# Unit One: Introduction to Knowledge, Communication and Development

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UNIT INFORMATION

Unit Overview
This unit gives an overview of the main trends underlying the emergence of knowledge, information and communication approaches as key aspects of development strategies to address poverty reduction and the Millennium Development Goals (MDGs). We examine what development means in the context of globalisation driven by a transformation of communication comparable in its significance to the industrial revolution. The unit also introduces the issue of how access to information and communication technologies (ICTs) relate to social inequality and exclusion and, in particular, the debate about whether globalisation and the spread of ICTs tend to aggravate inequalities and exclusion. This debate highlights the political nature of knowledge and technology and how their benefits depend on assumptions derived from different development paradigms or world views. Different development paradigms are discussed to provide a context for divergent approaches to the management of knowledge and communication for development. This discussion provides the foundation for examining in greater depth throughout the module, how the development community approaches knowledge management and communication technologies to exploit their possibilities for supporting positive social change and poverty reduction.

Unit Aims
- To discuss the expected contribution to the development of knowledge and communications as framed in MDG 8: Develop a global partnership for development.
- To introduce different perspectives on how knowledge, information and communication technologies (ICTs) can impact social inequality, exclusion and poverty reduction.
- To show how different development strategies that give a key role to knowledge and communications affect their approaches for the use of ICTs.

Unit Learning Outcomes
By the end of this unit, students should be able to:
- consider the limitations of Millennium Development Goal 8 in terms of its goals for development
- use key concepts related to the interpretation of the network society for identifying the role of knowledge and communication in social development
- evaluate the role of knowledge and communication in development strategies
Unit Interdependencies

This unit is the first of four that lay out the theoretical underpinnings of alternative approaches to mobilising and communicating knowledge for development. It reviews the contrasting paradigms of development that provide the context for different interpretations of knowledge discussed in Unit 2 and of how knowledge is structured by power relationships, discussed in Unit 3.
KEY READINGS

Section 1


This is a dense, theoretical essay on the network society but it has the advantage that it condenses Castells’ ideas — these are much more extensively discussed in his books to which you can refer if you wish to read more deeply into these ideas. We will return to Castells’ ideas in Unit 3 so it is worth mastering the basics from this essay.


This reading reviews the material covered in Section 1 and covers the main trends in development thinking about globalisation, the digital divide and the knowledge or network society. It should be read to deepen your understanding of these issues. It also provides material on ICT4D perspectives discussed in Section 2.

Section 2


This case study discusses the reasons why improving information and communication is important for small business enterprises in developing countries and how a change in communication technology affected relationships among different actors in a market chain. It is summarised in Section 2 and should be read for the full account of how the study was conducted and its findings. You will also use this case study to answer one of the final unit self assessment questions.
FURTHER READINGS


This reading provides a more detailed explanation of the case study discussed in Section 2 and should be read to provide more insights and factual material expected in answers to the assessment questions. You should be able to explain why this is an example of the ICT4D strategy and which of the limitations and potentials of ICT4D it illustrates.


This reading provides a critique of the mainstream view of globalisation as benign and explains the historical macro-economic trends that should be considered in an analysis of globalisation. It should be read in conjunction with the discussion in Section 1.


This is a straightforward fact sheet on MDG 8 that you should read to appreciate the way in which communications technologies are presented as part of a comprehensive bundle of technologies that should be transferred to developing countries to help meet the MDGs as a whole.
REFERENCES


1.0 THE CONTRIBUTION OF KNOWLEDGE AND COMMUNICATION TO DEVELOPMENT GOALS AND SOCIAL CHANGE

Section Overview

In this section we examine how knowledge and communication for development are treated in the Millennium Development Goals (MDGs). This calls for an analysis of the assumptions and limitations of MDG 8 in the context of ‘the digital divide’ since it sets development targets for information and communication technologies. We discuss these expectations in the context of globalisation and the ways in which electronic communication has come to be seen as the driver of novel kinds of social organisation and change in the information or ‘network’ society. This discussion provides the foundation for analysing the role of knowledge and communications in different theoretical paradigms for development in the next section.

Section Learning Outcomes

By the end of this section, students should be able to:

- discuss and critique the assumptions about communication for development defined in MDG 8: Develop a Global Partnership for Development
- explain the expanded definition of the digital divide and concerns about its contribution to increased social exclusion
- analyse aspects of globalisation related to poverty, inequality, and social exclusion
- describe ways in which electronic communication has come to be seen as the driver of novel kinds of social organisation and change in the ‘network society’

1.1 The Millennium Development Goals and unequal development

Throughout this module, the central hypothesis we will examine is that knowledge and communication are powerful drivers of positive social change that can be harnessed to make development strategies more effective in improving the life chances of the poor and in the reduction of poverty and inequality.

Before we explore theoretical perspectives on the contribution of knowledge and communication to development, it is important to have a picture of the role assigned to ICTs in the Millennium Development Goals (MDGs), a commonly accepted framework for measuring development progress adopted in 2000 at the United Nations (see 1.1.1, below). The MDGs are a commitment by governments to a series of major international development targets to be met by 2015 at an estimated cost of approximately US$40–70 billion of extra resources per year in international aid.
1.1.1 The Millennium Development Goals

The Millennium Development Goals (MDGs) are the result of numerous United Nations resolutions and conferences conducted throughout the 1990s. In 2000 the UN Millennium Summit produced a specific agenda for halving global poverty by 2015 signed by 189 countries. The MDGs have become a frame of reference for most organisations working in development and represent an agreement to co-ordinate and focus effort to achieve measurable improvement in international development, using 18 targets and 48 indicators, many of which reflect the human capabilities approach to development as a multifaceted improvement in human well-being. Each of the first seven goals addresses a specific aspect of poverty but the goals are intended to be mutually reinforcing in the aim to reduce all forms of poverty. Goal 8 specifically refers to ICTs as tools for reaching social goals.

Millennium Development Goals

1. Eradicate extreme hunger and poverty
2. Achieve universal primary education
3. Promote gender equality and empower women
4. Reduce child mortality
5. Improve maternal health
6. Combat HIV/AIDS, malaria and other diseases
7. Ensure environmental sustainability
8. Develop a global partnership for development: this goal includes making available benefits of new technologies, especially information and communications

Source: adapted from UN (2013b)

As you can see from the eight goals listed in 1.1.1, the MDGs give little explicit attention to knowledge and communications. However, MDG 8 ‘Develop a global partnership for development’ specifies improving access to information and communications technologies (ICTs) as a target. Since the MDGs were adopted in 2000, a broad significance has been assigned to ICTs: the current information on MDG 8 (Target 8F) aims for internet connectivity to the developing world to help realise goals for health, education, employment and poverty reduction (UN 2013a). Understanding the assumptions about the broad implications of communication for the MDGs is important when looking at communication for development interventions in education, health, governance, and in agriculture and the environment.

