (1984:7) argument that ICTs "cannot be properly understood if we persist in treating technology and society as two independent entities". This perspective strongly suggests that we move beyond the view that ICTs as a technology is independent of society in either their cause or effect.

7.1.2   Development Theory Revisited

7.1.2.1 Modernisation Theory

The ICT, poverty and development agenda has been set in the North by international donor agencies and multilateral organisations, and has subsequently been carried out in the South (World Bank, 1999; DOT Force, 2001). The ICTs for development discourse is teleological in that it views development as uniform, proceeding in stages to a common end. The oft-cited statement by Karl Marx (1963:1718): "The country that is more developed industrially only shows, to the less developed, the image of its

own future", remains the central thesis of modernisation theory. Modernisation can be seen as a grand-scale social engineering project in the Third World (Corbridge, 1995; Banuri, 1990a, b). The central claim of modernisation theory is that modernisation is a universal event (Parsons, 1964). The concept of modernisation is rooted in the numerous sets of dichotomies between *tradition* and *modernity* well known to social science since the 19th century (Feldman & Moore, 1962; Black, 1966).

The reason why modernisation is regarded as a global event lies in the artefacts of modern culture, i.e. mass media. As Lerner (1958) argues, mass media have penetrated every region of the globe and carried the values of modernity and the demand for their implementation and outcomes. Horowitz (1977:4) summarises this position: "The motor force in this transition is the infusion or injection of highly sophisticated mechanisms of communication, transportation, and information". Eisenstadt (1964:378) states emphatically that modernisation will "open up new possibilities for development and creativity – for technological development" in the Third World.

The universality and causal chain of modernisation are flawed. First, modernisation research is based not upon knowledge of the Third World, but rather upon attempts to make sweeping generalisations from the European experience, more specifically the US experience. The problem is that social change within Third World countries may not resemble either the process or end product of economic growth and cultural change of the highly industrialised countries of the North (Horowitz, 1977:5). Further, modernisation theory deflects attention away from the problems of poverty and massive inequities resulting from unequal power relations between the North and the South.

Despite the criticisms levelled against modernisation theory, there remains a strong view in the South African government's ICT, poverty and development discourse that only through industrialisation and technological progress can South Africa achieve overall modernisation; that capital investment is the key ingredient for economic growth; that, hence, ability to mobilise ample supplies of capital and the entrepreneurship to deploy it are the primary societal constraints to be overcome.

This effectively reduces development to growth in per capita income or consumption. Thus, there is a discernible bias towards 'ICTs for economic growth' in government policy documents (DTI, 2000, 2001), a variation on the widespread belief among neo-liberal economists that growth will 'trickle down' to everyone, without any particular need to consciously redistribute benefits.

South African state-led interventions attribute to ICTs a hegemonic potency that elides their ambivalent nature. The construction of the category of the 'information poor'; what counts as legitimate and valid information and knowledge; and the ideals of technical progress, leapfrogging and catch-up to highly industrialised countries (a *sine qua non* of modernisation theory) are clearly evident in the South African government's discourse on ICTs, development and poverty alleviation (see Chapter 6). Unproblematised assumptions of technological determinism and a view of technology as an apolitical, neutral tool for development underlie government's ICT, poverty and development discourse. These assumptions render the poor passive in the ICTs for development discourse, thus constraining the potential for ICTs to be used to challenge structures of poverty and inequality. The assumption is that ICTs for development is a self-evident process. Another distinctive feature of the South African experience is the unquestioning acceptance of the notion of an 'information society' by government. The 'information society' is an evocative but poorly defined concept. The term lacks an established definition and is thrown around loosely in government circles. The 'information society' thesis remains a conceptually weak basis for Third World scholars striving to develop a deep understanding of technology and society.

The South African government is particularly concerned with a 'digital divide' between the information haves and information have-nots. What this means is that access to digital technologies such as the Internet implies use and determines who is information rich and who is information poor. To distinguish between the 'information rich' and 'information poor', at any rate, is too crude an analysis as it avoids a precise delineation of who these are and fails to consider the range of different positions. Based on the preceding discussion, it would appear that the South African government's ICT, poverty and development discourse remains trapped within the straightjacket of Eurocentric, modernist thinking that reinforces an

'othering' discourse (*vide* Said, 1995; Gellner, 1992; Appadurai, 1996; Clifford, 1997).

7.1.2.2 The Post-Structuralist Critique

Mainstream notions of development, with genealogical ties to both *Orientalism* (Said, 1995) and *Occidentalism*[80] (Coronil, 1997:14), are becoming increasingly untenable. In recent years we have witnessed a minor tidal wave of books and articles that have cast aspersions on the concept and practice of 'development' (Sachs, 1992; Rahnema & Bawtree, 1997; Esteva, 1992; Shiva, 1991). Development is viewed as an extension of colonialism, backed by an institutional apparatus nearly as hegemonic as colonialism in its control of resources, and perhaps more so in its control of imaginations. According to the post-structuralist critiques of development, ideas such as 'progress', 'growth', 'poverty' and 'underdevelopment', which now possess a normative and taken-for-granted salience in popular consciousness as goals worthy of engagement through targeted policy interventions, are artefacts of a discourse of development that has imposed its normalising and teleological vision on the world. Discourse is understood, *pace* Foucault (1980), as an ensemble of social institutions, semiotic categories and practices that regulate the realms of thought, subjectivity and action. It is a continuous process of demarcating what is possible and what is not: of positing the sense of limits that constitute social reality. But discourse is simultaneously a mode of productive, as opposed to merely repressive, power.[81]

It is the position of this study that, while the general critique of development presented by post-development theorists is valid in many respects, their understandings of development processes are not particularly nuanced. Escobar (1995a), for example, errs in assuming that development is a uniform and largely monolithic process. Many scholars have criticised post-development theorists for their: (i) general lack of concern about spatial and semantic disjunctures in processes of change; (ii) stilted interpretations of world historical events; (iii) undiscriminating

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[80] Coronil explains that by *Occidentalism* he means "the implicit conception of the West animating its representation of non-Western societies"; that what is "unique about Occidentalism is that it entails the mobilization of stereotypical representations of non-Western societies as part of the West's self-fashioning as an imperial power" (Coronil, 1997:14). In contrast to *Orientalism*, which is a discourse of difference between the West and the Orient (*pace* Said, 1995), "Occidentalism…was created from the beginning as the extension of Europe, not as its otherness" (Mignolo, 2000:106).

affirmation of so-called 'new social movements'; and (iv) stylised representations of development, and failure to recognise it as a differentiated, multifaceted and ambivalent phenomenon (Schuurman, 1993b; Gardner & Lewis, 1996; Grillo & Stirrat, 1997; Simon, 1997; Corbridge, 1998; Edelman, 1999; Blaikie, 2000; Moore, 2000; Nederveen-Pieterse, 2001). Despite their intellectual acuity, post-development writers often arrive at a surprisingly simplistic conclusion, *viz*. that to move beyond development orthodoxy is to hoist the banner of 'anti-development' (Escobar, 1995a:Chapter 7; Esteva & Prakash, 1998; Rahnema, 1997). This rejection seems to be based on the assumption that 'development' is a singular process and it may well be another universalism in the guise of difference.

Having said that, the power of the post-development work is the critical gaze it casts on Western-led processes of development. The post-structuralist critique of development has highlighted and reminded us of the need for greater self-consciousness, reflexivity and encouragement of difference and heterogeneity (Slater, 1997). Also, it encourages the researcher to challenge conventional practices and beliefs which serve to perpetuate inequality and the lack of effective empowerment in the name of humanitarian assistance and political 'feel good' factors. Post-structuralist critiques of development can be progressive provided they "encourage new agendas and suggest new ways of doing things" (Blaikie, 2000:1035).

In the hands of the South African government ICTs operate as a powerful discourse, which functions both as an ideology and a rhetorical tool. ICTs have become hegemonic as an ideal as well as a set of development practices, which operates to exclude alternatives. National political leaders have imported and implemented foreign ICTs for development policies not (only) because they have internalised a Western model of development, but because it serves their own neo-liberal interests. Constructing the ICTs for development policy debate in a narrow and deterministic manner can only result in a narrowly conceived set of policy solutions (see Chapters 5-6) which cannot hope to achieve the various benefits suggested by the potential of the new technologies.

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[81] It is precisely these limiting and enabling aspects of 'discourse' that motivate the author to speak of ICT, poverty and development as discourse.

Problematising the South African government's ICT, poverty and development discourse should not be seen as a denial of the potential for ICTs to contribute to development, but rather it is a critique of the apolitical technological determinism and the simplistic modernisation induced idea of technical progress as a linear, 'stages of growth' development trajectory. In other words, progress is seen as catching-up to Western ideals of an 'information society'. Howkins and Valantin encapsulate the negative consequences of this model of development:

> "By adopting an uncritical approach most countries gain access at the expense of substance. They can buy other countries' information, but they cannot generate their own. They fail to make the connection between information and development. They receive information and they expect to receive development, without working to make development in their own image" (Howkins & Valantin, 1997:8).

Government's ICT, poverty and development discourse does not sufficiently accommodate the realities and voices of those affected by its ICT policies (Chambers, 1992; Pretty, 1995; Reason, 1994). It reflects a positivistic[82] belief that technology can provide a solution to what are distinctly social problems. When government defines the problem of isolated, rural communities as 'information poverty' without first considering the needs and wishes of the communities targeted, then state intervention can have negative repercussions. The South African government has, for example, made very little effort to adapt its community informatics projects to the local environment. As such, the community telecentres often do not link with local information patterns, are not geared to meeting local needs and are not widely accessible.

7.1.3 Towards a Re-Conceptualisation of ICTs for Poverty Alleviation

ICTs for development has been a deeply ambivalent process in the Third World. In some instances ICTs for development may carry the promise of transforming communities in liberatory ways, while in other cases, it may tighten the noose of existing 'unfreedoms' or oppression. In order to tackle issues of poverty, inequality and deprivation, a more nuanced understanding of ICT, poverty and development is

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[82] *Positivism* sees reality as existing independent of its observer and as directly accessible: observable in a neutral, non-influencing and theory-independent manner (Chalmers, 1982). According to *Constructivism*, however, the world does not exist, or cannot be shown to exist, independently of our experience. There is no reality, but realities as multiple, intangible mental constructions, socially and experientially based, local and specific in nature (Guba & Lincoln, 1994; Chalmers, 1982).

required, one that allows us to expose and contest capricious and disempowering forms of development, and imagine alternative strategies. There is, therefore, a pressing need to revise and re-imagine the relationship between ICT, poverty and development. The objective is: (i) to stress its multiple accents; (ii) to move away from an ICT, poverty and development discourse that presents itself as a detached centre of rationality and intelligence (Mitchell, 1995); and (iii) not to succumb to the epistemological universalism of the techno-optimists.

This study recognises that the ICT, poverty and development discourse is not a monolithic discourse with uniform effects. Nonetheless, there is an orthodox[83] conception of ICTs for poverty reduction which is pervasive in mainstream development interventions and promoted by donor agencies such as USAID, the World Bank, etc. as well as national governments such as South Africa's. The orthodox ICT, poverty and development discourse is rooted in modernisation theory and has tended to regard social life as a technical problem. The challenge for progressive scholars is to move away from the 'Westernisation as modernisation' ICT, poverty and development discourse and its operations as a power-knowledge complex and to engage with the question of how to ensure inclusion of the poor in the ICTs for development project that is not just another source of domination and marginalisation.

It is the position of this study that ICTs for development is neither unambiguously 'good' (a positive signifier), nor is it unambiguously 'bad' (a negative signifier), or that it is always a process of acquiescence for people who encounter it. Hence, Frissen (1992) characterises ICT as being an intrinsically 'ambiguous' technology. By this he means that ICTs simultaneously represent opportunities, challenges and risks. For this reason, Bellamy and Taylor (1998:32) argue that "taking polarized positions on the impact of ICTs is misguided" as it blocks more complex analysis of the opportunities and problems associated with specific technologies. Rather, ICTs for development is always anchored in a particular social, political and economic context and its evaluation is, therefore, inseparable from the freedoms it either enables

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[83] Bourdieu (1977:164) contrasts 'doxa' (a state of unquestioning acceptance of social facts) to 'orthodoxy' (a state of imposed ideological uniformity) and 'heterodoxy' (a state of ideological pluralism and competing possibilities).

or curtails. Further, ICTs for development can, and should be, principally understood as enhancing human capabilities (or freedoms) (Sen, 1981, 1999) within specific time-space contexts.

