

## Chapter 1

# Context: The Place of Information and Communication Technologies for Development

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### Core issues:

- It is essential to understand what we mean by 'development' before we can explore how ICTs can best contribute to its achievement;
- Particular interests underlie the use of terms such as Information Age and Knowledge Society, and we need to be aware of their role in shaping the processes associated with globalisation;
- ICTs have the potential either to increase inequalities or to reduce them, depending on the social, political and economic contexts within which they are introduced;
- Understanding how ICTs can be appropriated either for individual profit or for communal purposes can help us design appropriate programmes to empower poor and marginalised communities;
- ICT4D should not principally be about achieving economic growth, but should rather be a moral agenda concerned with enabling equality of access to information and thereby helping to reduce global inequalities of opportunity at a range of scale.

'the danger of an exclusively technical civilization, which is devoid of the interconnection between theory and praxis, can be clearly grasped; it is threatened by the splitting of its consciousness, and by the splitting of human beings

into two classes – the social engineers and the inmates of closed institutions’ (Habermas, 1974, p. 282)

This book is about the ways in which Information and Communication Technologies (ICTs) can be used to help poor and marginalised people and communities make a difference to their lives. Such an agenda is heavily overlain with theoretical notions about ‘development’ and ‘empowerment’, about ‘poverty’ and ‘marginalisation’, and about ideas of ‘difference’. Indeed, a concern with the ways in which these technologies have come to permeate our contemporary society lies at the heart of our understanding of the world in which we live. The very words we choose to describe such phenomena carry within themselves layer upon layer of meaning and context. The title *ICT4D, Information and Communication Technology for Development*, for example, has been chosen primarily because of the widespread use of this term in international forums, but it fundamentally begs the question as to what we actually mean by ‘development’. For many in the early 21<sup>st</sup> century, ‘development’ is primarily seen as being concerned with economic growth, and identifying the ways in which the economic systems of poor countries can be made more effective (see for example Easterly, 2001; van der Hoeven and Shorrocks, 2003; Sachs, 2005). However, this is only one perspective on ‘development’, and others, particularly from a sociological and anthropological background, prefer to emphasise the importance of participation and empowerment in effective development practice (see for example, Crewe and Harrison, 1998; Arce and Long, 2000). ICTs have a key role to play in delivering both of these contrasting interpretations of ‘development’.

My agenda in shaping this book is to get to grips with understanding precisely how ICT can make a difference to the lives of the poor and the marginalised. This does indeed in part depend on economic growth, but it is also to do with issues concerning access to information, about the ways in which people from different backgrounds communicate, and about the content needs that poor people have if they are to be able to transform their lives and livelihoods. Above all, it is about the

ways in which new information and communication technologies can contribute to these processes. Such technologies have immense potential, but they are a two-edged sword. They have the ability to make a fundamental difference to the lives of poor people, but, as Habermas (1974) alludes in the quotation with which this chapter begins, technology has all too often been used mainly to enable the rich and privileged to retain their positions of economic, social and political power. How then can we change things so that the poor and marginalised can have fairer access to the great opportunities that ICTs can make available? As will become clear in the pages that follow, this is a profoundly moral and ethical question. How we see ICT4D depends fundamentally on the place from which we are looking.

This book sets out to do three main things. First, it aims to provide readers with a framework for understanding the emergence of ICT4D as a set of situated practices within the broad field of 'development'. Many previous accounts of ICT4D (see for example Weigel and Waldburger, 2004; ITU, 2005; Schware, 2005; Weiler *et al.*, 2005) have tended to concentrate mainly on providing summary accounts of case studies or lessons learnt based on practical experiences, without setting these within a sufficiently broad context to enable their wider significance fully to be appreciated (but see also Mansell and Wehn, 1998, and Servon, 2002 for attempts to develop deeper analyses). This book therefore provides an interpretation of key aspects of relevant contemporary development theory and practice, so that those seeking to implement ICT4D initiatives can understand the constraints and opportunities within which they need to operate.

Second, this book seeks to provide readers with *authoritative accounts* of key areas where ICTs have been incorporated into such development practices, concentrating particularly on the fields of health, education, governance, enterprise and rural development. These chapters have been designed specifically to combine syntheses of current knowledge alongside detailed case studies and forward looking prognoses of how we can better deliver ICT-based initiatives in the future. Their choice in part reflects the areas where ICTs have begun to be used most widely in a practical 'development' context. However, it is also specifically intended to

emphasise the links between ICTs and the dominant contemporary motifs of economic growth (enterprise) and liberal democracy (governance) as well as the Millennium Development Goals (<http://www.un.org/millenniumgoals>, accessed 20 June 2006) associated with education (Goals 1-3), health (Goals 4-6) and environmental sustainability (Goal 7). This structure is further designed to emphasise that the book is fundamentally about the use of ICTs for development rather than merely as an end in themselves. Each of these themes is thus seen as being highly significant for the lives of poor and marginalised communities.

Third, the book also has a distinctly *practical* intent. It aims to challenge many of the all too readily taken for granted assumptions about ICT4D, and to identify the underlying success factors that need to be in place if we are truly to deliver on our strategic objectives. Despite all the rhetoric of success, very few ICT4D activities, especially in Africa, have yet proved to be sustainable. Why is this? What needs to be in place if the poorest and most-vulnerable people and communities are to be able to take advantage of the potential benefits that ICTs can provide? This book aims fundamentally to provide an interpretation of recent attempts to use ICTs in 'development' so that those working in the interests of poor people and marginalised communities can use these insights in their struggle for empowerment.

In order to deliver on this threefold agenda, the book is shaped around four practical dimensions: an emphasis on multi-disciplinary collaboration, a specific conceptualisation of the dynamic relationship between theory and practice, the inclusion of detailed case studies that illustrate key aspects of ICT4D, and a focus on the importance of monitoring and evaluation. The field of ICT4D is inherently multi-disciplinary. Indeed, this is one of its main challenges, because it involves a combination of discourses and arguments presented in diverse styles and incorporating very different types of content. In particular, it is often very difficult to find people who are as confident in their abilities and understandings of both the technical and the substantive aspects of ICT4D activities. There is therefore an urgent need for those involved in delivering ICT4D programmes to learn the distinct vocabularies, styles of discourse, practical agendas and means of validation that

are adopted in fields other than their own immediate areas of specialism. Experts in the technical aspects of computer networking may very well not easily understand the needs of rural health workers, let alone the ways in which they express their arguments. However, if wireless technologies are indeed going to be used effectively in delivering rural health services it is important that such people understand each other, and are able to work together effectively in teams. One immediate aspect of this multidisciplinary character of ICT4D is thus the need for arguments to be written and expressed clearly in a readily accessible style that avoids excessive use of disciplinary specific jargon.

A second overt characteristic of this book is the way in which it deliberately seeks to combine theory and practice in a very specific way. This owes much to a tradition of critical theory that builds particularly on the work of Jürgen Habermas (1974, 1978). At its simplest, this is based on the idea that there is an intimate relationship between our theories and our practices; each shapes the other, and without an appropriate understanding of both the theoretical and the practical dimensions of ICT4D we will not be able to help people implement changes that will be of practical benefit to them. In this sense the book deliberately combines theoretical explorations with practical examples of the use of ICT4D at a range of scales. This is undertaken not only in the overall structure of the book, by beginning with four largely theoretical chapters and then shifting attention to the practical delivery of ICT4D activities in five of the most important areas of implementation, but also through the incorporation of short boxed case studies and commentaries from leading figures in the field of ICT4D at appropriate junctions throughout the text. However, there is another aspect of Habermas's (1974, 1978) notion of critical theory that is especially pertinent here, and this is the intimate connection that exists between knowledge, self-reflection and practical interest. As he argues, 'in the insights produced by self-reflection, knowledge and the emancipatory interest of knowledge are "one"' (Habermas, 1974, p. 15). This book is thus fundamentally designed to encourage self-reflection on the part of all those involved in ICT4D activities, with the ultimate objective of creating a fairer and more equitable world (Figure 1.1). Its style is deliberately that of a critique, and its success will be

measured in terms of the practical discourses and activities subsequently undertaken by those who read it. Again, as Habermas (1974, p.15) comments, 'Critique understands that its claim to validity can be verified only in the successful process of enlightenment, and that means: in the practical discourse of those concerned'.

[FIGURE 1.1 HERE]

The final practical characteristic of the book is its concern with evaluation, and an honest appraisal of what aspects of ICT4D activities have really worked in the interest of poor people and marginalised communities, and which have actually merely been the hype of global organisations and private sector enterprises that has led to little lasting and substantial change. It is my contention that few ICT4D activities, especially in Africa, have yet proved to be particularly successful or sustainable. However, we actually know rather little about this because of the extraordinary lack of rigorous and detailed monitoring and evaluation studies that have yet been undertaken (Heeks, 2002; although see Wagner *et al.*, 2005). I was particularly struck by a comment from the chief executive of one of Africa's leading ICT based civil society organisations a couple of years ago who mentioned that while donors were eager to contribute resources to implement projects, it was almost impossible to find the funding to evaluate their impact. While some good evaluative studies are now indeed beginning to be undertaken (see for example Souter *et al.*, 2005), very few ICT4D activities actually implement rigorous ongoing monitoring into their practical implementation, even when this is specified as an integral part of their original design. Until such transparent, ongoing and self-enhancing monitoring becomes integral to ICT4D practice, we will keep deluding ourselves about the real success of our practices. A key emphasis throughout this book is therefore to identify what works and what does not work in delivering ICT4D activities, in the hope that the examples of good practice that it illustrates will inspire readers to stop reinventing the wheel and focus instead on the systemic mainstreaming of ICT4D programmes that will empower poor people to enhance their livelihoods and life opportunities. By encouraging self-reflection on the contemporary practices of

ICT4D, its practical intent is thus to help transform those practices in the interests of marginalised communities.