MDG 8 Develop a Global Partnership for Development and the technology transfer model of development

While there is no MDG specifically concerned with knowledge and communications, MDG 8 targets the establishment of global partnerships for development that include making widely available the benefits of new technologies, especially information and communication. The three indicators for Target 8F were specified as follows:
In cooperation with the private sector, make available the benefits of new technologies, especially information and communications. ...

8.14: fixed-telephone lines per 100 inhabitants.
8.15: mobile-cellular subscriptions per 100 inhabitants.
8.16: Internet users per 100 inhabitants.

Source: ITU (2013)

The extremely narrow way in which this MDG 8 target is defined illustrates an important characteristic of the way development thinkers approach knowledge and communications: the focus on the importance of increasing the supply of tangible communications technologies dominates MDG 8. This focus reflects a model of development in which technology transfer is the central strategy.

Even though the target identified in the MDG 8 indicators is narrowly focused on increasing the supply of ICTs, the development impact expected of information and communications technologies is broad, even hugely ambitious, and their expected impact extends to the health, education and environment MDGs. This is because ICTs are defined as an enabling factor as distinct from education and health which are ends in themselves (Unwin 2009). This expanded vision of ICTs as enablers of development relevant to the achievement of all the MDGs has been promoted by the United Nations with the argument that ICTs help to accelerate and multiply the effects of development interventions in almost all sectors. Radio, television, video, mobile phones and the internet are seen as powerful tools for scaling-up development interventions and outcomes inherent in the MDGs.

1.1.2 Expected benefits of ICTs

For the poor, some of the expected benefits of ICTs include:
- Access to educational resources.
- Access to medical advice.
- Access to agricultural technical assistance.
- Access to legal advice, government information and services, like land titling.
- Saving the costs of travel to distant schools, health centres or government offices.
- Learning about market prices in real time.
- Seeking buyers and bypassing middlemen.
- Access to novel financial services like mobile banking.
- Participation in new markets through e-commerce.
- Networking to strengthen local organisations and political participation.

Source: unit author
So, while the technology transfer strategy reflected in MDG 8 narrowly emphasises increase in the supply of electronic communications technologies, the expected outcomes for development are far-reaching. As we shall see in the following sections, the MDG aspirations for ICTs are rooted in a world view or paradigm that provides an underlying theory of change about how development can be promoted by knowledge and communication.

Which MDG is specifically concerned with communication?

**Answer**

*There is no specific MDG related to knowledge and communication. MDG 8 refers to making available the benefits of new technologies, especially information and communications technologies.*

ICTs are expected to contribute to economic growth although the empirical evidence for this contribution is scarce and heavily contested. It appears that a critical mass of ICT-related investment, knowledge and skills must be built up before a country can realise measurable economic gains attributable to ICT use.

A complication is that since the onset of the global economic depression in 2008, economic growth rates have fallen drastically throughout the developing world, excluding China and India. Slow growth may put a brake on consumer demand for new ICTs among the poor and on the investment in expansion of ICT access sought by MDG 8. Even though the relationship between economic growth and ICTs is still heavily contested, falling investment in and low rates of expansion of access to ICTs are widely perceived as potentially threatening to the achievement of MDG 8 because low rates of expansion in poor countries have the potential to create a vicious circle: poor countries start out being behind rich countries because of their limited access to ICTs; low growth rates lead to slackening ICT-related investment and use, and this constrains future economic growth in poor countries, leading them to fall even further behind. The gap widens between the rich who can afford ICTs and so compete in the global economy, and the poor who become increasingly technologically backward and unable to compete.

1.1.3, below, shows recent data from the United Nations (ITU 2013) on Goal 8, Develop a global partnership for development, ‘In co-operation with the private sector, make available the benefits of new technologies, especially information and communications’.
1.1.3 MDG update ‘Demand grows for information and communications technology’

Global ICT developments, 2000-2013*

Note: * Estimates.
Source: ITU World Telecommunication/ICT Indicators database

Inequality of access to ICTs threatens the MDGs: the digital divide

Given that economic growth is crucial to the MDGs, and that knowledge and communications are widely assumed to be important drivers of economic growth, there is broad concern that they may produce or aggravate existing social inequalities. Several aspects of this inequality, referred to as the digital divide, are significant (see 1.2.1, below).
Inclusive ICT-use is a critical issue because of the evidence from projects and case studies that the poor can use ICTs to increase their incomes. Even though significant impact of ICTs on macro-economic growth in poor countries is hard to demonstrate, on a small-scale, ICT-use can sometimes enable the poor to engage in new markets and obtain better market information leading to better sales opportunities and innovation. This seems to be especially the case in the informal sector of the economy and in rural areas where people are more likely to be isolated and information-deprived (Essellar et al 2007). So if ICTs improve opportunities for a select portion of the poor to increase their incomes, then the exclusion of large numbers of other poor people from ICT-use will create the possibility for even greater inequality. The digital divide is now understood as a form of inequality that not only separates rich and poor countries but as one that is also found within countries, including countries which are well-endowed with ICT infrastructure.

The United Nations Task Force on Innovation, Science and Technology argued in 2005 that the growing gap between haves and have-nots may fundamentally threaten the possibilities of achieving the MDGs:

‘... the gap between people with access to local and global networks and people without such access is widening. Narrowing this gap represents an enormous challenge. The means to meet this challenge are already within reach; failure to urgently and meaningfully exploit them may consign many developing countries, particularly least developed countries, to harmful and possibly permanent exclusion from the network revolution. Within the development community, there is growing awareness that failure to include developing countries in the ICT revolution will have serious consequences for achievement of the Goals. Harnessing the strategic and innovative use of ICT in development policies and programs may enable the world to meet the Goals. Without such technology, doing so by 2015 will be impossible.’

Source: Juma and Yee-Cheong (2005) p. 50.

Why is it important for progress on the MDGs that ICTs contribute to economic growth?

Answer.

Progress on the MDGs depends on increased rates of economic growth in poor countries. Expanded ICT access is expected to enable or accelerate economic growth. If investment in ICTs remains low and poor countries fall further behind richer countries in ICT-use, then they could find it difficult to compete in global markets and experience a handicap for future economic growth. It is feared that this could hold back overall progress on the MDGs.