Amartya Sen (1999), the Indian Nobel Prize-winning economist, programmatically defines development as 'freedom' to achieve capabilities and functionings where the former signifies the capacities of people to do or be those "important or valuable things…that are central to evaluating their lives" (Glover, 1995:122).   These alternative concepts for assessing well-being are meant to take us beyond instrumental reason, which subordinates means to an end, and the shallow utilitarianism that sometimes accompanies it in ICT, poverty and development policy-making, and which grants primacy to aggregate welfare over individual outcomes.   The dual notions of capabilities and functionings re-group our attention as scholars on: (i) the attainment of qualities of life by particular individuals and groups; (ii) rather than aggregate benefit, i.e. cost ratios of amorphous populations or average consumption growth (assessed through quantities of commodities).   In short, the idea of development as freedom foregrounds ethics and, implicitly, the geography of development: it asks, how do ICT, poverty and development projects enable or compromise the ability of individuals to attain ways of being that are deemed important by them in their socio-spatial contexts?

Sen's recasting of development does have the merit of highlighting the livelihood concerns of poor people in a manner that income- or entitlement-based approaches, which focus on levels of consumption of commodities or goods, do not (Nussbaum, 1995; Sen, 1999).   In terms of policy, it suggests that the most effective way to resolve social inequities is not necessarily through the transfer of goods and resources (a redistributive exercise), but rather through transformations that expand freedom of choice or opportunities, i.e. through empowerment.[84]   Following Sen (1999), the nature of development interventions is best measured through their impact on the capabilities and functionings of various groups.   Like any normative framework, Sen's (1999) contains some unanswered questions, *viz*.:

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[84] Empowerment is often about raising the capacities of poor people to confront inequality and discrimination at local and national levels.

- How could an expansion in one person's freedom of choice affect another person's capability to achieve their functionings?

- How should we evaluate trade-offs between one sort of functioning and another; after all, we cannot have it all?

- What are the proper limits to freedom? For example, does the freedom to own property then not also require some constraints on that freedom so that we do not generate some of the same inequities that we are against?

Given Sen's (1999) allegiance to humanistic liberalism, his idea of development as freedom is also open to the larger critique of liberal political theory articulated by scholars like Wolin (1989) and Brown (1995). Finally, there is the very perceptive point that Kabeer (1999) makes, namely that freedom requires prior identification of needs, interests and possibilities, and that these are not always self-evident because of the (to use Bourdieu's [1977:164] word) *doxic* character of social reality. In short, appreciation of one's agency and apprehension of available opportunities are always recursively, or dialectically, linked. Despite these lingering problems, Sen's (1999) broad notion of development as freedom, which draws attention to such disparate but crucial issues as equity, dignity, living standards and human rights, is persuasive in its appeal.

Such a re-conceptualisation of ICT, poverty and development involves: (i) 'putting people first' and expanding choices for the poor and the vulnerable, as well as improving their level of well-being; and (ii) focusing on the formation of human capabilities such as improved health and the capability to meet basic human needs, and the use that people living in poverty make of their acquired capabilities. Such a reflexive understanding of ICTs for development entails a recognition of the deep fault lines that divide South African society between rich and poor (see Section 6.1.1).

The South African government's ICT, poverty and development discourse is framed in a rigid modernisation schema informed by an over-optimistic understanding of the power and valence of ICTs for development. However, dealing with the problems of chronic poverty and structural inequality requires a fundamental reversal of the balance of power and the directionality of decision-making. Throwing technology at the ills of poverty, illiteracy and unemployment is unlikely to have the desired impact.

What is needed is a structural analysis of power and exploitation in their various forms. Government has made an unwarranted leap from correlation to a causal explanation, i.e. ICTs cause or result in development. ICTs in and of themselves are neither good nor bad - the outcomes are contingent on how the ICTs are used. The aim is to develop a deeper and more balanced understanding of the relationship between ICTs and development, and to be critical of and to deconstruct the elements of the 'information society' and technologically deterministic interpretations of ICTs for development.

Contrary to the South African government and the development establishment, access to ICTs should not be seen as an end in itself. The measure of success should be progress towards combating poverty rather than the spread of technology or bridging the 'digital divide'.[85] By focusing on the 'digital divide' that needs to be bridged, the South African government has oversimplified the long-standing and complex challenges of addressing the root causes of poverty. The 'digital divide' is a symptom of much more profound and long-standing economic and social divisions within and between societies. Efforts to increase access to ICTs, unless clearly rooted in, and subordinate to, a broader strategy to combat poverty and reduce inequality, risk diverting attention and resources from addressing the underlying causes of poverty and inequality.

The concept of a 'digital divide' separating those with access to computers and communications technology from those without is simplistic and can lead to well-meaning but incomplete attempts at a solution based on merely adding technology to a given circumstance. The problem with the concept of the 'digital divide' is that it tends to connote digital (i.e. computers and telecommunications) solutions without due consideration of the context into which the hardware would be put. The implication is that a computer, by its mere presence, will generate learning or development. The literature on community technology programmes in both developed and developing countries clearly show that well-intentioned ICT for development programmes often lead in unexpected directions and the worst failures

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[85] The spread of technology should not be an objective in itself. Poverty and inequality are the problem in South Africa, not a 'digital divide'.

occur when people attempt to address complex social problems with a narrow focus on the provision of equipment (Gurstein, 2000; Warschauer, 2003).

ICTs are not a panacea or a 'magic bullet', i.e. they do not by themselves solve problems of marginalisation, poverty and inequality. They are one of a set of development tools which have the capacity to make the effect of a well-designed, integrated development programme more than the sum of its parts. An important caveat is that relevant information might not of itself be sufficient, and that ICTs can be used as tools to exert power over others and perpetuate inequality. Hence, improving information flows and communication services is a necessary but not sufficient condition to ameliorate conditions of poverty. Therefore, addressing the information and communication needs of the poor must form one component of a wider strategy to tackle poverty. This challenge is an integral part of the broader challenge of fostering participatory and sustainable approaches to development.

This study argues for a more critical and reflexive discourse, and an empirically grounded understanding of problems in view of their situation-specificity and complexity. Such an understanding needs to incorporate temporal, spatial and perceptive contexts (Chambers, Pacey & Thrupp, 1989; Giddens, 1984; Burns, Baumgartner & DeVille, 1985). Important questions to be guided by include:

- Which problems are addressed, how and by whom?
- To what extent are there barriers to open participation in the discourse?
- And if so, who is excluding whom and on what grounds?

As ICTs for development aims to explore questions of improvement, one needs to recognise that different groups living within an area, as well as within and between different levels of state institutions, will have different perceptions of the nature of problems, different judgements about how to act on their perceptions and different views on what constitutes improvement. This recognition requires the ability to accommodate the involvement and views of the different groups involved in ICT projects, *viz.*:

- Those affected by problematic situations and processes;
- Those involved in adapting and altering them; and
- Those interested in addressing them through research.

Each of these groups must be recognised as stakeholders within the ICT, poverty and development discourse.

We use the concept 'social informatics'[86] to challenge the technological determinism underpinning the standard ICT for development model. Social informatics argues that technology must be considered within a specific context that includes hardware, software, support resources, infrastructure, as well as people in various roles and relationships with one another and with other elements of the system. The technology and social system continuously shape each other, like a biological community and its environment. Using the analogy of Freire's (1972) *Pedagogy of the Oppressed*, a re-conceptualisation of ICTs for reducing poverty and inequality should be informed by a *Social Informatics of the Oppressed*. This could be phrased as follows: ICTs can be an empowering technology when they are used to support people's and communities' control of their own development, where they promote dialogue within and between communities, and where they reflect information about the community portrayed as equals with the wider world.

What then is to be done? It is to this question that we now turn. Following Archibugi and Pietrobelli (2003:1), the extent to which developing countries like South Africa benefit from ICTs will depend strongly on the nature of the technology and of the development policies and strategies implemented in the country. The next section will discuss, rather than prescribe, policies that can be put in place to maximise the pro-poor potential of government's ICT policies and projects.

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[86] Social informatics refers to "the body of research that examines the design, uses and consequences of information and communication technologies in ways that take into account their interaction with institutional and cultural contexts" (Kling, 2000:217). Some of the key themes include: the importance of social contexts and work processes; socio-technical networks; public access to information and social infrastructure for computing support.

7.2 Guiding Principles for a National Pro-Poor ICT Strategy

Harnessing the new ICTs for improving the life chances of less-advantaged groups and the quality of social relations within society as a whole requires a conscious effort on the part of government. The UNCSTD study (Mansell & Wehn, 1998) suggested that developing countries would be in a stronger position to maximise the potential benefits of the new technologies if they establish national or regional ICT strategies. Mansell and Wehn (1998) pointed out that such strategies must be underpinned by a commitment to action if they are to be effective. There appears to be an emerging consensus on the broad steps that need to be taken to maximise the positive impact of ICTs (Mansell, Samarajiva & Mahan, 2002; Mansell, 1999). Specifically:

- Demand aggregation to make provision of ICT services in poor communities sustainable;
- Policy and regulation reform;
- Investment in education and training;
- The introduction of regulated competition to speed infrastructure roll-out, increase services and bandwidth, and reduce costs; and
- ICT for development applications to be pursued in an integrated manner within a national policy framework.

While numerous projects abound aimed at using ICTs to address South Africa's development challenges, these projects tend to be small, early stage, limited in scope and with insufficient collaboration amongst groups and agencies in an environment where integrated projects stand a greater chance of success. In addition, South African ICT policy to date has been influenced by: (i) a strong technology dimension with an emphasis on the installation of necessary infrastructure and equipment; and (ii) a view which suggests that if the new ICTs are introduced into poor communities as rapidly as possible, then economic development and social benefit will automatically be achieved. There is a tendency in government to perceive technological innovations as a means of solving development problems where many other methods have failed. The danger inherent in a technical 'quick fix' solution is that the technology can become the goal of the project. Such strategies heighten the risk that ICTs are introduced into disadvantaged communities as a 'Trojan Horse' of

technologically driven social and economic transformation which heightens the risks that the poor and vulnerable will be marginalised further.

A different approach is required which appreciates the fundamentally subordinate role which technology must play within an integrated poverty-alleviation strategy. There is an increasing need, therefore, to focus on the social dimension, as scepticism grows about wasted resources, poorly thought-out projects and false expectations. As Mansell states:

> "Far too often very real damage to human welfare continues to occur when ICTs are introduced. This is often attributable to the fact that these technologies are promoted as a panacea for social and economic disadvantage. Even more often, it is attributable to haphazard implementation which does not take into account realistic factors of local conditions and use" (Mansell, 1999:44).

An international consensus has emerged on the urgent need for developing countries to prepare national ICT strategies to provide a framework to govern the allocation of resources among different groups of users and sectors and to establish priorities (Harfoush & Wild, 1994). The UNCSTD (Mansell, 1999) study emphasised the need for *integrated* ICT strategies and the importance of *co-ordinated* action to maximise the positive contributions of investment in the technologies and in capability development.

Economic and social development involving the diffusion and use of ICTs is highly 'path dependent' (David, 1975, 1985). Once a particular path of ICT development has begun to gather momentum, it can prove very resistant to radical changes in direction. This does not mean that there are no opportunities to shape the trajectory of ICT diffusion and use in South Africa. However, it does mean that the longer decision-makers delay the introduction of strategies that affect investment in ICTs, the more likely it is that particular designs and architectures of systems and applications will become fixed. This will make it more difficult to tailor ICT products and services to the specific needs of the poor. A failure to take early steps using co-ordinated ICT strategies also increases the costs of shifting the trajectory of ICT development. In sum, a failure to shape the structure of ICT production and usage can severely restrict future policy options.