There are two critical areas of recent debate that are essential for an understanding of the significance and potential of ICT4D in the world today: the character of contemporary 'development', especially its intersection with ideas about 'globalisation'; and the implications of whether we are indeed living in a new type of information or knowledge society, transformed by a particular kind of technology. This chapter therefore provides a broad overview of some of the most important aspects of these debates in order to situate the subsequent analyses of ICT4D in this wider context. The next chapter then explores the meaning and uses of 'information' and 'communication' in development practice in more detail, before Chapter 3 provides an overview of the different types of 'technology' that have come to be associated with ICT4D. Chapter 4 provides an overview of the emergence of ICT4D in both theory and practice, concentrating in particular on the global agendas that have helped to bring it to prominence in the international arena.

## **1.1 Development Agendas**

Any account of ICT4D, must begin with an understanding of the '4'; what it is intended for, its practical intent, namely 'development'. As has already been argued, this is by no means a simple undertaking, since the notion of 'development' means many contrasting things to different people. The concept is highly malleable, being readily twisted and turned to suit each current phase of change in the relationships between rich and poor countries and people. At its core, though, the idea of development as commonly understood by those influenced by a European cultural background involves concepts of 'progress' and of 'growth'.

Such a notion of 'development' is often seen as starting with the European Enlightenment of the 18<sup>th</sup> Century (see Gay, 1996; Bronner, 2004). Jeffrey Sachs (2005, p. 351) thus draws on the ideas of Jefferson (1743-1826), Smith (1723-1790),

Kant (1724-1804) and Condorcet (1743-1794) to suggest that in the 21<sup>st</sup> century 'It is our breathtaking opportunity to be able to advance the Enlightenment vision' that we have the ability to use rational argument and our technological skills to end absolute poverty. He thus notes in particular how Jefferson argued that political institutions should serve human needs, how Adam Smith illustrated that economic systems could likewise be shaped to benefit human requirements, that Kant called for a global system of governance to eradicate war, and how Condorcet showed that science and technology could be used for human betterment (Sachs 2005, pp.348-349). According to such arguments, politics, the economy and science and technology can all be brought together to make the world a better place. This heroic vision of the Enlightenment sees the 18<sup>th</sup> century as the key period for the emergence of the notions that rationality underlies knowledge and ethics, that empirical experimentation should be at the heart of scientific enquiry, and that by combining these it is possible to achieve enlightened progress away from the darkness, superstition and irrationality of the previous medieval era. The Enlightenment is thus seen as providing the foundation for many of the ideas about democracy, freedom and reason that are at the heart of much contemporary 'development' practice.

There are, nevertheless, significant problems with such an interpretation of the role of the Enlightenment in shaping our concepts of 'development'. Above all, it fails sufficiently to understand the significance of earlier intellectual traditions, it places insufficient emphasis on the moral and ethical dimensions of religion, and it remains a profoundly European concept. Very significant intellectual changes took place during the 17<sup>th</sup> century, prior to what is usually seen as the dominant period of the Enlightenment. The works and ideas of John Locke (1632-1704), René Descartes (1596-1650), Francis Bacon (1561-1626) and Thomas Hobbes (1588-1679) were thus essential to later discourses about rationality, empiricism and the rights and duties of individuals. What is so important about this is that these notions emerged within the social, political and economic context of 17<sup>th</sup> century Europe, at a time when communal traditions were being replaced by an increased emphasis on the individual, when capitalist relations of production were replacing feudalism, and

when European states were increasingly imposing their political and economic will over other parts of the world. All of these are critical for appreciating our contemporary notions of 'development', and thus of the role of ICTs in contributing to it.

It is also crucial to highlight the role that religions, and moral discourses more widely, have played in shaping and sustaining notions about the desirability of 'development' ever since the dawn of history. While some Enlightenment philosophers, building in part on the ideas of Descartes, sought to use rationalism to justify the existence of God, the dominant emphasis of the Enlightenment, reflected particularly in the works of Rousseau (1712-1778) and Voltaire (1694-1778), was to challenge the Church and its role in resisting beneficial social and political change. Religion, according to this view, was one of the key factors that had held humanity back from progress in the medieval period. This later emerged in Marx's (1970, p.131) famous dictum that 'Religion is the sigh of the oppressed creature, the heart of a heartless world and the soul of soulless conditions. It is the opium of the people'. Nevertheless, the role of religion in shaping our understandings of 'development' must not be underestimated. At the heart of many of the religions that originated in south-west Asia and the eastern Mediterranean region lies the notion that people have duties and responsibilities to the poor and less able within their midst. This is, for example, as true of Islam as it is of Christianity. According to Islam, it is thus mandatory for believers, who are financially able, to give zakat (alms) to the neediest of Muslims. Likewise, Christianity's emphasis on giving alms to the poor, derived in large part from Jesus' second commandment that his followers should love their neighbours as themselves, has provided the basis for a long heritage of work designed to improve the lives of the poor and marginalised. Such beliefs are today reflected in the development activities of many religious based civil society organisations such as Muslim Hands (<http://www.muslimhands.org>), Christian Aid (<http://www.christian-aid.org>) and the Catholic Agency for Overseas Development (CAFOD - <http://www.cafod.org.uk> all accessed 12 June 2006). In addition to such early religious emphasis on poverty reduction, the emergence of secular Humanism in the 19<sup>th</sup> century has also played a very significant role in

shaping thoughts and practices relating to development, particularly through its interface with discourses on ethics and the duties people have to 'distant others' (see for example, O'Neill, 1986; Corbridge, 1998; Smith, 2000).

A final challenge to the emphasis on an Enlightenment understanding of 'development' is that it is a profoundly European concept. Modernist traditions derived from the European Enlightenment and the rise of capitalism have indeed come to pre-eminence during the 20<sup>th</sup> century. European notions of 'development' now therefore dominate both intellectual discourse and development practice across the globe. However, it is crucial to understand that this is just one possible notion of 'development'. Escobar (1995) and other advocates of what has become known as post-developmentalism (see Rahnema and Bawtree, 1997) have thus emphasised the importance of conceptualising alternative models to 'development' and in particular of exploring what we can learn from indigenous autonomous social movements. In this context, it is important to consider precisely what it is that such alternative traditions understand by the notion of 'development' (see, for example, Saraswati, 1997a). Han (1997, unpaginated), for example, emphasises the importance that Confucianism, Buddhism, Taoism and Shamanism have contributed to social and economic change in Korea, highlighting the effect of traits that he sees as being distinctive in these beliefs, such as 'authoritarianism, hierarchical orientations, formalistic ritualism, collectivism, personalism, secularism and this-worldliness'. More forcefully, Saraswati (1997b unpaginated) has argued that 'The anthropological definitions of culture and the Western concept of development are totally irrelevant for the living traditional cultures of any part of the world. In the Sanskritic tradition of India, the term culture is contested by *sanskrti* (divine process of body cleansing, moral ordering), and development signifies *vikrti* (distortion) or *hrasa* (degeneration). To take refuge in an alien definition of development is quite absurd. It is not the private sensation of the intellectual definition, unshared by the rest, that can demonstrate to another what it signifies in the real life situation'.

European notions of 'development' have, though, for long held that it is about progress and growth towards a greater good, be this economic, social or political. In

such a conceptualization ICT4D can thus be interpreted as the use of information and communication technologies to deliver such benefits. Indeed, from at least the 17<sup>th</sup> century onwards, the use of ‘technology’ or science has been at the heart of most of the dominant practices and discourses that have been concerned with ‘development’, from the industrial ‘revolution’ of the 19<sup>th</sup> century to the ‘Green Revolution’ of the mid-20<sup>th</sup> century. However, as Saraswati (1997b) reminds us, such concepts are highly culturally specific, and just as ‘development’ can have negative connotations, so too can the application of ICTs. While focusing primarily on the dominant practices and discourses of ICT4D, this book is therefore careful to draw attention to alternative concepts and practices where they are of particular pertinence. In order to understand the context within which the theory and practice of ICT4D has emerged over the last decade, it is nevertheless crucial to understand more about the dominant ‘development’ rhetoric over this period, and the ways in which this has been connected to the leitmotif of ‘globalisation’. These two themes provide the focus for the next sections of this chapter.

### **1.1.1 Liberal democracy and the free market: the dominant discourse and practice of ‘development’**

It is no coincidence that ICT4D emerged as a distinctive field of practice in the latter part of the 20<sup>th</sup> century at a time when the dominant mode of development discourse was associated with notions of economic growth and liberal democracy. In making such an observation, though, it is also important to distinguish between ‘doing development’ and ‘writing about development’. Indeed, throughout the last half century, there has been a complex interplay between these two types of activity. In the 1960s, the US economist Walt Rostow’s (1960) model of stages of economic growth was thus highly influential in shaping practitioners’ thoughts about the implementation of development planning in the poorer countries of the world. In part this was because of the key role that he also played in public administration, notably as an adviser on national security affairs to the Kennedy and Johnson administrations in the USA. Nevertheless, his anti-communist views and his advocacy of free-enterprise subsequently became subject to much criticism from left-wing academics. In discussing Rostow’s model, it is important to stress the

significance that it placed on technology. Thus improved technologies and transport were seen as being crucial preconditions for take-off; the take-off stage itself was characterized by rapid economic growth, the development of more sophisticated technology, and investment especially in the manufacturing sector; and the drive to maturity again featured considerable advancements in technology, as economies became more diversified, with increased emphasis on consumer goods and services taking place in the final age of high mass consumption. This connection between technologies and economic growth is closely paralleled in more recent debates about the role of ICTs in economic growth some forty years later.