1.2 The digital divide

This section looks at the spread and use of ICTs and the discussion of whether they are tending to diminish or aggravate inequalities and exclusion. We will look at the main dimensions of the debate about the digital divide and what this means for poverty reduction.
Defining the ‘digital divide’

The digital divide refers to the concern that global ICT expansion is bypassing a large proportion of the world’s population and leaving the poor behind. For example, household access to ICTs is more than 70 times greater in the USA than in India. Many poor people especially in Africa do not yet have access to a telephone line, even though mobile networks have been rolling out fast in many countries and regions. Research shows that past telephone rollout has had a significant impact on increasing inequality (Forestier et al 2002).

1.2.1 shows how a large gap separates those with high-speed internet connections, mostly in developed nations, and dial-up users, despite major changes in access to IT (1.2.2).

1.2.1 A persistent divide

As the number of broadband subscriptions worldwide — both fixed and mobile — takes off, the majority of internet users now access the internet over high speed connections. In the developing regions, mobile broadband penetration stood at 8.5% at the close of 2011, compared with 4.8% fixed broadband penetration.

Mobile technology and services have helped to overcome major infrastructure barriers and brought more people online. But there is an important broadband divide, between regions and between developed and developing countries, in terms of capacity, quality and speed. While in developed economies an increasing number of fixed broadband subscriptions provide speeds of above 10 Mbit/s, many subscriptions in developing countries are slower than 2 Mbit/s. Slow delivery limits the type and quality of applications and services that can be accessed over the Internet.

Mobile broadband technology helps to increase coverage and mobility. However, currently deployed mobile networks and providers usually allow only limited data access, often at lower speeds, making mobile broadband subscriptions unsuitable for intensive users, and in particular for businesses and institutions. This limits the potential and benefit of mobile broadband services when used to replace, rather than complement, fixed (or wired) broadband access.

Source: UN (2013b) p. 65.

Initial definition of the digital divide

When concern with the digital divide first emerged in the 1990s, analysis focused on ICT access. Historically, the divide between poor countries and the rest of the world in terms of per capita access to telecommunications and the internet has widened in absolute terms and is growing. The magnitude of the divide with respect to usage is still vast but significant changes have occurred during the past decade (see the table in 1.2.2). For internet usage:

- penetration as a percentage of population still varies widely between regions
- Africa still lags seriously
- nevertheless, the growth in usage in Africa and other poorer regions has been phenomenal
1.2.2 Internet usage statistics

<table>
<thead>
<tr>
<th>World region</th>
<th>Internet users 31 Dec 2000 (millions)</th>
<th>Internet users 30 June 2012 (millions)</th>
<th>Penetration (% of population)</th>
<th>Growth in users 2000–2012 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Africa</td>
<td>4.5</td>
<td>167.3</td>
<td>15.6</td>
<td>3606.7</td>
</tr>
<tr>
<td>Asia</td>
<td>114.3</td>
<td>1076.7</td>
<td>27.5</td>
<td>841.9</td>
</tr>
<tr>
<td>Europe</td>
<td>105.0</td>
<td>518.5</td>
<td>63.2</td>
<td>393.4</td>
</tr>
<tr>
<td>Middle East</td>
<td>3.3</td>
<td>90.0</td>
<td>40.2</td>
<td>2639.9</td>
</tr>
<tr>
<td>North America</td>
<td>108.1</td>
<td>273.8</td>
<td>78.6</td>
<td>153.3</td>
</tr>
<tr>
<td>Latin America/Caribbean</td>
<td>18.1</td>
<td>254.9</td>
<td>42.9</td>
<td>1310.8</td>
</tr>
<tr>
<td>Oceania/Australia</td>
<td>7.6</td>
<td>24.3</td>
<td>67.6</td>
<td>218.7</td>
</tr>
<tr>
<td>World Total</td>
<td>361.0</td>
<td>2405.5</td>
<td>34.3</td>
<td>566.4</td>
</tr>
</tbody>
</table>

Source: Internet World Stats (2013)

In the past decade, definition of the digital divide has expanded beyond differences in access and in ICT investment to include differences in the knowledge and skills required for effective use. Most analysts of the digital divide now agree that the divide involves a broader range of considerations than just access to technology. Today the term describes the gap between those who have access to ICTs AND the skills and knowledge to use them effectively, and those who may or may not have access, but in any case lack the necessary skills to use and really benefit from ICTs. More than physical access, the digital divide now refers to differences in education and ability to use the technologies as well as other factors like gender, age, and ethnicity that may be obstacles to effective use.

Effective access refers to having the physical availability of the tools and resources to afford them and participate in the global economy. For example, for you to have effective access, you need enough income to afford connectivity to the internet or a mobile phone AND the means to acquire the skills and abilities necessary to use the internet, including the language skills.

1.3 Globalisation, poverty reduction, knowledge, and communication

Before we examine different paradigms of development it is important to have a picture of some of the main patterns of social change they aim to harness and exploit in order to benefit the poor. In particular we need to have a picture of the dimensions of poverty and unequal development that different approaches to closing
the digital divide try to reduce or overcome. This picture is needed to put claims for the contribution of knowledge and communication to development into the context of globalisation and to understand the scope of the challenges. Efforts to accelerate the spread of ICTs and the high expectations about their contribution to development associated with MDG 8 are closely related to interpretations of their role in the process of globalisation.

**Globalisation** is a term that has become widely used since the 1980s to describe the contemporary process of global integration in finance, production, consumption, migration and the emergence of a global division of labour throughout the world. It refers to the expansion of global trade that powers the exchange of knowledge, culture and technology facilitated by the expansion of electronic communications. The term globalisation recognises that the economic and social significance of geographical location and distance are being fundamentally altered. Five aspects of globalisation are summarised in 1.3.1. Rapid evolution in the availability and scope of information and communications technologies are driving this change.

### 1.3.1 Five aspects of globalisation

Globalisation can be characterised in terms of five major flows or movements of resources that interact with each other:

1. **Flows of people**: people move within and across national boundaries as workers and consumers, changing the economic and social significance of what it means to be located in a given place.

2. **Flows of knowledge and information**: this consists of data, financial, scientific, cultural and commercial information including news. This flow is connected with the spread of ICTs.

3. **Flows of new technologies** for communication, production and distribution that have radically changed the global organisation of work and the distribution of wealth.

4. **Flows of financial resources**: this flow in daily volumes that exceed the total annual product of many countries is beyond the control of most governments.

5. **Flows of culture and social relationships**: images, ideas, values and beliefs are interchanged and shaped at hitherto unimaginable speed across enormous distances and no longer depend on face-to-face interaction.