Conceptualising the potential impact of the new ICTs is problematic for a number of reasons. Among them is the recency of these developments and the paucity of solid empirical investigation of trends to date. The difficulty of placing the new technologies within the overall process of technological change arises partly from the fact that we are still in the midst of these changes and it is far from clear where these processes of change will lead us. Further, while supply-side factors such as the provision of the necessary infrastructure and hardware is fundamental in order for poor, mainly rural areas to benefit from this technology, what is even more fundamental is the existence of a demand for ICT services and of the necessary skills required for exploiting the potential. Whether expanded access to information will also promote empowerment is another question, and not necessarily one for which a straightforward answer is possible. Surrounding resource constraints, institutions and values condition the extent to which a new ability to communicate, or to gain access to information, is sufficient to increase the ability to shape one's own destiny. The point is that information alone is often not sufficient to change existing relations of power. However, access to information assumes a central role in empowerment when it contributes to social mobilisation.

National ICT strategies that involve a process of participatory, interactive learning and planning are critically important. Further, a better understanding of the role and impact of ICTs for poverty alleviation is needed. A major ingredient for this is the presence of a mechanism for ongoing policy review, assessment and monitoring (Akhtar, 1995). This suggests the importance of participatory design; local communities need to be involved in the design of universal access programmes by participating in decisions about particular information access outlets. Ultimately, if ICTs are to have a positive impact on the lives of the poor, then ICTs must have a role in generating information that serves poor people's struggles to achieve their desired ends. Most importantly, the national ICT strategy should be responsive to the opportunities as well as risks and threats related to ICT diffusion in a human development context.

The design of the infrastructure needs to encourage ICT development that is responsive to the needs of the poorest sectors of the population. As Mansell and Wehn put it:

"ICT initiatives must be linked to development goals in a way that leads to action and widespread social and economic benefit if they are to be successful (Mansell & Wehn, 1998: 115)…If the satisfaction of fundamental human needs is the 'driver' of the introduction of ICTs there is a greater chance of success than if technology is permitted to 'drive' applications" (Mansell & Wehn, 1998:117).

In terms of the current government ICT policies, poor communities face the risk of exclusion because they often lack the economic and social capabilities needed to take advantage of innovations in ICTs. Therefore, investing in the poor's capabilities to use these technologies is of prime importance. Mansell and Wehn aver that the prospects for successful ICT strategies in the Third World involves:

"a dynamic accumulation of skills and knowledge that has a major impact on development goals and aspirations. The prospects for a major impact differ depending on the level of resources that can be committed, the coherence of the policy framework in which the strategy is embedded, and the social capabilities of the country attempting to implement the strategy. The countries that have been successful in the past in addressing development problems are also likely to have success in their development of an ICT strategy. For other countries, an ICT strategy will be as great or a greater challenge than strategies in other areas, and the prospects for success are not as good" (Mansell & Wehn, 1998:257).

There is a risk that new policies and investment in ICT applications will introduce new forces of exclusion. Some people will be excluded because resources cannot be extended to provide access and training to everyone. ICT strategies will not overcome all the 'dualities' of development. Mansell and Wehn (1998:261) argue that national ICT strategies "can provide a framework for strengthening the likelihood of positive outcomes and minimising the risk of negative outcomes".

Lack of access will continue to be a substantial problem reflecting the limited investment resources for poverty reduction. The constraints to 'access' challenge policy-makers to ensure that ICT strategies result in more intensive and effective use of what is available. The challenge is to focus or target strategies toward achieving outcomes that are affordable and that will sustain movement toward fulfilling the development objectives of reducing poverty and 'correcting' massive inequalities. Community access initiatives such as telecentres and tele-kiosks are likely to present major financial challenges due to the costs of developing the necessary social as well as technological capabilities. Ways will need to be found to ensure that these

initiatives are not 'one-off' demonstration projects that terminate when programme funds are exhausted or with the departure of key people.

Much of the recent attention to the role of ICTs in development has focused on new technologies, such as the Internet and mobile phones. Yet the full range of ICTs is relevant in the fight against poverty. Radio and television are important information tools that are much more widespread in South Africa than telephones or the Internet. For most of the rural community in South Africa, radio and television broadcasting remain the major means of electronic communication. There has been a tendency by government to rush to the 'high end', focusing on Internet access in environments where even more basic ICTs are still in short supply. Government should be careful not to make diffusion of the technology an objective in itself. The danger of this view is that it turns use of ICTs into an end in itself rather than a means of achieving development goals. Government should see ICTs as a means to an end, not an end in itself.

7.2.1   A Strategic National Vision

The landmark study of ICTs carried out by the UNCSTD in 1995/6 underlined the importance of co-ordination when it called for the formulation of national ICT strategies (Mansell & Wehn, 1998). In the South African context this means that government departments need to co-operate in order to avoid developing competing and overlapping ICT projects. Government needs to formulate a systematic and integrated[87] national ICT strategy which captures and reflects the country's development needs and monitor its implementation. Focusing only on the production or acquisition of technology is not sufficient. Policy-makers must be able to articulate a careful and deliberate national vision of what ICTs can do and identify priority areas. This requires a strategic vision of the role of information and communication in poverty alleviation, and a clear sense of how ICTs can help realise it. Plans for investment in ICTs bring the best results when they are embedded in, or informed by, a vision of the future that is consistent with the local or national environment.

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[87] An integrated strategy, however, if not properly managed, has the potential to cause tensions between different government departments, with each department protecting its 'turf'.

The poor have information and communication needs like everyone else yet, given the multiple constraints they face, they are often unable to address them. The poor lack access to information that is vital to their lives and livelihoods, such as information about: (i) income-earning opportunities; (ii) market prices for the goods they produce; (iii) health; (iv) the structure and services of public institutions; and (v) their rights. Further, the poor are deprived of instruments for effectively articulating and aggregating their interests, learning about their rights and their entitlements to government services, and pressuring government at all levels to be responsive to their needs and interests.

Moreover, they lack political visibility and voice in the institutions and power relations that shape their lives. Finally, they lack access to: (i) knowledge, education and skills development that could improve their livelihoods; and (ii) markets and institutions, both governmental and societal, that could provide them with needed resources and services. What is to be done? The following recommendations can be made for a pro-poor ICT strategy. Government should:

- Focus attention on information and communication aspects of poverty and appropriate use of ICTs in the development process;
- Address information and communication issues in national poverty reduction strategies.
- Promote the integration and subordination of national ICT strategies to national poverty reduction strategies[88];
- Help the poorest address their information and communication needs;
- Build capacity to engage substantively on ICT-related issues as part of the process of developing and implementing national poverty reduction strategies; and
- Monitor, evaluate and document successful and unsuccessful applications in order to develop models of best practice.

The most significant development to date has been the convergence between computer technology and telecommunications. For the purposes of this study, ICTs are defined as new computer-based technologies such as the Internet that facilitate

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[88] In other words, government should not develop separate 'stand alone' national ICT strategies.

communication and the processing and transmission of information by electronic means. Thus the issue of access refers to the Internet and telephony rather than all communication technologies (television, radio and print media), digital and analogue, in use today. Having said that, radio remains a powerful, sustainable technology for meeting many of the information needs of the poor. A policy that promotes access to as wide a range of radio (and television) broadcast options as possible is clearly important for the development opportunities of the poor. In addition to community radio provision, there also remains a significant role for government in the broadcast sector, especially in the delivery of public service content in areas such as education and health. The Internet may well be used as an indirect supporting tool in efforts to improve information and communication flows that benefit poor people.

It should be noted that provision of infrastructure is only the first step in exploiting ICTs for development. Without appropriate content, for example, the Internet will not be relevant to the poor in South Africa. The aim of a pro-poor ICT strategy should be to increase communication and the flow of relevant, substantive information in ways that benefit the poor and which is a critical component of poverty reduction. Given the cost and skills demands of Internet access, it is likely that direct access by the poorest will remain limited. Government should, therefore, work with NGOs and civil society groups to address the information and communication needs of the poorest and most marginalised, who are least likely to be able to access information and communication services. This would include encouraging intermediaries such as NGOs, educators, religious organisations and civil society groups to act as a conduit for information available via technologies such as the Internet.

An understanding of the information needs of the poor, including the poorest and most marginalised in society, needs to be the starting point for an ICT strategy geared to poverty reduction. It is only once the information requirements of the poor have been identified that the government will need to interrogate the role that ICTs can play in meeting those requirements. In this way ICTs are driven by the needs of the poor rather than by technological concerns.

Communication should not be just about delivering information *to* the poor and oppressed; it must also be about transmitting information and knowledge *from* these

groups to a wider audience. It is a truism that the majority of the poor in South Africa will not own ICTs for the foreseeable future, and most will not be direct users of ICTs. Thus, a key task for government will be the identification of ICT intermediaries, i.e. those who own ICTs and who can act as gatekeepers between government and other information providers and the informal information systems of the poor. Heeks explains further:

> "The identity of these intermediaries is critical. They must be in direct face-to-face contact with those whom they serve. They need to demonstrate a 'fit' of context and purpose with these clients. Where this is not the case…those clients are unlikely to benefit. Even if the right ICT intermediary is in place…they often struggle to sustain themselves. They face sustainability pressures on at least four fronts. Perhaps the most difficult is financial. However, intermediaries must also be able to sustain their human capacities, the technology they use, and their purpose" (Heeks, 2002a:7).

Incorporating ICTs must be seen as secondary to a broader poverty reform agenda considered on its own merits. Broadly, this suggests a four-stage process in introducing ICTs:

- Acceptance by key stakeholders of the need to reform;
- Identification of the agenda for reform;
- Identification of the information systems requirements of the reform; and
- Identification of the role of ICTs, if any, in meeting these requirements.

Impediments to poor people benefiting from ICTs due to lack of skills can be reduced both by education and training to increase individuals' skills and by developing applications which are adapted to the needs of low-skilled or illiterate users. Also, it is important not only to ensure that relevant information is available to the poor in their own languages, but also that ICTs foster the availability of a variety of sources of information, and diverse approaches to the challenges facing the poor, so that they can decide for themselves how to meet their needs.

7.2.2 Universal Access

Collective access strategies such as telecentres are probably the most feasible option for low-income and impoverished communities. When considering universal ICT access in rural areas for many countries, South Africa included, the focus has been on the provision of telecentres. There is no single definition of a telecentre, but the following description provided by Gómez, Hunt and Lamoureux is a useful starting point:

> "A common characteristic [of a telecentre] is a space that provides public access to ICTs for educational, personal, social and economic development. Based on the general premise that not everyone in the world has access to a telephone, much less a computer, fax service, Internet connection, or relevant information services, telecentres are designed to provide a combination of ICT services. These range from basic e-mail to full Internet/World Wide Web connectivity, with additional services that may include fax and word processing, to specialised information retrieval or applications such as tele-medicine or distance education" (Gómez, Hunt & Lamoureux, 1999:2).

The telecentre experience in South Africa illustrates the substantial barriers which make difficult the realisation of the benefits of ICTs (see Chapter 5). This mode of delivery faces a variety of specific difficulties, *inter alia*: sustainability; lack of awareness of the potential role of ICTs and of the telecentre itself; lack of funding; infrastructural problems; lack of human resources required to successfully maintain the centre; and language and cultural difficulties. Failures of initiatives can be frequently traced to the fact that the real needs of users were taken for granted or were incorrectly specified.

The increased interest in the 'information society' and the ITU's programme of Multi-Purpose Community Centres (MPCCs) influenced the Department of Communications (DoC) to instruct the Universal Service Agency (USA) to establish telecentres. The idea was that the telecentres should be financially self-sufficient (i.e. economically sustainable), and therefore operate on the basis of 'cost recovery'. This means that poor people must pay for access to ICTs themselves. Hence, a neo-liberal model of community telecentre roll-out was in operation.

Currently, the USA community telecentres are far from being self-sufficient. The USA was not clear how ICTs in disadvantaged areas could be used for development purposes and so could not promote a shared aim beyond the rhetoric of universal

access to ICTs. It is important that the telecentre is attached to a strong, credible community-based organisation and that it responds to local needs. Further, active community involvement in the governance and management of the telecentre must be encouraged and training must be provided to build capacity.