The diverse radical criticisms of development practice (Peet with Hartwick, 1999; Kothari, 2005) that emerged in the 1970s, influenced heavily by a re-awakening of English speaking academics to wider European traditions of Marxist theory, were in contrast focused mainly on critique. As such, they were not primarily intended to 'improve' development practice, but were designed instead to highlight the fundamental flaws of what they saw as the overall programme of capitalist exploitation of poor people living in Africa, Asia and Latin America. As Harris and Harris (1979, p. 576) emphasized at the time, most of these radical positions were 'generally critical of interventionism, even when this involves practical programmes with the apparent objective of ameliorating conditions of poverty' (for a more recent reflection, see Harris, 2005). What these critiques did, nevertheless, was to draw attention to the inequalities, both social and spatial, inherent within the existing models of development, as well as the fundamental problems associated with military interventionism in the context of the Cold War conflict between the USA and the Soviet Union for dominance in the so-called 'Third World'. They also began to highlight the diversity of expressions of poverty, and particularly the experiences of women, giving rise to a flourishing body of feminist literature on 'development' (see for example Momsen and Townsend, 1987; Momsen and Kinnaird, 1993). Likewise, although providing valuable insights into the political-economy of Latin American countries, the views of dependency theorists, such as André Gunder Frank (1969), failed to make significant impacts into the practices adopted by most of those

involved in actually implementing development programmes on the ground (McMichael, 2004).

One area where there was, though, some practical impact from critiques of the dominant top-down, urban-based, centralized model of development planning was in the increased emphasis that began to be placed on bottom-up (Stöhr and Taylor, 1981) and agropolitan development (Lipton, 1977; Lea and Chaudhri, 1983) in the early 1980s. This was mainly led by civil society and non-governmental organizations (NGOs), and has been particularly successful where these have been based in poor countries themselves. As Parnwell (2002, p.116) has commented, 'NGOs have many theoretical advantages over cumbersome and amorphous institutions of the state in terms of delivering development at the grassroots level. They are seen to be more flexible, adaptable and nimble, have shallower decision making hierarchies and shorter lines of communication, are largely autonomous, and are typically less costly to run because of a high contribution of voluntary inputs into their activities. Their philosophy centres around altruism, democracy, popular participation (learning together rather than the simple transfer of knowledge), empowerment, conscientization, contextual groundedness, responsiveness rather than prescriptiveness, and the promotion of self-reliance'. These are important themes that will be returned to later when examining the role of civil society organizations in delivering ICT-based development initiatives.

The dominance in development practice at the start of the 21<sup>st</sup> century of the economic growth agenda enabled by liberal democracy and the free market nevertheless returns us in many ways to some of the arguments of Rostow (1960) and his colleagues in the 1960s. The so-called debt crisis of the early 1980s triggered in large part by the dramatic rises in oil prices in the 1970s necessitated leaders of the richer countries of the world to reconsider their interventionist agendas. At the same time, the rise of free market ideology in parts of Europe and the USA, led particularly by the Thatcher (1979-1990) and Reagan (1981-1989) administrations, created the context within which a very different set of policies began to be 'exported' to the governments of poorer countries of the world. If the

economic difficulties of the 1970s in Europe and north America had been 'solved' by deregulating the markets, by reducing state intervention, and by selling off inefficient public sector enterprises, why should these policies not also work in the poorer countries of the world? Such arguments helped shape the policies of institutions such as the World Bank and the IMF, particularly with respect to their responses to the debt crisis in Latin American countries. These have subsequently come to be known as the Washington Consensus, after Williamson's (1990) formulation of the types of reform that he saw being advocated by institutions in Washington during the 1980s (see also Naím, 2000; Stiglitz, 2002; Sachs, 2005). At their heart lay the three principles of macro-economic discipline, a market economy and openness to the world. These came to be adopted as central features of the Structural Adjustment Programmes (SAPs) that were to be implemented by countries wishing to receive assistance from the global donor agencies and banks.

If the oil price rises of the 1970s precipitated the introduction of these economic measures, it was the collapse of the former Soviet Union at the end of the 1980s that added a new political dimension to the development arena in the form of an overt emphasis on 'liberal democracy' (for a wide discussion of differing notions of democracy see Held, 1997). The so-called 'transition' economies of central and eastern Europe were thus encouraged to introduce new democratic structures that would enable the energy of individualism to be released from the constraints imposed on it by the centralized authority of the previous communist regimes (see Pickles and Smith, 1998). In principle, this was in many ways similar to the replacement of former communal traditions of medieval Europe by the rise of individualism in the 17<sup>th</sup> century thereby paving the way for the emergence of capitalist relations of production that would later lead to the industrial revolution (for a discussion, see Macfarlane, 1978; Aston and Philpin, 1987). From 1991 onwards, a distinctive combination of liberal democracy and economic growth thus came to dominate international rhetorics of 'development', especially given the apparent failure of the intellectual Left to contribute any alternative models of 'development' in the aftermath of the collapse of the Soviet Union (Habermas, 1994; Kothari, 2005). This dominant position has given rise to an increasingly hegemonic approach by the

international donors and financial institutions about how best to support 'development' in the poorer countries of the world, based fundamentally on devising mechanisms to ensure economic growth through the creation of liberal democratic political systems. This was based on the adoption of absolute definitions of poverty, a belief that 'development' was about the elimination of such poverty through economic growth, that this could best be implemented by encouraging a free market, and that good governance is an essential precursor for such growth. Hence, the UN's Millennium Development Goals (MDGs) (<http://www.un.org/millenniumgoals>, accessed 20 June 2006) adopted in 2000 were specifically focused on poverty elimination, and Poverty Reduction Strategy Papers (PRSPs) have now succeeded SAPs as the dominant framework through which international aid is now provided for the poorest countries (for a wider critique see Unwin, 2004). One significant element to be noted about this overall agenda is the increased emphasis that it has placed on so-called 'partnerships', and the role that information and communication technologies can contribute in this respect (Unwin, 2005). MDG 8 is thus to 'Develop a global partnership for development' including the aim 'In cooperation with the private sector, make available the benefits of new technologies – especially information and communication technologies' (<http://www.un.org/millenniumgoals>, accessed 16 June 2006). ICTs have now become central to the 'development' agenda of growth and democracy intended to eliminate poverty.

This approach to 'development' practice, albeit heavily dominant, is nevertheless not without its trenchant critics (see for example, Easterley, 2006). Once again, there seems to be something of an impasse between critical academic writing on 'development', and the policies adopted by global agencies charged with eliminating poverty. As Harris (2005, p.39) has commented, 'The challenge for development studies ... is in renewing its relevance through improved historical understanding of development, and of the moral and practical requirements of global justice ... This calls for a *critical* engagement on the part of development scholars with development policy-making'. This returns us to considerations of ethics and morality that were touched on earlier in this chapter, and with the definitions of what 'development' is truly about. For many development practitioners today,

‘development’ has become synonymous with ‘poverty elimination’. Poverty is prescribed primarily in economic terms, and it is to be eliminated through good governance and economic growth. However, such agendas ignore the plethora of alternative arguments that see ‘development’ as something much more subtle, culturally shaped and socially relevant (Crewe and Harrison, 1998; Arce and Long, 2000). ICTs are equally significant in these alternative development agendas, with the potential to play a very important role in enabling new forms of political organisation and social movement. This book does not therefore only focus on the contribution of ICTs to the dominant rhetoric of economic growth, but it also seeks to understand how they can be used effectively in shaping alternative frameworks of development.

### **1.1.2 An interconnected world: globalisation, world systems, and space-time**

Interpretations and practices of ‘development’ in the 1990s became increasingly interwoven with the rhetorics and realities of ‘globalisation’, especially following the collapse of the former Soviet Union, and the emergence of the USA as the dominant global superpower. Harris (2005, p.38) thus notes that by the end of the 1990s, only a short while after its inception, the term globalisation ‘had both entered into popular language and become the vehicle for a whole new academic growth industry’ (see in particular Amin, 1997; Wallerstein, 1999; Held *et al.*, 1999; Held and McGrew, 2002). Some consideration of ‘globalisation’ is essential for an analysis of ICT4D primarily because of the ways in which the 1990s saw a reshaping of our experiences of space and time, and also because of the effects that new information and communication technologies have had in shaping these changes associated with globalisation.