Source: unit author

The impact of globalisation is widely debated. While there is no question that globalisation is occurring, there is fierce disagreement about its impacts and whether these are beneficial for human development (Poole and Penrose Buckley 2006, Milanovic 2003). This debate is a reflection of the way interpretations of globalisation are shaped by different world views and paradigms of development.

- From one perspective, globalisation reduces and removes barriers between national borders and facilitates the flow of capital and labour, knowledge and technology, goods and services and so is a positive force for economic growth and development that benefits everyone. This assumes that the positive effects of economic growth spurred by globalisation will gradually ‘trickle down’ through all levels of society and eventually reach the poor.
A view of the advantages and disadvantages of globalisation for the rural poor is given by Poole and Penrose-Buckley (2006):

*Globalisation* is associated with a range of technological changes in information systems and in the production, transformation and distribution of goods and services. Globalisation has many homogenising tendencies, but the impacts are by no means ubiquitous or even:

– the advantages of globalisation such as cheap, effective information systems are not equally available to the rural poorest;

– improvements in transportation and communications infrastructure are homogenising global demand and increasing the level of competition in product markets; however, the rural poorest are those least endowed in terms of essential physical and social infrastructure to be able to take advantage of these opportunities;

– increasing industrial concentration in the supply of agricultural inputs and services, in the purchase, manufacture and processing of rural raw products, and in the distribution channels of products to final consumers – in particular, the spread of the supermarketing phenomenon – are major factors affecting rural producers;

– increasing market competition and the proliferation and globalisation of health and safety concerns and social responsibility are increasing the business, ethical and environmental standards, increasing entry barriers, and worsening the terms of trade between poor rural areas and principal markets.’


A still more critical interpretation is that globalisation makes significant groups of people worse off because labour and capital flow so freely that the nation state can no longer defend its population against exploitation by foreign interests. Globalisation is not automatically beneficial to everyone: there are enduring barriers to poverty reduction because globalisation creates ‘winners’ and ‘losers’ and has a negative impact on the poor.

**What is meant by the term globalisation?**

*Answer*

Globalisation refers to the worldwide integration of trade, finance, production and consumption and the exchange of knowledge, technology and culture without limitations of space or time. It also includes the emergence of a global division of labour between educated, skilled workers who are in demand and can migrate to take advantage of good work opportunities and unskilled labour which is marginal to the global economy.
Can knowledge and communications technologies help to overcome the 'poverty trap'?  

For poor countries to 'catch up' and for their incomes to converge with those of rich countries, the knowledge and skills of their labour force have to be upgraded by developing technological capabilities through learning (Nissanke and Thorbecke 2006). ICTs are seen as having a vital role to play in this upgrading.

Some development theorists argue that ICTs create the opportunity for 'technological leapfrogging' meaning that heavy investment in ICTs will enable poor countries to bypass the intermediate stages of development and develop rapidly to a point where they can compete in the global economy and catch up (Hanna 2010). For example, 'leapfrogging' is an objective of efforts at educational reform that prioritise increasing computer use at all levels of education in the hope that internet-based e-learning will fuel a rapid expansion of educational opportunity. The aspiration to leapfrog is also reflected in efforts to use the internet for agricultural extension to introduce new production technologies and to create small business opportunities that allow the rural poor to compete in global markets (Unwin 2009).

The expanded definition of the digital divide as 'access to ICTs and the skills and knowledge to use them effectively' reflects the idea that upgrading skills, knowledge and learning among the poor and disadvantaged are critical to combating global trends of rising poverty and inequality. But how is this expected to happen?

- Advocates of benign globalisation expect market forces to take care of access to ICTs and of upgrading of skills among the poor. Over time, ICTs will spread, the required skills will become more common, and the digital divide will diminish along with poverty, as if guided by some 'invisible hand'. The rapid uptake of mobile phones among the poor in developing countries is seen to support this view.

- Critics of this mainstream view argue that markets will not automatically wipe out the digital divide because globalisation creates a poverty trap for the least advantaged in society. Evidence that mobile phone owners among the poor are generally better-off than the majority of users and that many of the poorest cannot afford mobile phones is seen to support this view. From this perspective, development interventions for increasing the use of ICTs need to incorporate specific, redistributive strategies to promote pro-poor applications (Nissanke and Thorbecke 2006).

? Why is investment in knowledge and communication technology, and specifically ICT-related skills expected to reduce poverty?

Answer

In the globalisation of the world economy, developing countries have to upgrade their labour force and competitiveness by developing their technological capabilities and knowledge. Skill upgrading is seen as crucial for a country to be able to benefit from globalisation and to generate the growth in income needed to make a significant reduction in poverty without making a (politically difficult) redistribution of wealth. ICT skills and, more generally, the use of the internet for e-learning are seen as important instruments for upgrading skills through education to improve competitiveness.
1.4 The network society

The concept of the network society is closely associated with interpretation of the social implications of globalisation and the role of electronic communications technologies in society. The definition of a network society given by the foremost theorist of the concept, Manuel Castells (2004 p. 3) is that it is ‘a society whose social structure is made up of networks powered by micro-electronics-based information and communications technologies.’ As Castells shows in his book, historically, there have always been social networks: the key factor that distinguishes the network society is that the use of ICTs helps to create and sustain far-flung networks in which new kinds of social relationships are created.

According to Castells, three processes led to the emergence of this new social structure in the late 20th century:

- the restructuring of industrial economies to accommodate an open market approach
- the freedom-oriented cultural movements of the late 1960s and early 1970s, including the civil rights movement, the feminist movement and the environmental movement
- the revolution in information and communication technologies

Castells’ analysis of the significance of these three processes (which can be followed in detail in the Key Reading by Castells for this section) provides a broad historical context for the development paradigms we will discuss in the next section. The significance of economic restructuring is that it created the conditions for the emergence of the open market development paradigm, weakening the nation state and deepening processes of social inclusion and exclusion between and within countries. The cultural movements were significant because they created the conditions for emergence of an opposing ‘human-capabilities centred’ development paradigm that focuses on human rights. The values of individual autonomy and freedom espoused by this cultural change shaped the open network structure for communication. As Castells concludes, ‘the culture of freedom was decisive in inducing network technologies which, in turn, were the essential infrastructure for business to operate its restructuring in terms of globalisation’ (Castells 2004 p. 22).