The telecentre roll-out assumed that the project would generate its own revenue. With little training, no subsidy and no support for developing information services, this model did not lead to services being offered that were relevant to the needs of impoverished areas. The USA does not have the technical and managerial skills or the resources to ensure that its telecentres support human capability development in impoverished communities. The USA's policy for implementing universal access to ICTs through community telecentres appears to be based on a 'technology push' model, i.e. establishing telecentre projects before ascertaining whether there is a local understanding of their role. The community telecentres tended to focus more on the technology than on people. As a result, the missing link is the connection between local needs and the supply of appropriate ICTs. The telecentres in general benefit the local elites, i.e. the wealthier and better educated members of the community.

There needs to be a capacity and a commitment to learn and to act on that learning. The community telecentre must be embedded in existing social relations (Loader, Hague & Eagle, 2000), and familiarisation and local control of the technology must be a prime focus. Loader, Hague and Eagle (2000) refer to the three pillars of community informatics, *viz*.: (i) access and awareness, (ii) context specific training and (iii) support. To have a strong impact, community-based organisations which are already playing a critical role in existing community information patterns need to be involved. Three main policy issues need to be considered:

• Providing affordable access to ICTs and the skills to use them;
• Ensuring that the ICTs have a useful role in the local context; and
• Facilitating increases in human capability through community telecentres.

7.2.2.1 Providing Access

The issues here relate to providing access to the technology in ways that minimise exclusion. The primary factors being: (i) physical access; (ii) affordability; (iii) discrimination in access; and (iv) skills.

Physical access: Is well-functioning ICT equipment available and physically accessible in the community? Local maintenance skills, local contract to support, telephone and electricity connectivity and networks of technical assistance are all required for this to be achieved.

Affordability: Does the cost of service act as a barrier for most people to use the community telecentres? If this is the case and the project does not take steps to overcome this difficulty, the community telecentre does not support universal capability but instead ICT serves to reinforce existing social imbalances. This is dependent on the organisational model of the project, and in most cases cost-recovery models do not allow affordable access. Consequently, some degree of subsidy would be required, and aligning the project with existing organisations such as schools would be beneficial.

Discrimination in access: Are there groups or individuals in the community who feel that they are discriminated against and cannot access the system? Such discrimination could be on the grounds of gender, age, physical ability, etc. Where there are specific barriers to usage, as with people living with a disability, has the project found ways to respond to this? Access to the technology for women is a particular concern and factors that restrict access (e.g. childcare and transport) should be considered in designing accessible services.

Skills: Do poor people have the skills to use the technology as a tool for what they would like to? Authors like Loader, Hague and Eagle (2000) and Miller (2000) stress that having skills to use the technology is central to its successful use. Loader, Hague and Eagle (2000) emphasise that training should be 'bottom-up and bespoke', meaning that training should be adapted to the local conditions so that people learn to do things that they wish to do, using ICTs as a tool rather than learning computer skills for its own sake. The need for building skills does not cease at the end of a

course, but ongoing support is needed which is often best provided through peer-to-peer encouragement and training.

7.2.2.2 Ensuring a Useful Role in a Local Context

The next set of issues concerns why people would be motivated to use the community telecentres. Does the telecentre provide useful information and services that are meaningful locally? The factors to consider here include: (i) the information requested; (ii) trust; (iii) integration with local information patterns; (iv) integration with external information systems; (v) responsiveness; and (vi) local information creation.

Information requested: Is the information available through the community telecentre relevant to meeting local needs? Each community would have to conduct research on what is needed in the area and then attempt to provide the required information, whether generated locally or externally. This includes finding out answers to specific questions asked, as well as responding to services requested, such as distance education.

Trust: Do people trust the information that is obtained from the telecentre? In any community certain organisations are more trusted as sources of information than others. It would be best for community telecentres to build on existing trusted sources of information, such as schools and religious organisations such as churches (Loader, Hague & Eagle, 2000).

Integration with local information patterns: The information supplied through community telecentres should also be made available through existing information channels in the community, such as community radio, local newsletters and public meetings such as civics or religious organisations.

Integration with external information systems: Can the community telecentre be used to obtain relevant information from external sources, such as government and business? Here the community telecentre is used as a vehicle for accessing a wider world of information through, for example, the Internet.

Responsiveness: When people use the community telecentre to contact organisations and individuals, do they get an acceptable response? While this is not under the control of the community telecentre *per se*, it is nonetheless important to know how useful the project is in providing a link with the external world.

Local information creation: Does the community telecentre develop local content that is made available through electronic systems? This involves developing information regarding the local community and technical skills to make this available. A separate issue is for the community to decide what information should be presented about itself. Once information on the community is made available through the electronic networks, the people in the community need to be able to assess how satisfactory the information produced is and amend it if necessary.

7.2.2.3 Empowerment

Does the community telecentre play a role in enhancing the human capability of local people to control their own lives? The following issues are central: (i) right to information and access; (ii) empowerment in local needs; (iii) local governance and control; and (iv) local learning.

Right to Information and Access: Do people in the community feel they have a right to information that they require and believe that they can access it? This issue refers to whether people feel that they are allowed and entitled to receive the information they want. The South African constitution states that "Everyone has the right to freedom of expression, which includes – the freedom to receive or impart information or ideas" (Government of the Republic of South Africa, 1996:Section 16.1.b).

Empowerment in Local Needs: Do people feel that the community telecentre plays a positive role in allowing them to meet their needs? Do the services offered by the community telecentre support the ability of people to do things that they want to do?

Local Governance and Control: Do people in the community feel that they have a stake in the telecentre and are able to influence it if and as they wish to? This refers to the management system, and whether it is open to suggestions and direction.

Local Learning: Is the community telecentre involved in a process of local learning so that it continues to adapt and respond to local needs? This includes defining aims for the telecentre, which should lead to indicators that can be assessed. Is the information made available in such a way that the wider community can assess it and be party to the decision on how to act?

7.2.2.4 Universal Service Agency (USA)

The USA should present the abovementioned issues to the community before implementing community telecentres. Through dialogue, an agreement on which issues are relevant to the project should be developed, with agreement on indicators on how the different issues would be assessed. This process should be facilitated, with training provided, particularly in local management and research facilitation skills. To be successful, community telecentres should be locally controlled and managed, within a framework of external support.

In a national system of community telecentre roll-out, the key is to establish multi-organisational service networks that work towards the overall goal. The USA is currently not in a position to establish the many thousands of sites that would be needed to provide poor, especially rural communities, with access to ICTs. Rather, the USA should see its role as promoting a network of many organisations (community, NGOs, business and government) that together serve the ends of policy.

Enhancing human capability expansion necessitates making the technology relevant to local use, to embed it in local social relations, which means that there must be local control of the project. However, for this to be successful a range of support systems are needed from outside the community. The USA has a key role to play in training, developing services and linkages, and in promoting information flow. Training should be concentrated on information skills to develop local content, computer usage and maintenance, research (to identify local needs through participatory techniques) and management skills (operational, financial, project and customer service).

The USA should take on the role of linking to national and provincial bodies to organise information services for its telecentres. This would entail developing linkages with organisations such as government departments, major NGOs and some

private sector organisations to provide services to which the local projects can more easily tie into. Examples would include distance education, small business support and health information.

7.2.3   Telecommunications Policy

Policy solutions are seen as appropriate for addressing the problem of extending telecommunications into under-serviced and non-serviced areas, both because: (i) the sector is typically distorted by a history of state intervention through ownership, restricted entrance and geographical price averaging; and because (ii) the likelihood of higher costs for serving rural and remote areas contributes to a restriction of purely market-based incentives for telecommunications services provision.   Policies to address these problems follow two general strategies: *obligations* and *incentives*.

The policy instrument of obligation is typically employed through the licensing process. The community service obligations should be targeted primarily at Telkom, but should also include the new fixed-line and mobile service providers. Incentives for providing telecommunication services to poor communities in rural areas can be financial, as in the case of subsidies, or may include particular market conditions established through special licensing programmes (Cannock, 2001). Policies that provide incentives through subsidies must address both the source and collection of the funds as well as the means of distribution. This process must be handled carefully as the calculation and distribution of subsidies can lead to lengthy disputes (Garnham, 1997). Sources of funds in existing models include revenue or per-minute-based contributions from telecom operators (examples include Peru, US and France), contributions based on interconnection charges, and contributions from the government's general fund (e.g. Chile). For an in-depth discussion of the pros and cons of these systems see Wellenius (2001, 2002).

Chile, for example, established a development fund and implemented a competitive tender for subsidies for unserved areas.   Despite the liberalisation of telecommunications services in the late 1980s, and the resulting increased roll-out and reduced tariffs, by the mid-1990s, about 1.5 million people (about 10% of the population) still lived in localities without access to telephones (Wellenius, 2001). To address this problem, in 1994 the Chilean government set up a special fund financed

by the national budget and administered by the telecommunications' regulator (Bitran & Serra, 1998). A first round list of 1285 rural localities without public payphone access were ranked and drawn up and grouped into 46 projects according to geographical proximity, technology and level of subsidy likely to be required (Wellenius, 2001). The regulator then invited competitive bids for provision of these services. Operating licences were awarded to the lowest bidder in each case, provided they met the minimum technical requirements and were within the maximum subsidy level. The process was highly successful, with bidders making 62 offers for 42 of 46 projects. If these obligations are completed successfully, 97% of Chileans should have access to basic telecommunications. The subsidies bid for by operators were much lower than expected and hence the Chilean government committed only 48% of its 1995 budget for 90% of its programme roll-out (Wellenius, 2001). Analysis indicates that the main factor in driving down the bids was the presence of competition among operators in the regions where the 16 projects were located. The net result of the initiative was that only US$2.1 million of public money triggered private telecommunications investment of approximately US$40 million for the purpose of providing telecommunications network access in remote and low-income areas (Wellenius, 2000, 2001).

The distribution of subsidies has been an area of significant innovation in the past decade (Cannock, 2001). Using traditional methods, rural service subsidies are paid to incumbent operators based on complicated cost of service calculations. Since the true cost of providing rural service is difficult to ascertain, establishing a fair level of subsidy is also difficult. To circumvent this problem innovative policies that use auctions to distribute subsidies have been developed. Subsidy auctions, particularly when combined with the issuance of new licenses, create incentives for greater transparency in the calculation of costs and support efforts to increase competition in the sector (Cannock, 2001). This method has been used with some success in both Peru and Chile, where reverse auctions were used to issue both licenses and subsidies to the firms with the lowest bids.

To be successful this policy instrument must include mechanisms to reduce the risk of under-bidding for the subsidies and subsequent default through requirements such as performance bonds, as well as guarantees for interconnection of the new entrants

(Cannock, 2001). Furthermore, policy-makers should be aware that bids for subsidies may be constructed to protect existing market shares or to develop a presence, instead of reflecting the actual costs of service to under-serviced areas. This behaviour was observed in the Chilean case, where in the first round some firms bid zero for a subsidy to increase their chances of winning a license whereas in subsequent rounds, after market positions were solidified, subsidy bids increased significantly (Wellenius, 2001).

The costs of building the 'last mile' of the NII are high (Richardson & Paisley, 1998). This means that finance for the extension of services to remote areas must come from government sources or from the introduction of price structures that assume a contribution of revenues to the costs of network development in low density traffic areas. Looking at telephones, because of the historical concentration of access amongst wealthy urban populations, we have seen that telephone roll-out has traditionally been a force for divergence in incomes between rich and poor in South Africa. However, technological change (pre-paid mobile telephony)[89], policy reform and innovative universal access programmes such as that in Chile has made the goal of extending telephone access to the majority of the poor an increasingly feasible idea. It is clear that the first step in extending telephone access to the poorest remains a programme of reform towards well-regulated private, competitive markets, which have repeatedly delivered expanded network access at lower cost (Kenny, 2001). To extend access beyond the market, subsidy auctions to provide lowest cost, privately provided public access in unserved areas (the model used to reach universal access in Chile) have proved affordable and sustainable (Wellenius, 1997).