Although ‘globalisation’ is often seen as an autonomous process that somehow has the power to change people’s lives, it is better considered as a term that has been used to describe the coalescence of a series of economic, social, cultural and political changes that occurred towards the end of the 20<sup>th</sup> century. Above all, globalisation refers to the increasing inter-connectedness of human activity across the world. Typically, the dominant economic characteristics of

globalisation have been seen as a rapid increase in international trade, the integration of global financial systems, changing systems of industrial production involving increased amounts of out-sourcing, growing economic interdependence between states, increased power of global or multinational corporations, increasingly global patterns of consumption, and an increasing complexity of global economic institutions such as the World Trade Organisation (WTO). Socially, globalisation has been characterised by increased migration and travel, by new means of social communication such as instant messaging and mobile telephony, and by increasingly complex patterns of human relationships across the world. In the cultural sphere, there has been increased intermixing and hybridity, the creation of global fashions and crazes, the rise of global media organisations, increasing acceptance of a global set of human values as reflected in the Universal Declaration of Human Rights, and above all a tendency for the artefacts of a few dominant cultures to be spread much more widely across the world. Finally, globalisation can be seen in the political sphere, reflected for example in the expansion of global justice movements and the creation of the International Criminal Court in 2002, the growth of international political alliances, the increasing significance of so-called 'international terrorism', the rise of global environmental movements, the dominant military role of the USA as a global political force, and indeed the existence of a world-wide anti-globalisation movement. Information and Communication Technologies have been instrumental in facilitating many of these changes. In understanding 'globalisation', though, the key issue is to explore what underlies these characteristics, and to unravel the influence of particular events and processes on the subsequent evolution of those features in which we are interested.

One important observation that highlights the contradictions within globalisation is that most of these characteristics can be seen as either positive or negative, as opportunities or threats, depending on the perspective of the beholder. Globalisation has thus been characterised both by an increased tendency towards uniformity and also by increased opportunities for local cultures and identities to find global expression. Indeed, the term 'glocalisation' has been coined to reflect this combination of localisation and globalisation, either through the ways in which local

identities have been able to find global expression, or also to ways in which global products have been adapted to suit local conditions (see Cox, 1997). Dreher (2006, p.1091) highlights this contradictory character of globalisation, noting that 'Many non-economists expect the costs associated with globalization to exceed its benefits. Fears of an erosion of social and environmental standards, high poverty rates in less developed countries and ever higher frequencies of financial crisis resulted in protests and even riots. Quite the contrary, most economists strongly believe the net effect of globalization to be positive' (see also <http://www.kof.ch/globalization>, accessed 14 June 2006).

In seeking to disentangle these contradictions it is helpful briefly to explore the diverse accounts that have been used to interpret the emergence of this coalescence of factors associated with globalisation in the late 20<sup>th</sup> century. The first important point to note is that there is actually nothing new about globalisation as a process. Ever since the dawn of humanity, the pace and scale of interaction between people and societies has been increasing. Significant earlier increases in the rate of change of such interactions have variously been identified as occurring during the expansion of the Roman Empire in the 1<sup>st</sup> century AD, in the Chinese voyages of global discovery in the early 15<sup>th</sup> century (see Menzies, 2002), and during the European colonial expansion of the later 15<sup>th</sup> and 16<sup>th</sup> centuries (see North and Thomas, 1973). Throughout all of these, information and communication technologies have played a crucial role. The development of cartography in the 15<sup>th</sup> century was thus as essential to European explorations of Africa, Asia and Latin America, as has been the emergence of new ICTs in the 20<sup>th</sup> century for the shaping of the latest manifestations of globalisation (Figure 1.2). As Braudel (1982, pp.400-401) has commented with reference to the mechanisms of profit appropriation by merchants in the 16<sup>th</sup> and 17<sup>th</sup> centuries, 'the great merchants, although few in number, had acquired the keys to long-distance trade, the strategic position *par excellence*; ... they had the inestimable advantage of a good communications network at a time when news travelled very slowly and at great cost'. The fundamental point to note about this is that information and communication have

always been valuable, and that those in positions of power have always sought to develop technologies to ensure that they retain continued advantageous access to it.

[FIGURE 1.2 HERE]

Such arguments are reinforced by Wallerstein (1999, p. 2), who comments that ‘One would think, reading most accounts, that “globalization” is something that came into existence in the 1990’s – perhaps only upon the collapse of the Soviet Union, perhaps a few years earlier. The 1990’s are not however a significant time marker to use if one wants to analyze what is going on. Rather, we can most fruitfully look at the present situation in two other time frameworks, the one going from 1945 to today, and the one going from circa 1450 to today’. More significantly, though, he suggests that the view that we are now living for the first time in an era of globalisation is actually ‘a deception imposed upon us by powerful groups’ (Wallerstein, 1999, p. 1). For Wallerstein (see also 1983), and others such as Harvey (1989, 1996, 2000), we cannot understand globalisation without appreciating the way in which it is fundamentally connected with the resolution of the crisis tendencies of capitalism. In particular, capitalist enterprises are driven by the continual need to search for cheaper raw materials and production resources, notably labour, and also to expand their markets so that their profits can be realised. It is these factors that have fundamentally driven the processes associated with globalisation over the last 500 years or so. Although their intensity increased in the latter part of the 20<sup>th</sup> century, their underlying rationale has remained as true today as it was in the 17<sup>th</sup> century. Wallerstein (1999, p. 19) suggests that ‘We can think of this long transition as one enormous political struggle between two large camps: the camp of all those who wish to retain the privileges of the existing inegalitarian system, albeit in different forms, perhaps vastly different forms; and the camp of all those who would like to see the creation of a new historical system that will be significantly more democratic and egalitarian’. He goes on to assert that the former ‘will assert that they are modernizers, new democrats, advocates of freedom, and progressive’ (Wallerstein, 1999, p. 19). It is they who are seeking to deceive us into the belief that we are indeed living in a revolutionary new world, in a new era of

globalisation. According to such arguments, the notion of globalisation becomes a self-fulfilling prophecy driven by the interests of capital. As Harvey (2000, p. 69) has stated most clearly, 'The answer to the question "who put globalization on the agenda" is, therefore, capitalist class interests operating through the agency of the US foreign, military and commercial policy'.

It is here that it becomes particularly important to explore the ways in which the processes associated with globalisation intersect with our experiences of space and time (see Lefebvre, 1974, 1981; Giddens, 1984; Soja, 1989; Harvey, 1996; Unwin, 2000). As Harvey (2000, p. 58) has commented, 'capitalism is always under the impulsion to accelerate turnover time, to speed up the circulation of capital and consequently to revolutionize the time horizons of development'. As he goes on to say, it is also 'under the impulsion to eliminate all spatial barriers, to "annihilate space through time" as Marx puts it' (Harvey, 2000, p. 59). While historically, canals, railways and aeroplanes have all helped to bring people and processes closer together, thereby accelerating the potential for the accumulation of capital, the introduction of new ICTs in the last two decades of the 20<sup>th</sup> century has played a dramatic role in restructuring the potential for ever faster accumulation, and with it the social and cultural structures necessary to maintain it.

Information and Communication Technologies are fundamentally concerned with the ways in which individuals and societies experience space and time. The invention of writing and books, for example, enabled information to be recorded and stored for long periods of time in ways that had previously been impossible in oral cultures. The agreement of a written record of particular events in turn created fundamentally different forms of social discourse than had prevailed previously when agreements had been based purely on word of mouth. Signatures and seals were introduced to verify assent to the contents of a document. As already noted, medieval and early modern merchants jealously guarded information that they possessed concerning the prices of goods in different markets so that they were able to gain profits through trade (Figure 1.3). However, as soon as such information became communicated more widely, it was less easy for people to profit from trade,

and this was one of the reasons why investment increasingly began to be made in innovative processes of production during the 17<sup>th</sup> century. Throughout most of human history, the maximum speed that people have been able to travel on land has been restricted to the pace of a horse. Riders for the pony express between 1860 and 1861 in the USA were, for example, expected to travel at about 10 miles an hour, with the maximum speed for the 2000 mile journey from St. Joseph Missouri to Sacramento in California being recorded as 7 days and 17 hours (<http://www.ponyexpress.org>, accessed 15 June 2006). However, the use of signal fires and other such systems of communication has for millennia enabled limited messages to travel very rapidly over great distances. Messages could thus pass very swiftly along the entire 6,700 kilometres length of the Great Wall of China at its greatest extent during the Ming Dynasty (1368-1644). Moreover, the simple use of voice relays with people calling to each other over short distances, long before the use of the telephone, could enable people to communicate remarkably swiftly across difficult terrain, even if there was often a decay in the accuracy of such information. Yodeling in the Swiss Alps thus provided a means for people to pass simple messages across deep valleys in mountainous areas without actually having to spend many hours travelling to see each other. These examples are important, because they remind us that people have never actually needed to move physically to be able to communicate with one another, and also that very rapid communication over considerable distances is not as new a concept as is often claimed. What is, of course, new is the scale at which this is possible, with vast amounts of data now being transferred across the globe almost instantaneously through the use of new ICTs.

[FIGURE 1.3 HERE]

Geographers have long studied the ways in which societies both construct and are constructed by different conceptualisations of space and time (see for example, Sack, 1980; Gregory and Urry, 1985; Soja, 1989; Harvey, 2000). Such studies emphasise the diversity of ways in which human cultures have conceived of these notions, and also the significant influence that they have played in shaping our

material existence. In particular, it is often argued that recent changes encapsulated in the notion of globalisation have led to the compression or annihilation of space (Giddens, 1986; Harvey, 2000). This is, though, far too simplistic a notion, because space can never be considered purely in isolation; space and time are intimately connected. As the above examples have illustrated, an increasingly globalised world is also one where our experience and understanding of time has also changed, and compressed. Just as the effects of distance become less, so too do those of time. We now live in a 24-hour 7-day world, in which those with access to ICTs can gain huge amounts of information and communicate instantly with people anywhere in the world. Although physicists and philosophers now focus largely on trying to understand the meaning and significance of the integrated concept of space-time (see Flood and Lockwood, 1986; Unwin, 1992), common usage in much of the world retains separate notions of both space and time. We thus measure distances not only in terms of the space covered, but also in terms of how long it takes to do so. Likewise, we only actually experience time through movement in space, be it through our own tiny body movements or through the moving hands of a clock. The ways in which we communicate are thus intimately bound up with our experiences of space and time. In less than 50 years we have moved from letters and fixed line telephones as dominant modes of communication, to faxes, then e-mails, mobile telephones, instant messaging, and now video conferencing over the Internet. Communication has become much more rapid and ubiquitous, and in so doing this has changed our entire lives, from the ways and places in which we work, to how we learn and how we choose to spend our leisure time. Such interplay between societies, ICTs, space and time lie at the heart of this book. If we desire to help empower poor and marginalised communities, it is essential for us to understand something of the complexity of these inter-relationships, and it is therefore to an exploration of the idea that we are living in a new type of Information Society that attention now turns.