Clarke's PhD thesis (2008) concerned information networks in rural areas of Bolivia, and drew substantially on the work of Castells. She used a social network approach to analyse the agricultural information flows in rural Bolivia (see 1.4.1, below).
1.4.1 Information flows in Bolivia: a social network approach

Rural development processes involve complex networks of actors, with different areas of expertise and access to resources, often facing geographical and cultural constraints which limit the possibility of knowledge sharing and collaboration towards common goals. Promoting development requires strengthening linkages between actors in order to increase the flow of information and build social capital to encourage better coordination. Despite growing interest in the potential of ICTs for development, their role in facilitating communication for network strengthening has received much less attention than the technology debate around connectivity and the digital divide, or discussion of the benefits of improved access to information. Access to new technologies or information does not necessarily increase awareness of other actors who can provide the information or support necessary for development. The potential of ICT projects is therefore supporting rural groups to build linkages and embed themselves in wider network structures where they can access new resources and opportunities.

There are few empirical tools that explain how network structures influence development interventions. This thesis uses social network analysis (SNA) to visualise supply chain information flows and innovation processes in rural Bolivia. SNA was applied to three agricultural supply chains to represent information flows between different actors and demonstrate the benefits of a network approach over more traditional linear models. A second series of case studies applied this approach to innovation processes, introducing the concept of 2-mode network maps to visualise the relationships between actors and innovations. This research has generated empirical evidence of the utility of social network mapping as a diagnostic tool. Discussion of these results in the context of related ICT interventions demonstrates that visualisation of network relationships provides a powerful tool that help actors understand the concept of social capital in order to take advantage of the communication potential of ICTs’. (p. 2)

Using social network analysis software, Clark showed how different network structures, and the consequent information flows, varied in rural Bolivia. Examples of her network maps (pp. 194—196) which identify network structures by differences of gender and ethnicity are presented below:

5.2.3.1 Affiliation by gender and ethnicity

In order to further understand these structures it is possible to reduce the data further to examine how affiliation varies between men and women (Figure 5-19 & Figure 5-20) and within indigenous and campesino communities. Table 5-13 shows the division of respondents according to gender and ethnicity...

Table 5-13: Number of respondents by gender and ethnicity

<table>
<thead>
<tr>
<th></th>
<th>Indigenous</th>
<th>Campesino</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>Men</td>
<td>56</td>
<td>24%</td>
<td>104</td>
</tr>
<tr>
<td>Women</td>
<td>33</td>
<td>14%</td>
<td>41</td>
</tr>
<tr>
<td>Total</td>
<td>89</td>
<td>38%</td>
<td>145</td>
</tr>
</tbody>
</table>

In both Figure 5-19 and Figure 5-20 it is still possible to observe the strong division between indigenous and campesino groups. By examining how gender affects the network structure, it is possible to see which affiliations are specific to men and women. In Figure 5-19 the central node in the indigenous women substructure is the APG (Assembly of the Guarani People) with a secondary role played by Abatirenda and the women’s working group. For the campesino women the two most central nodes are the OTB (Territorial base Organisation ...) and the Producer’s Union. There are now only two similarities in affiliation between the two groups, the Mother’s Centre and the Association for Groundnuts, suggesting that for both ethnic groups, women are more involved in groundnut product than maize and pig keeping, as no female has ties to the maize group while pig keeping is peripheral to the campesino women’s group.
Figure 5-20 shows the affiliations of the men with both structures following the same pattern in terms of the most central nodes, however in the indigenous group Abatirenda, the maize collection centre now appears to be more influential than the APG and there is also an important role for the male working group. There are now three groups which bridge the two substructures, all related to production although, as discussed above, they do not necessarily show any formal affiliation between the two groups. Interestingly, although the Mother’s Centre no longer plays a bridging role between the two groups it is still mentioned by several men who consider themselves to be affiliated to this group. Moreover, its structural position has also changed as while female affiliates of the Mother’s centre also named the OTB, none of the men name both groups. Similarly the CARE women’s group is mentioned by more men than women suggesting that despite the relatively peripheral position of these groups they could be an important entry point for interventions in these communities.

Figure 5-19: Affiliation ties of females by community
Inclusion and exclusion in the network society

A key aspect of the network society concept is that specific societies (whether nation states or local communities) are deeply affected by inclusion in and exclusion from the global networks that structure production, consumption, communication and power. Castells’ hypothesis is that exclusion is not just a phenomenon that will be gradually wiped out as technological change embraces everyone on the planet, as in the case that everyone has a mobile phone, for example. He argues that exclusion is a built-in, structural feature of the network society.

In part this is because networks are based on inclusion and exclusion. Networks function on the basis of incorporating people and resources that are valuable to their task and excluding other people, territories and activities that have little or no value for the performance of those tasks (Castells 2004 p. 23). Different networks have different rationales and geographies of exclusion and exclusion – for example, Silicon Valley engineers occupy very different social and territorial spaces from criminal networks.

The most fundamental divides in the network society according to Castells (2004 p. 29) are the division of labour and the poverty trap that we discussed earlier in the context of globalisation. He characterises these as the divide between ‘those who are the source of innovation and value to the network society, those who merely carry out instructions, and those who are irrelevant whether as workers (not enough education, living in marginal areas with inadequate infrastructure for participation in global production) or as consumers (too poor to be part of the global market).’

Power and empowerment in the network society

In a social structure characterised by exclusion from and inclusion in different kinds of social and communication networks, power is a crucial determinant of social change. Power can be defined as the capacity to impose one’s will over another’s will. **In the concept of the network society, the chief form of power is control or influence over communication.**

This is because connectivity and access to networks are essential to the power of some social groups to impose their values and goals on society-at-large and of others to resist their domination.

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1.4.2 Power and empowerment? Cable networks in Dhaka, Bangladesh

© Nigel Poole

Source: unit author

In the network society, one of the most important impacts of globalisation is the way it enables us to create economic, social and political relationships that are less and less bounded by where we are located at any given time – or in other words, by our spatial location. In traditional societies, different social relations, customs, and culture exist in separate spaces and individuals have to conform to most powerful expectations and rules – for example, in families, villages, towns, cities, and nation states. In the globalising society, these spaces lose their power to constrain individuals: people can communicate without personal contact via the global net of mass media, phone, fax and computers and are less and less linked by a common history and shared face-to-face relationships. At the same time, pre-existing traditions cannot avoid contact with, or being influenced by, distant values and forms of knowledge.
How we interpret this change in the social significance of location depends on how we interpret ‘communication’.

- If communication is seen as a ‘one-way’ street, rather like a vaccination of new information into passive recipients who absorb novel information and ideas uncritically, then individuals and local communities can be disempowered by the communication of external knowledge and culture.

- If communication is seen as a process in which new information is actively interpreted and used selectively by the recipients who take an active role in shaping the meaning of the information, then individuals and local communities can be empowered by the inflow of new ideas. The possibility of developing innovative forms of communication and knowledge sharing is empowering.