Universal access in South Africa is a central policy and regulatory challenge. The policy challenge is one of how to ensure that those who have been marginalised historically have access to ICTs and to the information that can be harnessed from using these technologies. Initiatives to address access should include targets, indicators and benchmarks to support assessments of progress on ICT access. In 1997

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[89] The dramatic growth of mobile telephony in rural (and urban) communities in South Africa is an interesting case. Pre-paid mobile tariffs are considerably higher than Telkom's contract tariffs. Further, there is the added up-front cost of purchasing the handset. What then is the impetus for the growth of pre-paid mobile telephony? There are probably two main reasons. First, the convenience of

the South African government granted Telkom a 5-year exclusivity on the public switched telecommunications network on condition that Telkom meet certain obligations. The objective of the exclusivity period was twofold:

- To enable Telkom to restructure itself into an efficient company, and to upgrade its network; and
- To bring telephones to previously disadvantaged and marginalised communities.

Telkom was given until May 2002 to attain these targets. Two months after the exclusivity period ended Telkom announced that it had achieved only half of its roll-out obligations. What is significant is that:

- Nearly half of all residential users experienced problems with their telephone lines during the course of a year;
- Telkom fell short of the 2.69 million fixed-line target;
- Telkom connected 505 villages less than it should have; and
- It installed approximately 10,000 fewer replacement lines than it should have (Telkom, 2002).

As a result of failing to meet government targets, Telkom is liable to a fine of between R8-10 million, which is not a sufficient penalty, considering Telkom's profits. Due to Telkom's lack of success to build out the infrastructure adequately after decades of monopoly, privatisation and liberalisation of the industry has been proposed by government. Privatisation has been implemented through the introduction of a strategic equity partner with the promise of a period of extended monopoly. The rationale for this is that indebted monopolies are not able to access on their own the necessary capital, skills and technologies to upgrade and extend their networks and prepare for competition. That said, privatisation is likely to be accompanied by the rebalancing of tariffs to bring prices in line with costs, resulting in higher local prices, which were previously cross-subsidised by international calls. The introduction of independent regulators such as the Independent Communications Authority of South Africa (ICASA) can act as a proxy for price competition during the transitional phase

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mobility, the ability of the consumer to control costs and indeed the status of owning a mobile phone. Second, it is a reflection of Telkom's inability to supply fixed telephony to poor communities.

through price and tariff regulation. The problem in South Africa is that ICASA is incapacitated by a lack of skills and resources.

South Africa has pursued a policy of privatisation *without* liberalisation in the fixed-line telecom sector. Where alternative access networks have been permitted and the provision of service to under-serviced areas been opened up to other players besides the incumbent, service roll-out has often been more effective (Melody, 1999). The challenge, therefore, is to create conditions that are sufficiently predictable to secure the investment necessary for infrastructure development. At the same time they must engage in the sometimes contradictory task of creating an enabling environment to ensure affordable access. This requires investment in, and development of, regulatory skills and capacity without which infrastructure development strategies and competition policy will not deliver the intended positive outcomes.

Subsidies to complement user fees are important so that poor households are not priced out of the market. The case of Chile demonstrates that in an open, competitive environment a limited government subsidy can result in the private sector extending telecommunications access to remote or low-income areas to which, the incumbent argued, it was unable to deliver service cost effectively. The South African government can learn from the Chilean experience.

The independent regulatory authority ICASA will need to be strengthened to ensure that Telkom[90] and the other telecommunications service providers act in a developmentally responsible way and are required to use part of their revenue to improve conditions in low-income areas. Currently, ICASA does not have the capacity and resources to monitor and enforce the relevant policies to ensure affordable access. Gillwald makes an important point that is relevant here:

> "The introduction of competition, without the regulatory capacity or political will to manage a competitive framework, can be entirely counterproductive to the achievement of the very goals of liberalisation" (Gillwald, 2002:110).

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[90] Despite Telkom's claim that that cross-subsidies from international calls and high revenue settlement rates were needed to extend services to the under-served, they were not by and large used for this purpose.

Similarly, in a study of the Eastern European Internet market, the Global Internet Liberty Campaign (GILC) concluded:

> "Open and competitive markets make a necessary but not always sufficient contribution to securing the public interest objectives of universal access, affordable prices, pluralism and diversity. Indeed, in the absence of countervailing regulation, liberalization could worsen the situation. Tariff rebalancing in favour of high volume and long distance users could benefit business and urban customers, while resulting in increases to residential and rural customers" (GILC, 2000:9).

7.3 Conclusion

This chapter questioned the assumptions and implications of a particular mode of development based on the notions of modernity and modernisation, an ideology which pervades the South African government's ICT policy initiatives. Government seeks to present state ICT initiatives as neutral, scientific and outside of political conflicts. This discourse masks class interests and does not focus on elite groups and their interests in importing development schemes. By focusing on 'information poverty' in isolated, rural areas, the discourse casts the poor as 'ignorant' and hence devalues local knowledge (Chambers, 1999). ICTs are seen as a technical solution to underdevelopment, one in which development is reduced to solving the information deficit of the poor. The net result of which is that the complex and deeply embedded political and economic factors which structure and shape poverty and inequality are made invisible and are therefore unquestioned.

What is most striking about government's ICT, poverty and development discourse is its association of ICTs with modernisation. ICTs are seen as a *deus ex machina* solution to the problems of poverty and inequality in South Africa. This model of development undervalues the knowledge and experience of poor people, and ignores poor people's perspectives on their needs and on solutions to their own problems. The current ICTs for development discourse of the South African government is likely to constrict rather than expand the space of economic and cultural freedoms of the poorest and most vulnerable communities in South Africa.

ICTs are seen as a modern technology for re-organising populations in developing countries to follow a certain pre-designated trajectory. This sort of intervention is both theoretically dubious and politically dangerous because it robs Third World

societies of history and agency. A re-conceptualisation of the mainstream ICT, poverty and development discourse is called for, particularly one which destabilises orthodox, totalising worldviews (whether neo-liberal or Marxist) and exposes the arbitrariness of entrenched systems of power and domination. We need to prise apart, with the help of theory, systems of domination in order to reveal their operations in time and space, and their arbitrariness; we also need to narrate, with the help of empirical research, how poor people negotiate and contest (sometimes with adverse consequences) the structural conditions of their existence. A reinterpretation would also necessitate an acknowledgement that ICTs for development are human constructions and as such "contested, temporal, and emergent", to borrow from Clifford's (1986:19) discussion on culture. ICTs for development must be contextualised in terms of power structures, and situated in Sen's well-known definition of development as 'capability expansion' (Sen, 1984, 1990, 1999).

Chapter 7 has emphasised that the ICTs for development process is contingent, depending upon specific circumstances and social practices. When we add to this the polyvalent understandings and disparate impacts across and within areas, we have a far more complex and uneven picture of ICTs as a modernisation project. The challenge for the South African government is to maintain a critical and reflexive distance from the exaggerated claims of the development industry regarding ICTs for poverty alleviation. What is needed is a growing acceptance of heterodoxies, diversities and multiple systems and modes of explanations to countervail the monolithic modernist discourses.

Properly conceived and deployed, ICTs have the potential as tools to increase the flows of relevant information (i.e. information which the poor actually need) and to empower poor people. Guidelines can be followed to ensure that strategies are developed that help to harness ICTs to priorities for poverty amelioration. This chapter offers guidelines for policy-makers to assist in devising national pro-poor ICT strategies that will be effective and responsive to development priorities.

The innovation and diffusion of new technologies such as ICTs is never smooth or uninterrupted. Historical practices and routines, and the occurrence of social, economic and political events, make the process of innovation highly unpredictable

and therefore uncertain. Decisions about ICTs will have to be taken without a high degree of assurance that the results will be beneficial. The policy implications of this study are not conclusive. It would be risky to prescribe in detail what the South African government should do, given the limited and exploratory nature of the knowledge that exists on the subject of ICTs for reducing poverty and inequality. Instead, Chapter 7 has sketched out several policy issues that can help policy-makers think about programme and policy support. The guiding 'rule of thumb' should be for policy-makers to pursue ICT policies with substantial equity components, appropriate to local needs and resources.

Success is not guaranteed and the price of failure will be high. The neo-liberal approach to ICT policy does not seem to have served the poor and the marginalised well. The time has come to develop a different approach, one that does not rely wholly on market forces but that recognises the need for a clear vision and for a radically different approach to the achievement of the goal of universal access. If expanding access to ICTs is to play a significant role in national development, it must form part of a much broader effort to improve the social welfare and economic opportunity of the poor in South Africa.

How ICTs can be used to the benefit of poor communities is a complex question on which much local research is needed. If affordable access is to be available to all, ICT policies need to be based on realistic premises, not wishful thinking or simplistic generalisations. It is critically important that government moderates what Heeks (1999a) bluntly refers to as an 'ICT fetish' and to adopt an enlightened approach to ICTs, one which is:

> "information-centred, integral to its environment, integrated with development objectives, intermediated, interconnected, and indigenised. Above all, it must be intelligent" (Heeks, 2002a:10).

The next chapter will conclude the study and suggest a number of areas for further research.

Chapter 8

Conclusion

8.1 Review of Study

8.1.1 Methodology

Discourse analysis is used in this study as a vantage point from which to probe the complexities of the ICT for development discourse. Michel Foucault pioneered the analysis of discourse, namely deconstructing the text of a dominant system of thought to reveal the inherent power-knowledge structures. The powerful can influence what is considered acceptable knowledge. Such knowledge happens to be the form of knowledge that makes those people more powerful in a self-reinforcing cycle. In the final analysis, power is the right to have one's definition of reality prevail over other people's definition of reality. Power defines what counts as knowledge and thereby what counts as reality. In society, knowledge and power are inextricably linked. As Foucault (1977) states, no power is exercised without the extraction, appropriation, distribution or retention of knowledge.

The research method (i.e. discourse analysis) adopted was driven by the theoretical framework (i.e. critical theory) that was used in the study. In any research endeavour there are always alternative approaches. The decision to adopt one or a combination of approaches ultimately rests with the researcher provided that the approach is robust, coherent and defensible. A discourse analysis approach when handled with depth and subtlety can be fruitful if it becomes an instrument of reflexivity (critical reflection).[91] The methodology adopted in this dissertation is one which is the most appropriate for our purpose, i.e. to critically examine government's discourse on the interconnectivity between ICT, poverty and development.

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[91] Of a method or theory that takes account of itself or especially of the effect of the personality or presence of the researcher on what is being investigated.

8.1.2 Empirical Evidence

The nub of the South African government's highly normative and deterministic ICT for development agenda is the intrinsic belief that:

- Unequal access to ICTs and digital exclusion (*qua* the digital divide) is the site of the major unequalising force in both the South African and world economy today;

- The digital divide in South Africa can be bridged by supplying more ICTs to poor, particularly rural and isolated regions;

- ICT is an inherently enabling technology that can leapfrog institutional and infrastructural obstacles;

- ICTs can help foster social development and economic growth;

- ICT investment is exempt from normal comparisons of costs and benefits between alternative kinds of ICT and non-ICT investments because it reflects a 'new paradigm' of thinking and because it is not a matter of tradeoffs;

- Evidence of higher failure rates in ICT projects only shows the need for more training, or lifting of cultural constraints, or strengthening of political will, and does not undermine the priority of ICT investment *per se*.

Since 1994 the image of the 'information society' has been invoked by the South African government as a modernising theme to transform society and the economy through ICTs. This fits neatly with the powerful rhetoric of politicians such as Prime Minister Tony Blair in the UK and former President Bill Clinton and former Vice-President Al Gore of the United States on the general theme of modernisation through ICTs (Margetts, 1999:Chapter 1; Bellamy & Taylor, 1998:4-10). The post-apartheid South African government has embraced the ideology that ICT represents modernisation and it is seen as a key technology for alleviating poverty. The theoretical heritage of this perspective is linked to the modernisation school, which assumes that social change is unidirectional, progressive and moves society from industrial (or pre-industrial in the case of least developed countries) to post-industrial with modern ICT as the engine. In much of government technicist rhetoric we find an implicit belief in an unproblematic causal progression from ICT innovations to social change. Technological complexities, complex social processes and independent human agency are not seriously considered.