## **1.2 Information and Knowledge Societies**

Given the significant changes in human experiences of space and time for many people in the world over the last half century, a growing body of literature has argued that we are indeed living in a fundamentally new era (see particularly Castells, 2000a, 2000b, 2003; UNESCO, 2005; Friedman, 2006). This section therefore provides an overview of some of the more important arguments associated with such a viewpoint, but from a critical perspective, suggesting instead that these may not actually be as significant as is often claimed. Just as the notion of globalisation has been coined for a particular set of interests, I argue that so too has the notion of an Information Society. If we are successfully to identify ways in which ICTs can indeed be used to support poor and marginalised communities, it is essential for us to understand better the underlying principles that have given rise to the concept, as well as the claimed reality, of an Information Society. Only then will we effectively be able to use such technologies to deliver on the development agendas discussed in the previous section.

### **1.2.1 Mythologies of Ages: Information and Knowledge Societies**

The most prominent advocate of the notion that we are living in an Information Age has been Manuel Castells (1985, 1989, 2000a, 2000b, 2003; but see also Friedman, 2006). In his monumental trilogy *The Information Age: Economy, Society and Culture* he makes a convincing case that recent technological change has had profound impacts on the way in which societies, economies and culture are shaped and function, to such an extent that this can be characterised as a truly new Age. In his words, 'Towards the end of the second millennium of the Christian era several events of historical significance transformed the social landscape of human life. A technological revolution, centred around information technologies, began to reshape, at accelerated pace, the material basis of society. Economies throughout the world have become globally interdependent, introducing a new form of relationship between economy, state, and society, in a system of variable geometry' (Castells, 2000a, p. 1). For him, this has been expressed in a fundamental restructuring of capitalism, and in particular 'an accentuation of uneven development, this time not only between North and South, but between the dynamic segments and territories of

societies everywhere, and those others that risk becoming irrelevant from the perspective of the system's logic' (Castells, 2000a, p. 2).

There are two immediate concomitants of such arguments for our project here. First, if this is indeed a new Age, with such compelling logic, one conclusion that could be drawn is that the notion of ICT4D in the sense discussed earlier in this chapter is completely unfeasible, since the dominant forces within our global society will continue to ensure that the inequalities to which Castells refers are maintained and reinforced. Instead, I wish to permit at least the possibility of the more radical agenda that we can indeed use ICTs to empower poor and marginalised communities. A second conclusion that can be drawn from Castells' arguments is that many of those advocating ICT4D are, often unintentionally, actually part of a global conspiracy in which these new technologies and even the notion of an Information Society itself are instead used to reinforce the 'differences' and contradictions that remain essential to a thriving capitalist global economy. This is an argument that is explored in much more depth at various points in future chapters.

For the moment, though, it is important to draw out two other important threads from Castells' work, namely the overall theoretical framework that he adopts, and then more specifically aspects of the bipolar opposition that he conceptualises between the Net and the Self. In essence, Castells (2000a, 200b, 2003) builds his analysis around the three intersecting dimensions of production, power and experience. Economic activity, the role of the state, and collective human actions thus all create specific social dynamics, and they need to be studied both in themselves and also in the way that they relate to each other. In another methodological triad, he also emphasises that we need to bring together cultural identity, global networking and multidimensional politics if we are to understand and change our multicultural and interdependent world (Castells, 2000a). This leads him to place emphasis on grounding his arguments in observation, and in diversifying the cultural sources of his observations and ideas as much as possible. As will already be clear, these two methodological goals are closely akin to the emphasis on

detailed case studies and cultural diversity evident in earlier parts of this chapter. A second key interpretative principle that Castells adopts is the distinction he makes between the Net and the Self. As he argues, 'global networks of instrumental exchanges selectively switch on and off individuals, groups, regions and even countries, according to their relevance in fulfilling the goals processed in the network, in a relentless flow of strategic decisions. There follows a fundamental split between abstract, universal instrumentalism, and historically rooted particularistic identities. *Our societies are increasingly structured around a bipolar opposition between the Net and the self*' (Castells, 2000b, p. 3 italics in original). Castells sees this relationship as coming under increased stress, as individuals seek to make sense of the world in which they live, and yet are also increasingly being constrained by networked forms of organisation that impose ever more on their freedoms. One expression of this has been the way in which many companies now provide Internet access for employees at home, thereby enabling them to work yet longer hours. This form of self-exploitation has been particularly evident in the 'encouragement' given to staff to undertake on-line training at home, and to 'catch up with' their e-mails in the evenings or at weekends, outside 'traditional' working hours. More recently, global corporations have increasingly begun to insist on staff having hand-held digital devices so that they can connect to their offices at all hours of the day and night wherever they are in the world. As BlackBerry's web-site advertises 'In an ideal world... you could respond faster to customer issues in the field' (<http://www.blackberry.com/solutions/index.shtml>, accessed 15 June 2006). BlackBerry thus claims to offer four distinctive benefits to businesses: achieving compelling returns on investment, improving decision making, improving customer satisfaction, and improving productivity. This is to be achieved through the combination of e-mail, 'phone, wireless Internet, tethered modem, organizer, SMS, instant messaging, corporate data access and paging technologies all contained within a single hand-held device (<http://www.blackberry.com/products/blackberry/index.shtml>, accessed 15 June 2006). Employees are now truly at the beck and call of their managers 24 hours a day, seven days a week.

A fundamental point of debate, though, is whether the changes and processes catalogued in such detail by Castells and others are truly as revolutionary as is claimed. As Harvey (2000, p. 62) has thus commented, 'The idea of an "information revolution" is powerfully present these days, and is often viewed as the dawning of a new era of globalization within which the information society reigns supreme... . It is easy to make too much of this. The newness of it all impresses, but then the newness of the railroad and the telegraph, the automobile, the radio, and the telephone in their day impressed equally'. Castells (2000a, p. 78) firmly believes that we are indeed 'witnessing a point of historical discontinuity'. In particular, he argues that 'The emergence of a new technological paradigm organized around new, more powerful, and more flexible information technologies makes it possible for information itself to become the product of the production process. To be more precise: the products of' new information technology industries are information-processing devices or information processing itself. New information technologies, by transforming the processes of information processing, act upon all domains of human activity, and make it possible to establish endless connections between different domains, as well as between elements and agents of such activities' (Castells, 200a, p. 78). For these reasons, he argues that the Information Age is fundamentally different both from the first industrial revolution of the 18<sup>th</sup> century in which hand tools were replaced by machines, as well as from the second industrial revolution in the second half of the 19<sup>th</sup> century featuring, amongst other technological changes, the development of electricity and the internal combustion engine. All of these have seen science and technology playing a leading role, but only in the Information Age is there 'a cumulative feedback loop between innovation and the uses of innovation' (Castells, 2000a, p. 31).

Deciding whether or not something is truly revolutionary depends very much on the criteria that one selects for analysis, and on the extent to which one is willing to acknowledge the significance of antecedents in shaping the phenomenon under investigation. Indeed, debates over whether the last decade of the 20<sup>th</sup> century really did see the introduction of an Information Age are not dissimilar to the seemingly endless arguments as to whether England witnessed one, two or three

agricultural revolutions between the 16th and 19<sup>th</sup> centuries, let alone how many other agricultural revolutions there were across the world both before and after this period (see for example Overton, 1996; Allen, 1999). There is thus certainly good evidence that many of the technological changes associated with the Information Age were first introduced well before the end of the 20<sup>th</sup> century. Indeed, it can be argued with some force that many of the features of globalisation and contemporary development practice, as outlined in the previous section, actually reflect the outworking of the long established fundamental structural interests of global capital in minimising production costs, especially labour, and maximising the market, rather than necessarily the revolutionary impact of information technology. One could, for example, just as easily say that the origins of printing in China in the 6<sup>th</sup> century and in Europe in the 15<sup>th</sup> century were also instances where information was the product of the production process, and where there was feedback between innovation and the production of new knowledges.