This distinction between passive versus empowering communication is a central one for understanding how ICTs are used for development. Many critics of globalisation view it as an invasive force for cultural homogenisation promoting an inflow of information and knowledge that is becoming more uniform and standardised, due to powerful technological, commercial and cultural influences originating from centres of power and influence defining what constitutes information and knowledge and how it is shared.

A contrary view of the effects of globalising electronic communication is that although information and knowledge from major centres of power have an extraordinary level of predominance, communication is a two-way process: inflowing information is not just taken in uncritically; it is subject to local interpretation and innovative applications.

These two ideas are not mutually exclusive: it is not a question of one or the other. **One of the most important forces for change and development in the network society is the tension between the efforts of some networks to impose their values and goals and the efforts of others to resist their domination.**

Empowerment, according to Castells, is strengthened by social media including networking (such as Facebook) and social movements connected via the internet. He sees social media as evidence of trends within globalisation that promote cultural diversity, innovativeness and certain kinds of freedoms.

In this unit we aim to go beyond the concept framed in MDG 8 which sees the central issue as access to ICTs in order to focus on the social aspects of effective ICT-use. Our challenge in using knowledge and communications for development is not to determine the optimum methods of deploying equipment and cables. Instead, the challenge is to understand the ways ICTs can both empower and disempower different groups in society. This will require us to situate programme design firmly in the context of how different social groups define knowledge and make use of communication. To do this, we will need to understand the kinds of power relationships that are involved in communication and how these influence the kind of information communicated.

**What are the three most important forces that led to the emergence of the network society, according to Castells?**
According to Castells, three processes led to the emergence of this new social structure in the late 20th century: the restructuring of industrial economies by globalisation; the freedom-oriented cultural movements of the late 1960s and early 1970s, and the revolution in information and communication technologies.

In this section we saw how communication technologies are given an important role as enablers for building the knowledge and skills seen as critical for progress on the Millennium Development Goals (MDGs) and that in MDG 8 this perspective draws on a transfer of technology model that emphasises access to ICTs. At the same time, interpretation of the causes of the division between those who have access to ICTs and those who do not, known as the digital divide, has broadened to include the knowledge, skills and resources to use ICTs effectively. In general, a deep social divide between those who obtain knowledge and skills valued in the global world economy and those who are disadvantaged in this respect is a fundamental feature of globalisation and its contribution to the trend towards growing income inequality within and among countries. In the global network society, knowledge and communication are key resources for development. In the next section we look at how different theoretical paradigms define their role in development.
Section 1 Self Assessment Questions

Question 1

Why has the United Nations stated that ‘Within the development community, there is growing awareness that failure to include developing countries in the ICT revolution will have serious consequences for achievement of the MDGs’?

Question 2

What does ‘technological leapfrogging’ refer to and how are ICTs supposed to help poor countries achieve it?

Question 3

In the network society, how does the impact of globalisation on the structure of the global labour force contribute to exclusion?
2.0 DEVELOPMENT STRATEGIES

Section Overview
This section discusses how development paradigms have been translated into development strategies and programming that give a central role to knowledge and communications. The emergence of communication and knowledge ‘for development’ is presented and its main features are illustrated, with examples. Finally, the concepts of the most recent thinking in the approach termed ‘ICT4D’ are reviewed. In this section we will examine how development strategies draw on different development paradigms. In the previous section we examined the argument that the benefits of globalisation are neither automatic nor guaranteed, and that there are ‘winners’ and ‘losers’ – notably those on different sides of the digital divide. Development strategies that subscribe to this critique aim to construct a form of ‘pro-poor globalisation’ that will mitigate the harsh effects of globalisation. This aspiration explicitly shapes the use of ICTs and the roles of knowledge and communication in development.

Section Learning Outcomes
By the end of this section, students should be able to:

- identify how different development paradigms have been translated into development strategies
- explain differences among development strategies in terms of how alternative development paradigms assign contrasting roles to information and communication technologies in development
- use concepts from different development paradigms to explain the outcomes of development strategies

2.1 Communication and knowledge for development
Development paradigms have been translated into development strategies and programming that, increasingly, give a central role to knowledge and communications. A development paradigm is an explanation of how development change occurs whereas a development strategy refers to plans and approaches designed to bring about the desired change in society.

Just as, at any given time, there tends to be a dominant or mainstream development paradigm in the midst of debate about its chief ideas and assumptions, so there tends to be a predominant development strategy that guides practice. The main tendencies in recent development strategies are summarised in 2.1.2. In the 1950s development thinking concentrated on growth through industrialisation followed in the 1960s by a focus on the potential of technological change for spurring rapid growth. In the 1970s, the evidence of poverty that persists, even in the midst of great wealth, fostered concern for meeting basic needs through growth combined with redistribution.
2.1.1 Technology transfer? Dhaka, Bangladesh

The 1980s ushered in a period of disenchantment with public sector-driven development and saw enormous growth in the importance of NGOs in the delivery of development aid. In the 1990s, in tandem with growing adherence to the human-centred development paradigm, poverty reduction, livelihood improvement and sustainable development took centre-stage. Locally-based initiatives – termed 'community-driven development' by the World Bank – gained adherence as an alternative to top-down macro-level policies. At this time, participatory strategies gained attention and grew rapidly in popularity. The past decade has seen an increasing emphasis on the role of the free market and private-sector-led growth as the crucial engine of development with knowledge as a key factor and institutional reform as a key enabler. As 2.1.3 illustrates, one reason for these shifts in thinking about development is that development paradigms can be interpreted as a rationale for the interests of powerful interest groups: as the balance of power changes among different groups, so the dominant narrative about ‘how to’ conduct development also changes to accommodate a different set of interests.
2.1.2 The evolution of development thinking 1950s—2000s

- 1950s Growth through industrialisation
- 1960s Growth through productivity increases and technology transfer, e.g. the green revolution in agriculture
- 1970s Growth to address basic needs: Integrated Rural Development
- 1980s Growth and poverty reduction through structural adjustment (cutting public sector spending, abolishing subsidies, deregulating business, privatising previously state-run enterprises, and removing price controls)
- 1990s Poverty reduction and sustainable development emerge as important goals with stakeholder participation as a crucial strategy for achieving them
- 1999 Knowledge as a key driver of development becomes prominent on the agenda of donor agencies
- 2000s Market-oriented, private sector-led growth (especially in the knowledge economy) through expanding global market opportunities needing good governance; safety nets for the most vulnerable.