The South African government is attracted to the neutral, instrumental view of technology, which is why they build an increasingly central role for it in their vision of an 'information society'. Government has taken the technological configuration of the new ICTs as a 'given' or prefigured system that needs to become more widely diffused to citizens. Hence, government rhetoric forecloses an assessment of the need for greater variety in the deployment of ICT configurations. It is the contention of this study that the role of ICTs as a powerful tool to fight poverty is, at best, a working hypothesis. Yet over the last nine years it has virtually become part of 'received wisdom' and 'conventional thinking' in government circles. The model of ICTs for poverty alleviation that is being pursued by government is part of the problem rather than the solution. The sooner that the government's ideology is demythologised the better. Tucker puts it best:

> "It distorts our imagination, limits our vision, blinding us to the alternatives that human ingenuity is capable of imagining and implementing" (Tucker, 1999:1).

In terms of government's development discourse ICTs are elevated "to the status of a natural law, objective reality and evolutionary necessity" (Tucker, 1999:1). Government needs to engage in a frank and comprehensive diagnosis of the information and communication dimensions of South Africa's development challenges. It means asking the fundamental question: *How can we create an environment where information flows much more freely and widely, and where communication is easier, broader and more inclusive within our society, so as to create more participatory and inclusive societal processes?* The answer to this question covers two mutually dependent areas: (i) establishing an enabling policy and regulatory framework; and (ii) using ICTs appropriately and innovatively within the various sectors of society.

Paulo Freire sums up the difference between modernisation and authentic development:

> "It is essential not to confuse modernisation with development. A society which is merely modernised without developing will continue – even if it takes over some minimal delegation of decision making – to depend on the outside country. This is the fate of any dependent country as long as it remains dependent…The basic elementary criterion is whether or not a society is a 'being for itself'. If it is not the criterion [then this] indicates modernisation rather than development" (Freire, 1972:160).

The central question becomes one of poor people's right to define their own development in the face of a government who claim a monopoly of truth and enlightenment. Government is seen as 'saving' the poor from the misery and stagnation emanating from 'information poverty' thanks to superior technology. The histories and contextual rationalities of poor communities are subsumed by government's discourse on technological progress. The South African government's discourse on ICT, poverty and development is therefore in urgent need of deconstruction and reconstruction; otherwise it will continue to block other imaginaries and ways of understanding. This study has contributed to this ongoing project. In deconstructing the categories used in the ICTs for development discourse it is important to pay greater attention than hitherto to the unequal power relationship that prevails in the production of knowledge. This unequal relationship parallels and reinforces the unequal and dependent relationships in the domains of economics and politics.

In general, government ICT policies, programmes and projects are being developed in isolation with few links between them. The lack of inter-agency networking calls into question the integrative power of ICTs heralded by enthusiastic modernists in government. There is little evidence to suggest that any process of overarching transformation is taking place.[92] Government's ICT, poverty and development initiatives are dominated by a concept of modernisation, the equation of development with modernisation and the construction of a single model of modernity based on the experience of a few industrialised countries. If this model of ICTs for development is followed it is believed that South Africa will reach the goal of a similar type of 'modern society'. This type of grand theorisation is prone to problems of reductionist bias, whereby simplistic monocausal explanations are sought for complex development realities. With such explanations there is little room for plurality; much of the richness and diversity of society that produce different trajectories of development is excluded from the analysis.

We question government's assumption that ICTs are 'revolutionary' and that an 'information society' is being forged from a new techno-economic paradigm

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[92] This is not unique to South Africa. See, for instance, Margetts (1999) for examples from Britain and the US.

comprised of ICTs. Government needs to move away from analytical perspectives that are techno-centric and determinist, that focus on historical discontinuity (i.e. the 'information revolution' and the 'information society'), and that make unwarranted claims about the future impact of ICTs on the lives of the poor. Much more useful is the 'social shaping of technology' approach, which puts the dynamic interaction between social forces and technological innovation into the forefront. This approach calls for proactive policy-making, since it stresses the imperative that *the technological solutions must be shaped to match the vision of a preferred future*. ICTs will not by themselves change existing institutional settings. The use of ICTs within the conventional social and institutional framework not only hampers these technologies full potential, but may also cause many frustrating social problems.

The assumptions underpinning modernisation theory continue to permeate the ICT thinking and policy strategies of government. The dominant discourse tends to address the developmental issues associated with ICTs through the concept of the 'digital divide', focusing on the quantitative disparities between North and South, regionally and within the country. Whereas the concept of the 'digital divide' tends to imply 'digital solutions', the present study has shown that questions raised by the new ICTs must be understood in the broader context of human development. The lack of access to ICTs by the poor in South Africa is a reflection of the 'development divide' with its sharp economic and social cleavages. Utopian promises that technological advances will automatically translate into social progress and 'digital dividends' for the poor are incorrect. The fundamental question is not how to maximise the number of computers or Internet users in South Africa, but how the new ICTs can contribute to the development goals of the poor, as defined by themselves.

The work of Amartya Sen (1999) provides a basis for considering capabilities in a much more broader context and for examining whether the dominant configurations of ICTs are consistent with a social goal of empowering the poor. This means that much greater attention must be focused on alternative ways in which the poor and disenfranchised acquire the capabilities needed to make choices or to express opinions about what they value. Extending the idea of capabilities to the issue of ICT development and policy requires a shift away from a focus on the causes and consequences of the 'digital divide'. It suggests the need for a focus on what the poor

are able to do as a result of their interactions with ICTs and what capabilities they are able to acquire as a result of those interactions. Sen's (1999:293) capabilities approach focuses on "the substantive freedom – of people to lead the lives they have reason to value and to enhance the real choices they have", in this instance, through the dynamic of the relation between ICTs and poverty reduction.

8.2   Recommendations

The role for the South African government remains crucial in at least three areas. First, government needs to exercise leadership, in co-operation and consultation with the private sector, civil society and other stakeholders, in articulating and implementing a national strategy for combating poverty, and in that context for harnessing ICTs. Second, government needs to take, and rigorously implement, the complex but crucial policy and regulatory measures that will create an enabling environment for the broad deployment and effective use of ICTs in all areas of economy, society and government. Third, government has to pay particular attention to helping the poorest (especially households in which no one is working) and most marginalised gain access to the benefits of ICTs, both directly and indirectly. In all of this ICTs are not the objective in themselves; they are a tool for use within a broader strategy to fight poverty. Mainstreaming ICTs in development means subordinating them to this broader purpose.

The study advocates the need for an integrated framework to develop appropriate policies of access and diffusion of ICTs within poor communities. Technology should not be treated as a goal in itself, but a means of achieving development goals. In this context it should be recognised that even with poor communities there are divergent needs for information and technology. Stress should be placed on appropriate information systems that reflect the available resource endowments (financial, human and technical) of the poor (Hulme, 2003).

Because of the wide access gap between rich and poor, it is indeed possible that ICTs may reinforce, or widen, existing social and economic inequalities in South Africa. Within this context there is a consensus that government should play a key role in establishing a competitive, private sector-led telecommunications market and in

promoting supportive measures to enhance the capabilities of the poor for accessing and using ICTs. The former would involve the liberalisation of the telecommunications sector, the privatisation of public monopolies and strengthening the capabilities of the independent regulator (Mansell, 1999). Government can use a number of incentives/requirements to catalyse private investment and to ensure that the private sector extends public access to communications services even in rural or disadvantaged areas (see Chapter 7).

Information policy should become a component of poverty alleviation strategies. First, there should be recognition that information is not a static, equitably available commodity, but a dynamic process of acquisition, application and use. Second, government should recognise that the effective use of ICTs by the poor may be constrained by lack of skills, financial resources and the existence of urban/rural, gender and other inequalities. Moreover, the effectiveness of ICTs must be assessed alongside existing information systems and in the context of interaction with pre-existing organic information environments. Third, ICTs must focus on strategic benefits in areas where complementary investment has already been built. In this sense it should encourage the active participation of community-based intermediaries, helping to ensure two-way transmission of information, thus giving the poor a voice. Finally, long-term strategies for ICT diffusion among the wider population must be centred on revised education policies such as integrating ICT skills into programmes of vocationally-based training which emphasise wider information handling skills, business and management skills and entrepreneurship training.

Telephony (fixed-line, mobile and public payphones), television, radio and the printed media require few formal skills and only mother tongue literacy for effective usage. Thus, they are likely to be in greatest demand from the majority of illiterate and semi-literate users for the foreseeable future. By contrast, effective use of email and Internet requires not only literacy but language skills, predominantly the use of English. It also requires technical and computer literacy, i.e. the ability to operate and interact with a computer-based information system. The lack of skills and human resources may be the greatest barrier for diffusion of ICTs among the poor. Further, for ICTs to become relevant for poverty reduction they have to be affordable.

Government programmes for ICT adoption and implementation in South Africa have tended to take a 'top-down' approach. It is therefore important to minimise the 'opportunity cost' risks associated with ICT investments. This can be achieved, for example, by facilitating the early involvement of users in policy planning, as well as the participation and consensus from users and testing of new information systems in advance of widespread application.

The expansion of private sector ICT capability is unlikely to assist the very poor sufficiently. NGOs and other donor funded support structures will continue to play a role in reaching the poor and giving the poor a voice. However, for ICTs to be made relevant to poor people's lives, initiatives should become more community-based. In this respect small community-run organisations may provide an appropriate vehicle for extending ICT utilisation into the wider community. Such organisations provide the advantages of source proximity, trust and locally contextualised knowledge. Creation of local content should be promoted through local institutions such as schools, local government and businesses. The cost effectiveness and potential for coverage of local digital content must, however, be weighed against the advantages of pre-existing information systems and communication tools.

Building ICT resources over the long term will require school-based education and vocational training for young people. An integrated policy for increased ICT investment within education (primary, secondary and tertiary), including teacher training and technical support, can ensure effective long-term diffusion and local adaptation of ICTs within South Africa.

One approach to the problem of the uneven diffusion of ICTs between rich and poor has been the community telecentre. Telecentres are usually designed to provide a combination of ICT services, ranging from email to full Internet and World Wide Web connectivity. Telecentres provide an alternative to the model of one-to-one individual access to a computer that predominates in the developed world. As community resources telecentres offer opportunities for development that are predicated on improved access to information for whole communities. Telecentres that seek to overcome the barriers to access ICTs in rural areas are still experimental. Currently, there is very little experience of the long-term impact of such centres in the

context of rural and remote areas in South Africa, and there are many questions to be answered before embarking on ambitious and costly programmes at a national level (Ernberg, 1998b). Given the novelty of access to ICTs and the shortage of guidelines for establishing and operating community telecentres, many research questions remain open as to how this type of innovation can bring equitable access to information resources that will contribute to sustainable development among the most disadvantaged sections of the population.

To reiterate, widespread benefits are yet to emerge from the existing community telecentres. The primary reason for this is the difficulties associated with the ability of top-down national programmes to incorporate the specifics of the local context of a poor community. Technology has to be considered within the complexity of the social context into which it is inserted. Positive outcomes from telecentres are associated with effective telecentre management operations that deliver useful and useable information to communities that are motivated and empowered to make good use of it (Benjamin & Dahms, 2001).

If government is serious about sharing the benefits of access to ICTs with the poor, then further provisions have to be implemented in order to address all the dimensions of poverty and inequality. These dimensions include:

- *Service availability*: The services made available through the use of ICTs should be freely available to all who might wish to make use of them;
- *Awareness*: The poor are aware of how they might be able to use ICTs for their own benefit;
- *Opportunity to learn and use the new ICTs*: The poor have the opportunity to attain computer literacy;
- *Mastery of technologies*: The poor understand which tools are best suited for which tasks;
- *Experience*: The poor are able to accumulate sufficient experience with the use of ICTs to enable them to fully exploit their potential;
- *Skills*: The poor have the right skills for performing ICT-related tasks;
- *Support*: The poor have access to appropriate assistance when they need it to help them make good use of ICTs;

- *Attitudes*: The poor are encouraged to participate in the sharing of benefits available from equal access to ICTs;

- *Content*: Sufficient content is available to enable the poor to gain benefits from ICTs;

- *Cultural*: The other dimensions are adapted as required to the cultures of all potential users;

- *Disability*: The other dimensions are adapted as required so that disability is not a barrier to equal access to the benefits of ICTs;

- *Linguistic*: The other dimensions are adapted as required so that language is not a barrier to equal access to the benefits of ICTs;

- *Gender*: The other dimensions are adapted as required so that gender is not a barrier to equal access to the benefits of ICTs;

- *Empowerment of Civil Society*: Structural, political and governance factors do not impede equal access to the benefits of ICTs.