Alongside attempts to define our contemporary world as being an Information Society have been others who have preferred the term Knowledge Society. The authors of a recent volume on Knowledge Societies (UNESCO, 2005, p.17) for example have thus commented that 'The idea of the information society is based on technological breakthroughs. The concept of knowledge societies encompasses much broader social, ethical and political dimensions'. It is, though, somewhat difficult to reconcile such a view with the above discussion of Castells' arguments, emphasising as it did the breadth of their conceptualisation of the Information Age, and his clear focus on the social, moral and political dimensions of the issues with which he was concerned. This therefore begs the question of what is meant by both 'information' and by 'knowledge'. There has been a wealth of debate on these issues (see for example, Machlup, 1962; Drucker, 1966; 1969; Bell, 1976; Porat, 1977), and it would be easy to engage at length in a discussion of the semantic differences between the two terms, as well as their much wider epistemological and ontological significance. Knowledge and information are often used synonymously, but at the heart of most practical distinctions between the terms is the sense that 'knowledge' requires higher order human processing, whereas 'information' is

something that is generally only produced and communicated. Accordingly, if 'information' is not understood and actively used it cannot become knowledge. One way of grappling with such concepts is to consider information as processed raw facts or 'data'. 'Knowledge', in turn, can then be understood as a form of processed 'information' that is used for a particular purpose (see Habermas, 1972, for a detailed exploration of the connections between knowledge and human interests). In this sense, knowledge is information that has been incorporated into human understanding based on experience and context. Put another way, information becomes knowledge when it is combined with experience, context, interpretation and reflection so that it can be applied to actions based upon human decision-making (Davenport and Prusak, 1998). Such differences are particularly important in the context of discussions over information and knowledge management, as well as on the ways in which information and knowledge are communicated. These are addressed in much more detail in Chapter 2. It must nevertheless be acknowledged at this stage that much writing in the field of ICT4D has tended to use the terms knowledge and information somewhat interchangeably, and there therefore needs to be greater rigour and clarity in our usage of such terminology.

Those preferring the use of the term Knowledge Societies (as with UNESCO, 2005) do so most frequently with the intention of drawing a distinction between their arguments and those who they see as advocating a more restricted technological definition of 'information'. In particular, many such claims are based fundamentally on normative arguments about the nature of the type of knowledge society that they would like to see. In particular, such arguments place considerable emphasis on the notion of knowledge as a global public good, on the emphasis within knowledge societies of human rights agendas, and on the importance of knowledge sharing. As UNESCO (2005, p. 18) thus asserts, 'A knowledge society should be able to integrate all its members and to promote new forms of solidarity involving both present and future generations. Nobody should be excluded from knowledge societies, where knowledge is a public good, available to each and every individual'. UNESCO (2005, p. 18) likewise continues by proclaiming that 'since the "information age" knowledge societies differ from older knowledge societies because of the focus

on human rights and the inclusive participatory character they inherited from the Enlightenment'. These are indeed powerful aspirations, and an examination thereof is essential for understanding the potential role of ICT4D in delivering them. However, there is as yet little evidence that human societies are truly moving in this direction. There are thus powerful interests that are determined to ensure that information and knowledge are not only carefully controlled but also that they are used by the rich and powerful to maintain their positions of influence and control. One of the fundamental tensions in understanding ICT4D is thus that between the potential of ICTs both to enable greater global control and profit generation, while at the same time providing the opportunity for the kinds of global knowledge sharing communities that people in organisations such as UNESCO (2005) wish to see.

The fundamental trouble with UNESCO's (2005) assertions as stated above is that they conflate the positive and the normative. By stating that 'knowledge is a public good' (UNESCO, 2005, p. 18), they appear to make a universal claim about what 'should' be that conforms neither to the historical evidence, nor to contemporary practical reality. UNESCO (2005, p. 19) goes on to claim that 'information is in many cases a commodity, in which case it is bought or sold, whereas knowledge, despite certain restrictions (defence secrets, intellectual property, traditional forms of esoteric knowledge, for example), belongs of right to any reasonable mind'. The trouble with such an assertion is that it is not only information that has become commoditised, but also 'knowledge' itself. Some might certainly claim that knowledge should belong of right to anyone, but one of the fundamental characteristics of our contemporary society is that ICTs actually seem to be increasing the commoditisation of knowledge. In part, this reflects the considerable cost of managing and processing both information and knowledge, and the need for companies that invest in these processes to return profit to their investors. However, as Habermas (1972) has so clearly argued, different forms of knowledge have always had different practical interests associated with them. There is no good reason to suppose that our contemporary society should be any different. Indeed, later in their argument, UNESCO (2005, p. 22) seem to recognise this by noting that 'knowledge itself has become "commoditized" in the form of

exchangeable, and codifiable information'. Hence, we need to lay to rest arguments that claim that knowledge is indeed some kind of universal public good, and instead recognise that it is indeed commoditised, and serves particular interests. As Roberts (2000, p. 439) has commented, 'As one element in a broader neo-liberal discourse, where the primacy of the market for organising all human activity is taken for granted, "knowledge" becomes just another commodity: Something to be bought, sold, traded and consumed'.

Such debates nevertheless highlight the critical importance of understanding the relationships between information producers and knowledge users, as well as the relationships between individuals and states, if we are to be able to implement effective ICT4D strategies and activities. It is to these issues that the next section now turns in more detail.

### **1.2.2 Interests in information and knowledge**

At the heart of the emergence of capitalism in 17<sup>th</sup> century Europe was the idea that investment in production offered the opportunity for individual gain. Old systems of profiting from trade were becoming less successful, in part as a result of more widely available information about prices pertaining in different markets, and as a result increasing amounts of private investment in land associated with experimentation in the fields of agriculture and then industry laid the basis for the so-called agricultural and industrial 'revolutions'. These processes were, though, only enabled by changing understandings of the relationships between individuals and communities, as well as of the rights that both had to different kinds of information and knowledge. In essence, the privatisation of knowledge was, and still is, fundamental to the acquisition of profit. Hence, a complex framework of intellectual property rights has emerged parallel to the emergence of capitalism. Particularly during the latter part of the 20<sup>th</sup> century this has, nevertheless, increasingly been challenged by those advocating a 'return' to more communal forms of knowledge sharing that are based on a fundamentally different kind of logic and argument, drawing validity from moral and ethical standpoints rather than from purely economic ones. This is overtly illustrated, for example, in claims such as 'the emerging global information society

only finds its *raison d'être* if it serves to bring about a higher and more desirable goal, namely the building, on a global scale, of *knowledge societies*, that are a source of development for all, first and foremost for the least developed countries' (UNESCO, 2005, p. 27). Unfortunately, although this is of crucial relevance to discussions of ICT4D, such a claim, as stated, is unfounded, primarily because of its insistence on using the word 'only'. It is equally logical to argue that the main *raison d'être* of the emerging global information society is that it is derived from the economic interests of capitalist enterprises and the states that support them which are determined to expand their markets and reduce production costs, thereby providing profit and financial return to their shareholders. Such arguments are important for understanding the reality and potential of ICT4D, and are particularly pertinent to debates over the contrasting 'values' and 'uses' of Open Source as against Proprietary software that are explored further in Chapter 2.

It is important therefore to draw attention to the history of intellectual property rights and the arguments of those advocating a digital commons approach. Interestingly, the specific notion of intellectual property rights is relatively recent, emerging in the 19<sup>th</sup> century and not coming to prominence until the creation of the World Intellectual Property Organization (WIPO, <http://www.wipo.int>, accessed 19 June 2006) in 1967 (see also Merges, Menell and Lemley, 2003). However, the concept has much older precedents in laws associated with copyright and patents (see Jaffe and Trajtenberg, 2002). In origin, patents were designed both to enable individual profit, but also to permit wider communal access to, and thus benefit from, innovations. The first formally recorded patent law was a 1474 Statute in which the Venetian Republic stated that once any new device had been put into practice the details had to be provided to the Republic so that it could give the inventor legal protection against any infringers. Likewise, in 15<sup>th</sup> century England, the Crown had granted letters patent to inventors, permitting them to have a monopoly on their products for a limited period of time, usually around 20 years. This system was replaced in 1623 by the Statute of Monopolies which granted the first inventor exclusive rights of up to 14 years for their invention (Price, 1913). Two important characteristics of patents that survive to this day can be noted from these origins:

first they are of limited duration, and second they pertain to the particular jurisdiction in which they are granted. During the 20<sup>th</sup> century, the increasingly globalised nature of the economy led to the need for greater consideration to be paid to international agreements concerning patents and the rights that people had more generally to intellectual property, including copyrights, patents, trademarks, design rights and the proprietary knowledge of businesses. As well as the creation of WIPO this trend towards greater harmonisation of intellectual property rights was reflected in the 1994 World Trade Organisation's Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS). Significantly, this was a result of strong lobbying by the richer countries of the world, notably the USA and the countries of Europe, and it has subsequently been much criticised by those who see it as being part of the processes associated with globalisation that have led to resources flowing from poorer countries to copyright and patent holders in richer parts of the world (see Steinberg, 1997; Ganguli, 2000).

While the above account has shown that intellectual property rights are indeed in part concerned with ways in which wider communities can benefit from individual innovation, an alternative set of arguments has sought to return attention to what was lost in the 17<sup>th</sup> century shift to individualism, and in particular the perceived benefits of the 'commons'. Debate over the so-called 'tragedy of the commons' was initially conceived primarily in the context of population pressure on the environment (Hardin, 1968), but it has recently been reinvigorated in discussions over the 'digital commons'. In essence, many of the institutional changes in 16<sup>th</sup> and 17<sup>th</sup> century Europe associated with increasing private land ownership, led to prescriptions on the rights that poor people previously had to communal land and resources, such as grazing or the collection of fallen timber. The process of enclosure can thus be interpreted as a way in which certain privileged individuals were able to gain private profit at the expense of poor people who were dispossessed of their previous rights, and subsequently had to sell their labour power to the emerging class of capitalists. Likewise, today there is concern that the Internet will become privatised, and that the communal benefits that it currently provides for poor people will disappear. As Poynder (2003, p. 33) has commented,

there is 'considerable concern that aggressive use of intellectual property – most notably copyright and patents – threatens to “enclose” the open nature of the Internet and therefore privatize it by stealth’. Attempts to counter such trends, and to reclaim the digital commons have led to a range of alternative kinds of licensing both for software and for content, notably the GNU General Public License (GPL) (<http://www.gnu.org/copyleft/gpl.html>, accessed 19 June 2006), the Open Publication License (OPL) (<http://opencontent.org/openpub>, accessed 19 June 2006) and more recently Creative Commons licences (<http://creativecommons.org>, accessed 19 June 2006) that enable originators to choose from a range of qualifying conditions that they wish to be assigned to their material. At the heart of many such initiatives is the notion that material should be made commonly available providing that individual users return any adaptations that they make to that material to the wider community of users. This is also intended to encourage the communal creation processes that the Internet has now so readily enabled, typified by the open-content encyclopedia Wikipedia (<http://www.wikipedia.org>, accessed 19 June 2006).