Source: unit author

These development strategies do not represent a ‘pure’ translation of one development paradigm into a given strategy because there is a process of cross-fertilisation and exchange of concepts among paradigms. For example, the notion that participation and participatory communication should be a central feature of development strategies has been widely adopted and mainstreamed by international and government agencies and NGOs involved in development. However, the way participation is interpreted and operationalised and the outcomes that are sought from using participatory approaches can be very different and these reflect the underlying paradigm or world view that guides the interpretation of ‘participation’.

2.1.3 A critique of development strategies: ‘kicking away the ladder’

Development strategies are recommendations for a set of ‘good’ policies, practices and institutions that should be adopted to foster economic development in developing countries. A critique by Ha-Joon Chang, Economist at the University of Cambridge, argues on the basis of a detailed review of historical evidence that developed countries did not get where they are now through the policies and the institutions that they recommend to developing countries today. Most of them actively used ‘bad’ practices that are frowned upon these days. For example, until the early 20th century, the developed countries protected their infant domestic industries and had very few of the institutions deemed essential for developing countries today, such as democratic political institutions, a professional bureaucracy, and a central bank. Indeed, when they were developing countries themselves, the developed countries had much lower-quality institutions than today’s developing countries at comparable levels of development.

Chang argues that today’s development strategies actually make it difficult for the developing countries to use the policies and institutions that allowed the now industrialised countries to develop economically in earlier times. This amounts to ‘kicking away the ladder’ with which Britain and the USA climbed to the top. He calls for a radical re-thinking of development strategy because there can be no ‘best practice’ that everyone should use.

Source: summarised from Chang (2002)
Communication and knowledge ‘for development’ emerged as a high-profile strategy for development in the late 1990s when the World Bank published the *World Development Report 1998–1999: Knowledge for Development* (World Bank 1998). Earlier the term communication for development had become widely used as a result of the widespread adoption of the sustainable development paradigm and its emphasis on effective media use to enhance stakeholder participation. Whereas communication for development was heavily focused on media use, ‘knowledge for development’ expanded this concept with the argument that, in the post-industrial, knowledge economy, codifying, managing and sharing knowledge is an input to development comparable in importance to financial and human capital inputs.

**Communication for development as a strategy**

Communication for development conceived within the human-centred view of sustainable development emerged in response to concerns about globalisation, the rapid spread of ICTs and fears that the poor were being bypassed. Communication was conceived as a participatory sharing of knowledge and information to support changes in attitudes and practices agreed among stakeholders. High importance was given to reaching poor and marginalised populations. In 2004, the United Nations Roundtable on Communication for Sustainable Development (FAO 2005) provided recommendations and a framework for including communication in development programming.

This framework emphasised dialogue and exchange that takes into account the needs and capacities of all participants through the use of the media. An important objective was the appropriation of the media and content by local stakeholders in development projects as a strategy for bridging the digital divide. Its main functions were seen as giving a voice to different stakeholders, making information understandable and meaningful (for example, for training and sharing of know-how) and generating support for new policies and programmes.

An important role for communication in development was the use of the media for social marketing – the sensitisation and education of large audiences at all social levels to the values and precepts of human-centred, sustainable development and the Millennium Development Goals. Although communication for development was focused on the use of communication media, it recognised that communication involves social relationships outside use of the media and that interpersonal communication had a role to play in networking and policy advocacy to support development goals. Development programming began to incorporate these ideas under a number of different terms including: development communication, ICTs for development, communication for social change and participatory communication.

**The ‘Knowledge for Development’ strategy**

Given definitive shape by the World Bank strategy launched in 1999, the basic premise of knowledge for development went far beyond the use of media. It stated that knowledge, not capital, is the key to sustained economic growth and improvements in human welfare and that therefore, most development problems should be approached in a new way – from the perspective of knowledge generation and exchange.
Information scarcity and knowledge gaps were defined as contributing to market failures, impeding efficiency and growth. The knowledge for development strategy was spurred by recognition of the risk that, with the rapid growth of knowledge as a key driver of development, the poorest countries and communities could fall more rapidly behind than ever before (World Bank 1998). Knowledge for development was expected to improve the lives of the poor in multiple ways: through better knowledge for health and nutrition, through information about environmental risks and hazards, through information about markets and credit, through enhanced access to information for education and through greater disclosure and transparency in government. Knowledge for development was thus defined as a strategy that would catalyse greater benefits for the poor across a number of development programme areas including education, health, the environment, governance, business and agricultural production. We can see this perspective reflected in the MDGs that were formalised a year later, in 2000.

In launching knowledge for development, the Bank’s strategy identified two key goals:

- addressing information problems
- narrowing knowledge gaps

Information problems include issues such as how to find a job, where to get a loan, how to get customers to pay their bills, how to meet product quality standards and comply with government regulations or legal procedures, and how to enter new markets.

Narrowing knowledge gaps involved three important activities needed to capture the benefits of knowledge for economic growth and improved welfare.

- Acquiring available knowledge.
- Improving human capital so that knowledge can be absorbed.
- Taking advantage of the new information and communications technology and ensuring the poor have access to it.

This definition reflects the broader redefinition of the digital divide to include skills and human capital as well as access to ICTs.

**Knowledge for development and the technology transfer model**

Knowledge for development incorporates important concepts from the modernisation and neo-liberal development paradigms, in particular, the importance given to knowledge and technology transfer. For example, the main emphasis of the knowledge for development strategy is on the benefits to be obtained from transmission of a vast and rapidly growing stock of globally available knowledge to the developing world. Poor countries do not need to recreate the existing knowledge of advanced countries, is the argument. Instead developing countries should seize the opportunity of acquiring already available knowledge. Although it was acknowledged that developing countries can only take advantage of the large stock of global knowledge if they adapt it to their own needs and circumstances, adaptation along with knowledge creation received relatively little attention overall.
Knowledge for development is mainly concerned with dissemination and exchange

This development strategy sees successful knowledge dissemination as heavily influenced by the policies and institutions needed for markets to function properly – such as policies to facilitate open access and exchange of information and knowledge. For the most part, reflecting the neo-liberal view of development, knowledge creation is seen as the job of business and to some extent, public sector research institutions. Governments have a key role as intermediaries in this process by setting in place policies that enable open access to information, to foreign investment and multinational business that will stimulate knowledge transmission and knowledge spillovers through training and exchange among business partners.

2.1.4 Mobile penetration, Ouagadougou, Burkina Faso

Knowledge creation by international organisations was also identified as important in closing knowledge gaps. International development institutions were assigned a key role in creating and codifying knowledge about development – about which policies and projects work and why. The goal of this knowledge management is to codify and exchange development experience internationally and to make it possible for developing countries to access and use it.