In view of the novelty of applying ICTs to development practice, government would do well to take note of the following principles in any ICTs for poverty alleviation initiative:

- Alone, ICTs are insufficient for significant benefits to emerge;

- ICTs are best deployed to improve processes that are already working reasonably well;

- ICTs will not turn bad development practice into good development practice, but they can make good development better;

- The application of ICTs in the absence of a development strategy that makes effective use of them will inevitably result in sub-optimal outcomes;

- Whilst ICTs provide opportunities for development, desirable outcomes always arise from the actions of people and institutions.

Government has initiated the process with the technology rather than with an integrated development strategy. When considering the use of ICTs for development it is essential to have a clear development strategy at the outset. Whilst the strategic thinking can be informed by an appreciation of the capabilities of ICTs, it is essential to have clear development targets that are specific to the context before the form of

use of the ICTs is defined. Additionally, in considering the development strategy, it is important to note that bottom-up, demand-driven development objectives are usually preferable to top-down, supply-driven objectives, so that goals begin with an appreciation of the needs of the poor, as they would themselves express them.

An information plan is drawn up on the basis of an unambiguous articulation of the development strategy. This will set down the information resources that will be required to achieve the development strategy. Again, this determination can be made against an informed background with regard to the capabilities of ICTs, but it should not be driven by the mere application of technology. Finally, a plan for the technology can be drawn up that will be capable of delivering the information resources required for achievement of the strategy. This would entail a radical departure from government's technology-driven, top-down and supply-driven ICT policy initiatives which often result in sub-optimal outcomes.

Poor communities are not homogenous. Therefore, the same information system can be a success in one community but a failure in another. Hence, the information system and its context must be studied, understood and managed together, not separately. Government ICT initiatives must consider and be shaped by the information requirements of poor communities and should address the design, delivery and utilisation of community information systems by:

- Defining community information requirements based on needs and priorities that have been expressed by the communities themselves;
- Igniting community aspirations and empowering communities with appropriate skills for fostering local development that is information-based;
- Expanding a community's social capital through enhanced access to communication facilities and information resources;
- Embedding community-based ICT services within existing economic, governance and social structures;
- Infusing enhanced capability for information access within communities;
- Achieving sustainability –*vis-à-vis* financing, service delivery and operating functionality;

- Ensuring that benefits arising are equitably disseminated among the socially and economically disadvantaged groups, and not simply appropriated by existing elites.

The following actions are necessary to ensure that ICTs have optimal impacts for development within poor communities:

- *Familiarising* communities with their existing use and sources of information as well as with the gaps that exist between existing and desired information resources;
- *Alerting* communities to the potential application of information to their problem-solving efforts and to their development aspirations;
- *Sensitising* communities to the existence and accessibility of information resources and to the capabilities of ICTs for accessing and manipulating information;
- *Empowering* communities with information literacy and the skills necessary for the mastery of new ICTs;
- *Emphasising* local language content and ensuring that information is of value to poor people in their daily lives;
- *Providing* interfaces that are easy to use and making sure that aides/intermediaries are available at public access points (such as community telecentres) who can assist people without basic computer skills;
- *Encouraging* the collection, classification, preservation and dissemination of indigenous knowledge and cultural information artefacts;
- *Fostering* appropriate local mechanisms for sustaining the equipment, services and operations of community-based ICTs.

Using ICTs in poverty alleviation strategies involves the use of various participatory mechanisms for community engagement, including: (i) household surveys; (ii) community focus groups; (iii) user committees; (iv) training and orientation sessions; (v) demonstrations; and (vi) facilitated community conferences. These techniques comprise a community learning system, whereby the community starts learning about its information needs, then begins to satisfy those needs and as a result of the experience becomes increasingly capable of understanding and satisfying information

needs of a higher order. The progression can be depicted as an iterative process of action: evaluation of outcomes – learning – knowledge – further action.

To recapitulate, the multidimensional model of ICT, poverty and development for which this study has argued is one which: (i) rejects modernisation as an inevitable direction of social change; (ii) is based on Sen's (1999) 'capabilities' approach, where 'capabilities' should be understood as expanding the freedoms of the poor to construct meaningful lives; (iii) advances distributional equity and social justice; (iv) respects local diversity and local agendas; (v) is aware of power relations appearing in knowledge construction, development priorities, research agendas and goal setting; (vi) encourages local and authentic action so that poor people can speak and act for themselves; (vii) is sustainable, economically, socially and environmentally; and (viii) recognises that development is a continually negotiated and subjectively defined process. In the real world we can rarely avoid trade-offs and hard choices. Further, development processes are dialectical, fraught with contradictions, conflicts and unpredictable reversals. Nonetheless, the seven principles outlined above do have resonance at a commonsense level, and taken together, these principles clearly suggest new guidelines for the ICT, poverty and development process.

8.3   A Way Forward

The following resources are required: (i) to make an ICT-based system effective for development, and (ii) to turn data into learning, decisions and actions of value:

- *Data resources*: the poor need relevant data to be available in the first place;
- *Economic resources*: they need the money, the skills and the technology in order to access the data;
- *Social resources*: they need the motivation, confidence and knowledge to access, assess and apply the data, and they must trust the source; and
- *Action resources*: they must be able to act on the learning and decisions made with the information. This will require action inputs (e.g. money, skills, technology and raw materials) plus resources like empowerment.

If these resources are not available then the socio-technical system will not function optimally, and the ICT investments will be wasted. The disadvantaged remain disadvantaged because of inequalities in a broad range of resource endowments regardless of whether they can access data using ICTs. At most, access to data and access to ICTs might be necessary, but they are far from sufficient conditions to enable effective development. ICTs are a means to an end, rather than an end in themselves. In very simple terms, this approach has three steps for development projects:

- First, identification of the development objectives for the project;
- Second, identification of the information requirements needed to meet those objectives; and
- Third, identification of the role that ICTs have to play in meeting those information requirements.

ICT can support people-centred, participatory development, but only:

- where there is local learning and adaptation to make the system relevant to local needs; and
- where the technology is appropriated by the community, with attention given to meeting local needs, developing relevant local content and linking ICTs with existing information networks.

It cannot be assumed that the ICT-based information system will be beneficial or harmful without understanding the local social dynamics and how the technology will be used. This is especially the case since communities are complex and dynamic. ICT will be best used where it is embedded in existing social relations, and where it serves to extend the capacity of people to perform tasks they would wish to do, even in the absence of ICT.

From the literature on technology transfer (Archibugi & Pietrobelli, 2003; Archibugi & Michie, 1997), the role of local adaptive assimilation and learning is seen as key to successful implementation of technology in new settings. Learning, however, will not come about simply by local control of the technology. A level of technical

competence and an understanding of the technology's potential is also required before local learning can take-off.

In contrast to government's approach, we argue that the key to integrating ICTs in the fight against poverty is not to begin with ICTs, nor to postulate them as an essential need. Rather it is to develop and implement a strategy for encouraging the deployment of ICTs, in support of, and subordinate to, a national poverty-reduction strategy. In this way ICTs are driven by development objectives rather than by technological concerns. For community telecentres to be able to support development, three main areas need to be considered:

- First, providing affordable access to the ICTs and the skills to use them;
- Second, ensuring that the ICTs have a useful role in the local context; and
- Third, facilitating human capability expansion through the ICT-based systems.

A reconceptualised pro-poor approach to ICTs is one which is:

- Centred on information rather than technology;
- Integral to its environment;
- Integrated with development objectives; and
- Interconnected, intermediated and indigenised.

Such an approach potentially has the power to:

- Reveal the complexities of existing power relations, making it easier to challenge them;
- Restore the agency of those rendered passive in the ICT for development arena;
- Reorient technology to socially embedded, local uses; and
- Break down the binary of developed/underdeveloped, recognising poor people's knowledge and experience, and so opening up the possibility that 'we' can learn from and with 'them'.

We argue that ICT for development should be seen more in terms of learning and of questioning assumptions and frameworks. Collective learning as the point of ICT for

development places development policy discussions on a different footing: the focus shifts to the role of complexity in development. Complexity is a factor of growing importance in development, and this raises the question of whether complexity is enabling or disabling. What is needed is reflexivity with a political edge which refers to collective feedback loops that generate and inform collective action geared to challenging existing power relations. It should be seen less in terms of the traditional instrumental, project achievement approach. ICTs may then play a different role. They would not be used so much as managerialist tools for the production of functional outputs. They would be used instead more as holistic development tools under the control of project clients for self-development, for political-awareness raising and for knowledge-building. In this way, ICTs would themselves contribute to development of social resources.

To reiterate, critical theory emphasises 'emancipatory intent' because it acknowledges that an emancipatory outcome cannot be guaranteed. Hence the focus is on *process* rather than *outcomes*. ICT for development programmes have a better chance of success if the poor are seen as autonomous agents of action and if they define a social process of change in terms of the growing role of independent autonomous action on the part of dominated groups. Such an exercise will, of necessity, entail a *self-analysis* that requires the active participation of social actors engaged in a collective struggle concerning political and social issues (Touraine, 1995). Further, emphasis must be placed on institution building and the analysis of the contradictions of action and distance between a struggle, a discourse and a movement of opinion (Touraine, 1981) likely to galvanise a struggle and transform it into a social movement. But the sociological intervention does not merely focus on the analysis of a political discourse and a militant organisation: it is also concerned with the struggle represented by the action that has brought these about.

The Grameen Bank in Bangladesh has become an international model for 'micro-credit' as a poverty alleviation strategy (Amin, Rai & Topa, 2003; Rahman, 1999). The Bank provides small loans to the poor for small-scale self-employment activities. Because it recognises women's centrality to the poverty alleviation process – both as beneficiaries of it and as active agents in promoting it – the Bank has increasingly focused on providing credit to women (Grameen Bank, 2004). The Grameen Bank

primarily focuses on improving women's economic status, which it views as the foundation on which better social and political status can be built. The Bank's poverty alleviation strategy, however, is grounded in a keen awareness of the cultural context, which conditions women's willingness and ability to respond to economic opportunities.

This notwithstanding, borrower sustainability depends upon access to a wider range of financial services that smooth household cash flows and increase investment opportunities (Wood, 1997; Hashemi & Morshed, 1997). The Grameen Bank has shown some awareness of these issues. For example, the innovative programme developed by the Bank for expanded telecom infrastructure in rural villages, i.e. the contract the Bank established for borrowers to buy mobile phones and sell phone services in their villages. As of June 2002, the Bank had granted loans for 14,443 village pay phones (VPPs) (Grameen Bank, 2002). Commenting on the Grameen telecom experience, Bayes (2001) concludes that:

> "First, pursuance of pragmatic policies can turn telephones into production goods, especially through lowering transaction costs, and second, the services originating from telephones in villages are likely to deliver (even) more benefits to the poor than to the non-poor. The VPPs also seem to have perceptible and positive effects on the empowerment and social status of phone-leasing women and their households. For villagers in general, phones offer additional non-economic benefits such as improved law enforcement, more rapid and effective communications during disasters, stronger kinship bonding, etc." (Bayes, 2001: 261).

Grameen has been credited with addressing structural determinants of poverty, the economic and social status of women, and sources of vulnerability in ways that have eluded other ICT for development approaches (Fugelsang & Chandler, 1993; Hashemi & Schuler, 1997). We argue that while the Grameen Bank is not a panacea for poverty alleviation and improving women's lives, it has increased the income of borrowers, led to improvements in specific aspects of their lives and it has potential if used in conjunction with other progressive social and economic policies to contribute to long-term, sustainable, progressive social change. Over the long term, however, it is clear that there are limits to what can be accomplished within the informal sector. Government initiatives will be required to aid in the transition from informal to formal sector employment. Acknowledging this does not in any way invalidate the progress made by the Grameen Bank. It has helped improve people's living standards

in a relatively short period of time. In conjunction with other policies that create greater access to resources for women and the poor, ICT-based micro-credit can be a powerful tool for improving the lives of the poor.

The South African government can learn from the bottom-up approach to poverty alleviation advocated by the Grameen Bank which provides the poor with direct access to resources. The broader lesson of the Grameen Bank is that providing the poor with ICT (such as mobile phones) through a micro-credit scheme has potential for improving poor women's socio-economic status, increasing their empowerment and lifting their families out of poverty. However, it remains true that whether or not women can respond to these new opportunities depends on the structural and cultural constraints they face.