Different groups of people have always had a range of interests in both information and knowledge, but new ICTs have dramatically changed the scale and speed with which these interests can be shaped. They have also created new opportunities whereby traditional forms of control, as represented by patents and intellectual property rights, are being contested and reformulated. The ways in which such contestation are worked through over the next decade will have a significant influence over whether new ICTs will really be able to have a significant positive influence on the lives of poor and marginalised communities, or whether they will instead serve primarily to reinforce existing worlds of difference and inequality. It is to these differences that attention now turns

### **1.2.3 A world of difference: digital divides and knowledge economies**

There is a fundamental tension between the arguments of those who see ICTs as being a means and an opportunity whereby poor countries and people can somehow catch up with the economic successes of their richer 'neighbours', and those in the richer countries who advocate their own need for to remain 'competitive' in the global

knowledge economy. This applies equally to those in the business community as it does to politicians. In his letter to the newly appointed Secretary of State for Trade and Industry in the UK, Prime Minister Tony Blair (2006) thus commented that one of the key domestic challenges for the UK was ‘to build on our unprecedented record of economic achievement ensuring our country can compete and win in the global knowledge economy’. He went on to comment that ‘Britain needs to continue making the transition to being an open, globally-integrated “knowledge economy” and the first priority in achieving this is to take ‘the next steps in the strategy for creating wealth through knowledge, in particular capitalising on the significant public investment in the science base by stimulating more knowledge transfer and the business appetite for innovation’ (Blair 2006). Likewise, in a speech in 2005 he emphasised that ‘It is hard to overstate to Britain's future the importance of knowledge, and the embedding of knowledge throughout society through education, technology and social mobility’ (Blair, 2005). In so doing, he stressed in particular the importance of ICT alongside other aspects of science and technology in helping to shape this knowledge economy. This speech clearly emphasises the UK’s interest in remaining competitive in the global knowledge economy, and the role that ICTs can play in helping to achieve this. However, Blair is by no means alone in his aspirations. Other leaders of the European Union (EU) are thus equally determined to use the opportunities provided by ICTs to transform their economies and maintain their competitive advantages. The EU’s Information Society portal thus claims that ‘The last few years have witnessed a transformation in the industrial landscape of the developed world. Telecommunications liberalisation, the explosive growth of the Internet and the increasingly networked nature of business and society all point to one thing – the birth of the Information Society (IS). Developing a successful European Information Society is at the very heart of the EU’s “Lisbon Goal” of becoming the world’s most dynamic and competitive economy by 2010” ([http://europa.eu.int/information\\_society/text\\_en.htm](http://europa.eu.int/information_society/text_en.htm), accessed 19 June 2006).

A fundamental question that must be asked in the light of such comments is whether they are compatible with a vision that sees ICTs as being an important element through which poor and marginalised people and countries can be

empowered? There is little doubt that ICTs can contribute positively to economic growth, and thus to 'development' if this is defined primarily according to such criteria. However such arguments are somewhat circular. The real issue with which this book therefore seeks to grapple is whether it is actually possible to use ICTs effectively to help transform the lives of poor people and communities despite the global interests that seek to maintain competitive advantages and thus digital divides at a range of scales. If it is indeed possible, how can this best be achieved?

The evidence to date suggests that although ICTs can indeed make a significant difference to the lives of poor and marginalised communities, many well-intentioned projects have failed (Heeks, 2002; Greenberg, 2005), and the integration of ICTs more widely into the 'globalisation project' may have actually led to an accentuation of inequalities rather than their reduction. Such arguments have been encapsulated in wider discourses about the creation of a 'digital divide', the term introduced during the 1990s to refer to the growing differences in access that communities had to computers and the Internet, initially mainly in the richer countries of the world (see for example, Norris, 2001; World Bank, 2006). It is clear that there are indeed substantial differences in access to and use of ICTs at a range of scales, from the local through to the international, and that these divides are also not merely in terms of networks and connectivity, but also relate to content, access to information, accessibility, and literacies (Unwin and de Bastion, 2007). Thus even in the world's richest countries, there are significant social and spatial divides in terms of access to information and communication. The UK, for example, is the highest-ranking country in the world in terms of e-participation according to the UN e-Government Global Readiness Report of 2005. Yet broadband access in the UK varies enormously, with dense middle-class suburbs not surprisingly having the best connectivity (Point Topic, 2005). Such differences are even starker in poorer countries, with readily accessible Internet connectivity often only being accessible in the major urban centres. Globally, the differences are equally marked. ITU statistics for 2004 thus indicate that while 14 per cent of the world's population live in the G8 countries, they account for 34 per cent of the world's mobile 'phone users. Likewise, Africa averaged 1.74 personal computers (PCs) per 100 inhabitants in 2004,

compared with 50.84 PCs in Oceania (ITU, 2006a). As Figure 1.4 illustrates, the spatial divisions within Africa itself are also very significant, with countries such as Burundi, the Democratic Republic of Congo, Ethiopia, Liberia and Niger all having only about 1 Internet user per 1000 people in 2004, compared with 17 in Ghana, 46 in Kenya, 84 in Tunisia and 146 in Mauritius (ITU, 2006a). There is, though, some indication that as many richer countries have become saturated with certain types of ICT, the divisions between them and the poorer countries have begun to decline. The ITU (2006, b) thus claims that 'within four year (*sic.*), from 2000 to 2004, the gap separating the developing and the developed countries has been shrinking in terms of mobile subscribers, fixed telephone lines and Internet users. We measure the gap (the digital divide) by dividing the ICT penetration rate in the developed world by the ICT penetration rate in the developing world. Phenomenal growth rates in the mobile sector, particularly, have been able to reduce the gap from nine in the year 2000, to four by the end of 2004. This gap has also been reduced in terms of fixed lines, from six to four, and from 15 to 8 in terms of Internet users'. Moreover, the digital divide is not just reflected spatially, but across the world it is also to be seen in terms of social and cultural manifestations. Although statistics are hard to obtain, and not necessarily particularly reliable, it is evident, for example, that women frequently have lower levels of access to ICTs than do men. Thus, while 51 per cent of total Internet users in the USA and Canada are estimated to be women, this figure falls to 37 per cent in Germany and Italy, 35 per cent in Malaysia, and only 19 per cent and 12 per cent in South Africa and Senegal respectively.

[FIGURE 1.4 HERE]

At the beginning of the 2000s, it was often argued by those working for donor organisations that poor people and communities had more pressing needs than ICTs. I distinctly recall, for example, senior education advisors working for a major bilateral donor at this time arguing that it was more important for school children to have roofs over their schools, papers and pencils with which to write, and text books that they could read, than it was for them to have access to ICTs. However, the rapidity of the changes that have taken place over the last few years means that it is

no longer a question of whether to provide books or ICTs, but rather how we can ensure that ICTs do not become yet another means whereby large segments of the world's population are further systematically disadvantaged. As Weigel (2005, p. 18) has thus commented that 'For the poor, the real issue is not whether ICT are desirable because the technology is already part of their broader context. The issue is whether we accept that the poor should, in addition to the existing deprivation of income, food and health service, etc., also be further deprived of new opportunities to improve their livelihoods'.

### **1.3 Technological interests and social change**

This chapter has argued that information and knowledge have both been central to the functioning of all societies throughout history. They are the means through which societies reproduce themselves, through which understanding is passed on to future generations, and through which social relations are established. As such, attempts to describe our contemporary world as being distinctly an Information Age or a Knowledge Society seem misplaced. What Castells (2000a, b; 2003) nevertheless reinforces is that the scale and ways in which information are now used are unprecedented, and that it is particularly in the way that technology has been appropriated to shape these functions that much novelty is to be encountered. In concluding this chapter, it is therefore important to return more generally to this interconnection between technology and society so that we are better able to understand how ICTs can effectively be used to enhance the livelihoods of poor and marginalised communities. In so doing, it is crucial to establish the specific interests that have driven the agendas associated with the practices characteristic of a society that is claimed to be an Information or Knowledge Society. It is also important to highlight the significant influence that such interests have thereby played in restructuring the relationships between individuals and states.

It is impossible to do full justice here to immense literature on the history of science and technology in general, and on the relationships between technological

and social change in particular (see for example Adas, 1989; Feenberg and Hannay, 1995; and McClellan and Dorn, 2006). Broadly speaking, this can be grouped into those who see technology as being a response to social and economic changes, those who see it as determining such changes, and those who claim that technology is somehow neutral. For our purposes, the fundamental debate is over whether, as Feenberg and Hannay (1995, p. 1) ask, technology is something that is ‘socially and ethically neutral, a product of rational problem solving,’ or ‘a kind of materialized ideology, a prop of the established society?’. The position that I want to develop in this book is that although technology has indeed been used by elites throughout history, and is therefore most definitely not something that is in any sense neutral, there is nevertheless the possibility that new ICTs can actually also be used to enable poor and marginalised communities to change their lives. The solution to this is not so much a technical one, but rather a moral one.