8.4   Further Research

Much more analytical research is needed on the impact of ICTs on poverty alleviation and inequality in South Africa. As Edge points out, the social effects of technical change are of obvious importance but:

> "more fundamentally, if research is restricted to questions of effects, it can contribute only to what may be called 'reactive' policy measures designed to cope with, or adapt to, the consequences of technical change, rather than anticipating (and so influencing) these consequences" (Edge, 1995:26).

The paucity of hard data suggests that much more micro-level research is needed to assess the impacts of ICTs on the poor: their employment opportunities, their education and skills formation, and their overall empowerment within society. The raw data for these studies may come from the many ICT programmes and projects that are being implemented in poor communities. These studies would also guide future implementation of such programmes to avoid the pitfalls of faulty conceptualisation and poor implementation and by building on their strong points.

Such research, in order to be useful, needs to take a systemic, contextual view of ICTs. It is hard to think of other questions in development studies that have such large potential implications but yet are so understudied and misunderstood. Only if we are able to accurately understand how the new technologies are affecting the poor will we know whether they are a force for the reduction of inequality or for its

increase, or discover how to harness their powers in the pursuit of greater equity. Such research needs to be undertaken systematically and continuously so that a broader base of experience can be accumulated and exchanged among those who are in a position to develop innovative applications oriented toward social, as well as economic, development goals.

Research can play a critical role in generating knowledge about what particular poor communities need and about what approaches seem to be most effective in resolving specific problems as defined by the communities themselves. In fact, one of the major stumbling blocks to progress in the field of ICT, poverty and development is the paucity of information at local and national levels about how different kinds of people are using available ICTs and what difficulties they are encountering. It is paradoxical that, in the wider effort to create 'information societies', so little attention has been given to research. Any effort on the part of government to strengthen national ICT strategies should be reinforced by rigorous, independent research on ICT, poverty and development.

Another crucial requirement is the strengthening of institutional capacity for analysis and debate on ICT, poverty and development in South Africa. This will improve the quality of information on which effective policy must be based, as well as the solidity of the political process that stands behind formulation and implementation of that policy. In other words, improving the environment for analysis and debate on the implications of ICTs for poverty alleviation and reducing inequality can be a significant element in the ongoing effort to imaginatively rethink mainstream development.

Policy decisions about poor people's entitlements to ICT access should be based upon an assessment of whether the poor should be entitled to such access in order to develop their capabilities. There is a need for an evaluation process which is an exercise in social choice that requires public discussion, understanding and democratic acceptance. Systematic social science research on the development of capabilities required for using ICTs needs to be undertaken. Further, research that would specify how the poor can best use the new ICTs to strengthen their freedoms to decide between alternative social choices and which take account of the configuration

biases of the new technologies is non-existent at present. A research agenda that would contribute to a debate about the new ICTs that embraces the rights and entitlements of the poor is urgently needed.

A number of other areas of future action and research have emerged from the study. First, the design of democratic and proactive policies and programmes that make it possible to realise the social development potential of ICTs. A second area is centred on the definition of those social and institutional changes that are required to maximise the social benefits and to minimise the social risks associated with adoption and deployment of ICTs. Third, a discussion on the design and adoption of ICTs that strengthen sustainable and equitable processes of social development, premised on human rights and social justice, is called for. A final area of research involves studying the 'social shaping of technology' in concrete situations to learn what forces shape specific technological changes in a specific environment. ICT, poverty and development research needs to make a conscious effort to move away from positions of technological determinism towards a perspective that avoids drawing a technology/society distinction, and focus on the social, cultural, political and economic contexts where technologies are developed and the ones where they are used.

8.5   Concluding Remarks

The ICT for development project needs to shift direction from a focus on 'representationalist' end-states to situated, embodied and emergent processes. Frameworks of power should form an integral component of any consideration of ICT, poverty and development – indeed, as shown by Foucault (1979) – of the capillary coalescence of any 'knowledge' frameworks. As this study has argued, Foucault (1972) sees discursive practice as part of the microphysics of power, and as fragmented and dispersed (a *bricolage*) where a network of sites is involved. Power is seen as relational and based in action; in other words, it is situated. He does not focus on an abstract definition of power but rather sees it as constituted in relationships within and between localised networks of actions (Foucault, 1972). He emphasises the way in which power and knowledge are inextricably intertwined; co-

created, in fact (Foucault, 1972). Technology is often seen as an instrument of power that can reproduce and reify certain dominant discursive practices. As Foucault says:

> "There is no knowledge without a particular discursive practice; and any discursive practice may be defined by the knowledge that it forms" (Foucault, 1972:183).

A pivotal implication to be drawn from this shift from end-states processes is that the fundamental logic of social interaction is driven by poor people's ongoing need to make sense of their situated, unstable and hence always contestable positioning in the world.

By conceptualising discourse as social action the study has not only raised a series of theoretical concerns, but has also drawn attention to an important and as yet under-researched domain of empirical knowledge. In doing so, the study has opened up the possibility that scholars interested in social changes associated with ICTs for poverty alleviation need to reconsider the discourse deployed within the debate. A hegemonic view of language and a conception of language use as social action do suggest that spaces of resistance and opportunities for change can be opened up via dialogue. However, although the South African government is supposed to consult widely, there is little evidence to suggest that this has resulted in a more broadly based set of information policy objectives that are capable of dealing with the social issues continually raised by political actors, such as closing the gap between rich and poor. That said, a consultation exercise means little unless it is capable of disrupting government's established order of discourse.

The evidence presented in this study can be interpreted as a rejection of the exaggerated claims ('hype') of the optimists surrounding ICTs for development. The key finding of this dissertation converges with the sentiment echoed by Wade:

> "ICTs are being oversold as the key both to higher efficiency of corporate and public organizations and to stronger responsiveness of government to citizen-customers. ICT tools can help people learn how to absorb knowledge generated elsewhere and combine it with local needs and local knowledge, and they can help raise real economic returns to investments: but they are being touted in the development community as though they can leapfrog over the more familiar development problems" (Wade, 2002:443).

The much-used term 'information society' tends to ignore the evolutionary character of ICT development which has emerged as a result of the technological convergence of microelectronics, telecommunications, broadcasting and computing. It also tends to overlook the continuities between the old and new ICTs. In fact, even now the telephone mainline system is the key infrastructure for Internet access.

The current thinking on the role of information and knowledge in processes of social development matches exceedingly well the prevailing development paradigm. Development is seen as a relationship between interventionists and subjects of intervention. The interventionists transfer resources such as information and knowledge as inputs, which they believe will lead to social development as output. As Kaplan (1999:5-7) suggests, the conventional development approach assumes that development can be created and engineered, that it is linear and predictable, that it has a beginning and an end, and ultimately is "the delivery of resources". If we understand development differently, as Kaplan proposes, the transfer of information and knowledge is no longer the key issue. The core of a different notion of development is:

> "the recognition that development is an innate and natural process found in all living beings. It is important for us to understand that as development workers we do not 'bring' or deliver development, but intervene into development processes which already exist" (Kaplan, 1999:11).

This is contrary to the conventional approach where "development is about facilitating resourcefulness" (Kaplan, 1999:15), which leads Kaplan (1999:19) to conclude that "the whole point of development is to enable people to participate in the governance of their own lives". If one accepts this position, the present emphasis of the South African government on ICT, poverty and development raises the question: *Whatever happened to putting the poor first and adopting ICT policies that empower the poor to manage and control their own lives?*

On the whole, government's ICT initiatives are more technology-driven than user-oriented. If the ICT potential for human development is to be successfully exploited, the needs and aspirations of users must be central to the whole process of design, construction and application. This is concisely summarised by Mansell and Wehn:

> "There is substantial evidence that if applications do not reflect user needs or involve them in the process of development, they simply will not bring the expected benefits. They are likely to create new problems that will be costly to address. If the specific social, cultural, and economic conditions, the expertise and commitment of users, and components of the infrastructure are not assembled together, ICT applications will fail to yield benefits" (Mansell & Wehn, 1998:97).

The social uses of ICTs in South Africa today are to a large extent guided by the political-institutional arrangements within which they operate. Whether the ICT potential will be successfully exploited in support of human development depends much more on the institutional organisation of technology than on its technical features *per se*. The critical implication of this situation is that policy-makers will have to make social choices that adjust the technological potential to the needs of human development. The immediate question this raises is *which* analytical perspective will be able to guide the search for these choices.

Following Foucault, Frissen (2000:64) argues that:

> "technology is a cultural artefact in the tradition of modernisation and thus of advancing and expanding domination. Technologies can be seen as strategies of discipline, and it is that which makes them so intriguing from the perspective of politics and public administration".

This study has shown how the appropriation and discursive deployment of ICTs, with their association with progress and rationality, offer a powerful opportunity to further the interests of technocratic, often mainstream stakeholders, acting as a magnifier for dominant discursive interests by creating new subjects for objectification. The ability of discourse analysis to expose this effect, identify the various elements of such discourse in practice and show how their interaction is systematised into a "technology of representation" (Foucault, 1975:104) thus renders it a useful tool for ICT, poverty and development researchers.

There is great optimism in government over the potential for ICTs to promote socio-economic development and alleviate poverty. Currently, however, there is no convincing empirical evidence to support such optimism. Policy-makers in South Africa face the daunting challenge of deciding how to allocate often extremely limited resources among many important alternative priorities. Unfortunately not enough

careful analysis of ICTs in developing countries has yet been done to answer pressing policy questions. What is clear, however, is that the potential for ICTs to alleviate poverty and promote economic growth in developing countries, including South Africa, justifies greater attention and systematic analysis.

This dissertation has focused on the need to deconstruct the ICT, poverty and development discourse, exposing its various strands to critical scrutiny. The task of deconstructing and demythologising the ICTs for poverty reduction project is an urgent one. The exclusiveness of the current discourse on ICTs for development points to the need for an epistemology based on pluralism, open-ended processes of human negotiation and uncertainty rather than on the closure of choice and certainty. ICT policy should be recognised as an area of debate and political negotiation rather than a neutral instrument for development.

From a development perspective the fundamental questions are how communication, information and knowledge can be effectively used as critical elements for poverty reduction, and how ICTs can be efficiently mainstreamed in the fight against poverty. It is the contention of this study that ICTs should not be conceived as an end in themselves. The measure of success is the progress towards poverty reduction rather than the spread of technology or bridging the 'digital divide' *per se*. It is imperative for the state's ICT for development projects to take the needs of poor communities as a starting point rather than imposing external agendas and utopian visions of western technology-driven modernity on them.

The driving force for ICT innovation for poverty alleviation can only be poor people's own desire for improving their lives. This should be a key principle for government interventions and initiatives intended to support poverty reduction by knowledgeable agents in diverse socio-economic conditions. Finally, policy-makers must guard against 'technology fundamentalism', i.e. the idea that investment in ICT alone is the only need of developing countries and that it be given priority over all other competing development needs.

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Appendix 1

Fieldwork Questionnaire

1. What is the relationship between ICTs, poverty and development?

2. What are the most important challenges as far as ICTs for development in South Africa is concerned?

3. Can ICTs empower the poor? If so, how?

4. What are the benefits of ICTs for reducing poverty?

5. Does ICTs pose any risks for the poor and marginalised in South Africa?

6. What role is the South African government playing in promoting ICTs for development?

7. Please describe and explain some of the ICT projects that your department is currently involved in?

8. How successful are these projects thus far?

9. Is there anything more that you would like to say regarding ICTs, poverty and development?

Appendix 2

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[92] This report has been prepared by a study group constituted by the Pacific Council on International Policy and is supposed to act as a list of do's and don'ts for the practitioners of e-government. The document is important on a number of counts. First, by giving it pride of place on the official DPSA website, in effect government is publicly endorsing its content. Second, senior South African government officials were involved in writing the report. Finally, the importance lies in the nature of the report itself, which delineates the position a government must take with respect to ICTs; the *correct* path for the future as it were. These factors conjunctively provide the rationale behind the choice of the selection of this report as an exemplary artefact for discourse analysis.