Such debates go back to ancient Greece, when the public sphere tended to exalt philosophy over technology (Feenberg and Hannay, 1995). However the development of a new kind of scientific enquiry in 17<sup>th</sup> and 18<sup>th</sup> century Europe is widely seen as shifting this balance. Indeed, many of these arguments were brought to the fore in debates over the links between demographic and agricultural change in the 18<sup>th</sup> and 19<sup>th</sup> centuries. Malthus (1766-1833) (1992), thus famously argued that population change was limited by the ability of a society’s technology to produce food, whereas Boserup (1965) in contrast suggested that rising population densities actually lead to technological change in agriculture. This is not the place to review this literature at length, but it is important to recognise the particular role that technology had in leading to the increasing dominance of European states in the global economy between the 16<sup>th</sup> and 20<sup>th</sup> centuries. McClellan and Dorn (2006) thus emphasise the way in which a series of technological innovations helped transform Europe from being a relative backwater in the medieval period to a position of global dominance in science and technology in the 20<sup>th</sup> century. The emergence of a particular connection between the scientific establishment and the creation of ‘useful’ technical innovations, especially from the 17<sup>th</sup> century onwards, thus provided important mechanisms whereby the emerging class of capitalists were

able to extract ever greater levels of production from the labourers that they employed. This was premised on the emergence of a particular model of science in which experimentation and hypothesis testing came to be the dominant mode of enquiry, leading to the creation of 'scientific' laws that could be used both for explanation and prediction. By the 19<sup>th</sup> century, this view of science became formalised in the positive philosophy of August Comte (1798-1857), which did away entirely with human subjectivity and instead argued that social and natural phenomena could both be subject to the same rules and methods (Kolakowski, 1972; Thompson, 1976). It was this positivist model of science that came to dominate the world in the 20<sup>th</sup> century, and thus provided the foundations for the research and innovation that shaped the development of modern information and communication technologies. As Pippin (1995, p. 43) has commented, 'It is an undeniable fact that a central feature in the history of Western modernization has been an ever-increasing reliance on technology in the production of goods, in services, information processing, communication, education, health care, and public administration'.

What is so significant about this is that until the end of the 19<sup>th</sup> century, even in Europe, let alone in other parts of the world, there were many different views of what knowledge was indeed concerned with, and of the relationships between epistemology (theories of knowledge) and science. Since then, there has been a gradual rise in European science's belief in itself, and this dominance of scientism, 'that is the conviction that we can no longer understand science as one form of possible knowledge, but rather must identify knowledge with science' (Habermas, 1978, p. 4) has meant that for much of the 20<sup>th</sup> century there was a damaging rupture between philosophy and science. For our purposes, this clear connection between science and technology on the one hand, and knowledge on the other is absolutely crucial, because of the significance that 'science' has therefore played in shaping the concept of 'Information' and 'Knowledge' Societies. Taking this further, Habermas (1978) argues that all societies have knowledge-constitutive interests, by which he means the connections between knowledge and human action. More formally, he suggests that 'Knowledge-constitutive interests can be defined

exclusively as a function of the objectively constituted problems of the preservation of life that have been solved by the cultural forms of existence as such' (Habermas, 1978, p. 196; see also Feenberg, 1991). In essence he argues that there are 'three types of knowledge-constitutive interests: knowledge which enables the human species to control objects in nature and thus produce the necessities of its material existence; knowledge which enables people to communicate; and derived from these two types, knowledge which enables the species to act rationally, to be self-determining and self-reflective' (Unwin, 1992, p. 30).

The emergence of post-modernism in the latter part of the 20<sup>th</sup> century sought to shatter the illusion of certainty that modernism in general, and positivism in particular, had conveyed, and in so doing challenged the overarching theories of those such as Habermas (for a wider discussion see also Heidegger, 1977; Arendt, 1958; Feenberg, 1991) who had sought to provide cohesive interpretations of our social condition (Harvey, 1989; Bauman, 1997). However, such arguments remain highly pertinent in understanding the interests that have lain behind the role of ICTs in an increasingly globalised world, and thus too in how it might be possible to use these technologies to serve the emancipatory interests of poor and marginalised communities. In essence, the dramatic expansion in the use of ICTs in the latter part of the 20<sup>th</sup> century can be interpreted as having been driven primarily by the interests of global capital, eager to expand both its labour productivity and its market. Technology, as in the 19<sup>th</sup> century, but vastly more powerfully in the form of computers, the Internet, television and mobile telephony, has thus helped both to increase the productivity of labour, and also to reach distant markets that had previously been inaccessible. These interests lie primarily, although not exclusively, in the hands of those who own the major global corporations, and the politicians in states that have sought to provide environments suitable for the accumulation of capital, notably through the enhancement of liberal democracy and a free market as described at the beginning of in this chapter. The hegemonic mode of scientific enterprise in the 20<sup>th</sup> century, has thus been supported both by states and the private sector to support this endeavour. As Habermas argued, these interests are primarily concerned with technical control, with issues to do with productivity of

labour, and above all with information. Significantly, Habermas also draws attention here to the importance of individual learning processes; information itself, as argued by Castells (2000a) becomes integral to the productive forces that a society accumulates. In many ways, therefore, this knowledge-constitutive interest can be seen as paralleling the emerging dominance of the concept of 'Information Technology' (IT) that occurred during the late-1980s and 1990s. The focus was primarily on using technologies to process and generate content and to develop systems capable of managing large amounts of information. The dominant interests in this context were the private sector not only in providing the technologies to manage this information, but then also in producing and selling content itself, as for example with e-learning resources. States too had a powerful interest in acquiring and managing information about citizens living within their territories, an emphasis that has continued to this day with ever more sophisticated technologies now being used to monitor their activities, from health service databases to digital surveillance systems. It can equally be noted that academics, eager to justify their continued existence, have been ready accomplices to such changes, both by applying their minds to innovating new ways in which information can be recorded, processed and managed, but also in advocating that this is a truly new departure, an Information Age, and thus worthy of study and debate.

Habermas's second type of knowledge-constitutive interest has a practical orientation towards understanding and communication, with a particular emphasis on language. This can be paralleled by the shift in focus that occurred during the late 1990s and the early 2000s to a concern not so much with information alone, but instead also to an understanding of the equal importance of communication. In a representational sense, this was reflected in the increased use of the term ICT, which many now chose in preference to IT, indicating the attention that was beginning to be paid to both communication and information. At a practical level this shift was enabled by the rapid expansion of mobile telephony and broadband connectivity, but more subtly it was also apparent in the greater emphasis placed on the value of networks and knowledge communities more widely. In part this resulted from a critique of what was seen as an over-emphasis on 'information', but it was

also underlain by a fundamentally different conceptual framework. This distinction, for example, can clearly be seen in the contrasting arguments and usage of the terms Information Society and Knowledge Society discussed in Section 1.2.1 above. Moreover, it was also, for example, reflected in a shift in the educational sector from a tendency primarily to use technologies to access information, to the placing of much greater emphasis on the value of collaborative learning through networks and the creation of knowledge communities. In part this shift in emphasis from 'information' to 'communication' was led by civil society and international organisations such as UNESCO, with its emphasis on culture and education, but there were also clearly economic interests in maximising the profits to be gained both from the human desire to communicate, and also from the potential that increased networking opportunities offered for productivity gains.

One of the key significances of Habermas's framework of knowledge-constitutive interests is his suggestion that each of the three modes through which we apprehend reality are grounded in different interests, are reflected in different social media, and are associated with different forms of scientific enquiry. In particular, Habermas derives his third approach from a critique of the previous two. He thus suggests not only that positivism 'directs the utilization of scientific information from an illusory viewpoint, namely that the practical mastery of history can be reduced to technical control of objectified processes', but also that hermeneutic science 'defends sterilized knowledge against the reflected appropriation of active traditions and locks up history in a museum' (Habermas, 1978, p. 316). Instead, he proposes that we engage in a critical science that encourages a form of self-reflection that will enable the systematically distorted patterns of communication in society to be revealed for the benefit of all (see also Habermas, 1984, 1987). It is with such an agenda that ICT4D is primarily concerned. Unlike IT and ICT where the main focus is on *what is* and *what can* be achieved, ICT4D is about *what should* be done and *how* we should do it. ICT4D therefore has a profoundly moral agenda. It is not primarily about the technologies themselves, but is rather concerned with how they can be used to enable the empowerment of poor and marginalised communities. This is a shared agenda, and

involves reflection on behalf of all those who aspire to make the world a fairer and better place. The challenge is to create effective partnerships that will enable this to be achieved. The remainder of this book explores how we might deliver such an agenda.

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### **Case Studies:**

- 1.1 Tim Unwin – voices of street children (Philippines, India and Ethiopia)
- 1.2 Richard Manning – experiencing development over the last 25 years

### **Figures**

- Figure 1.1: Children begging in Bihar, India
- Figure 1.2: 16<sup>th</sup> century maps – information technologies

- Figure 1.3: Medieval merchants communicating
- Figure 1.4: Internet users per 1000 population in Africa, 2004

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