Thus, knowledge for development is firmly situated in the neo-liberal, pro-market view of development and carries forward a healthy dose of modernisation theory in its optimism that a stock of knowledge is already on the shelf and can be readily transmitted from advanced to developing countries. A benign view of globalisation is also central to the concept of knowledge for development which signalled the rapid expansion and falling costs of electronic communications technologies as setting the stage for a new leap forward in development. The capacity of telecommunications and computing to facilitate the transmission of knowledge anywhere in the world was
hailed in the World Bank report as offering developing countries unprecedented opportunities to widen the range of opportunities for business and the poor. As the report noted:

“One of the greatest hardships endured by the poor, and by many others who live in the poorest countries is their sense of isolation. The new communication technologies promise to reduce that sense of isolation, and to open access to knowledge in ways unimaginable not long ago.’


ICTs for development – ICT4D

The emergence of knowledge for development as a strategy is closely associated with the growth of organisations now wholly engaged with the use of ICTs for development and the development of new ICT applications to meet development goals – referred to as ICT4D or e-development. ICTs represent a wide diversity of technologies, not just the internet, as 2.1.5 presents. Together with the World Bank’s strategy presented in its report ‘Knowledge for Development’, several major initiatives were launched over the past decade including the Global Knowledge Partnership, the United Nations Task Force on ICT, and the DOT-Force, a collaboration among international aid organisations, national governments, industry and civil society members. The majority of international development organisations have since included projects focused on ICTs in their programming.

2.1.5 What are ICTs?

ICTs are not just the internet. The term refers to a wide array of technologies that can be used to capture and communicate information, both old and new. ICTs include conventional telephones (including public pay phones) as well as mobile telephones. Television and radio are also included. ICTs have been classified into different categories but are increasingly converging to provide multiple applications in a single piece of equipment. Examples include:

- internet, networks
- phones of all types
- television and radio
- cameras
- application software
- CD-Roms

Source: unit author

ICT4D originated from cross-fertilisation among proponents of the knowledge for development strategy, the ICT industry and development experts concerned about ICTs bypassing the poor. As a development strategy, ICT4D has much in common with knowledge for development with the difference that, instead of knowledge, ICTs are seen as the tangible entry point for leveraging benefits for the poor.

A vision of ICTs as a revolutionising development tool and a platform for an entirely new kind of development was deduced in part from the successes of fast-growing countries that adopted e-development policies in the late 20th century, including
India, China, Korea, Ireland, Taiwan, Malaysia and Finland. Their experience is cited as evidence of the market for ICTs catalysing unprecedented rates of growth that could enable poor countries to dispense with the early stages of industrialisation/modernisation and quickly ‘leapfrog’ and catch up with the rest of the world. Stimulating the penetration of ITC infrastructure, technologies and training to remote areas and the poor was perceived as a key stimulus to development and poverty reduction. Changes in internet usage in a very poor country, Burkina Faso, are presented in 2.1.6: the nine-fold rate of change between 2000 and 2009 is impressive, but the percentage penetration is still very, very low.

2.1.6 Internet usage statistics, Burkina Faso

Burkina Faso is one of the poorest countries in the world. Internet usage in Burkina has grown nine-fold in 9 years. By 2009 penetration had reached 0.9%.

Internet usage statistics: 140 000 internet users as of June 2009, 0.9% of the population, according to ITU.

Latest population estimate: 15 746 232 population for 2009, according to US Census Bureau.


Country area: 274 200 sq km.

Internet usage and population growth:

<table>
<thead>
<tr>
<th>Year</th>
<th>Users</th>
<th>Population</th>
<th>Penetration</th>
<th>Usage source</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>10 000</td>
<td>15 712 000</td>
<td>0.1 %</td>
<td>ITU</td>
</tr>
<tr>
<td>2007</td>
<td>80 000</td>
<td>15 264 735</td>
<td>0.5 %</td>
<td>ITU</td>
</tr>
<tr>
<td>2009</td>
<td>140 000</td>
<td>15 746 232</td>
<td>0.9 %</td>
<td>ITU</td>
</tr>
</tbody>
</table>

ITU—International Telecommunications Union

Source: Internet World Stats (2013)

Recently, the argument that market forces will drive ICT4D was boosted by the massive uptake of cell phones across the developing world. For example, the average growth rate in mobile subscribers in Africa from 2002–2007 was 49% per annum while the same figure for Europe was 17% (Jagun et al. 2008). The proposal that multinational companies should explore market entry at the bottom of the income pyramid (BOP) was mooted in a seminal paper titled ‘The fortune at the bottom of the pyramid’ that defined a target group of potential customers with incomes of less than US$1500 per year (Prahalad and Hart 2002). The paper argued that the multinationals were ideally positioned to fight poverty by selling to the poor. This contributed to an important shift in ICT4D by redefining the poor as customers rather than just recipients of aid. Mobile phone expansion in low-income societies, described in 2.1.7, showed how ICT technology can be sold to large numbers of poor people and contribute to their employment and income generation.
2.1.7 New customers

The World Resources Institute, a Washington-based environmental research group, published a report with the International Finance Corporation entitled ‘The Next Four Billion’, an economic study that looked at, among other things, how poor people living in developing countries spend their money. One of the most remarkable findings was that even very poor families invested a significant amount of money in information — communication technology. According to Al Hammond, the study’s principal author, this spending can include computers or land-line phones but in this segment of the population that is almost never the case. What they are buying, he says, are cell phones and airtime, usually in the form of prepaid cards. Even more telling is the finding that as a family’s income grows — from $1 per day to $4, for example — their spending on ICT increases faster than spending in any other category, including health, education and housing. ‘It’s really quite striking,’ Hammond says. ‘What people are voting for with their pocketbooks, as soon as they have more money and even before their basic needs are met, is telecommunications.’

Source: adapted from Corbett (2008)

Current thinking in ICT4D emphasises the importance of working simultaneously on policy, institutions and human capabilities to capture the full benefits of ICTs. Since 2000, a more sophisticated view of ICT4D has emerged in parallel with the redefinition of the digital divide, recognising that the physical infrastructure and technologies on their own can have little development impact if the intended beneficiaries perceive few advantages to expending scarce resources on them. To remedy this situation, beneficiary participation in defining ICT applications and uses has been injected into ICT4D. Participation requires the development of human capabilities.

Partner institutions also need to be changed so that participation becomes part of their agenda. In the ICT industry, participation is known as human-centred design, employed by high-tech companies to figure out what features will make cellphones or laptops appealing and useful to customers. Several companies like Microsoft and Motorola employ anthropologists to study customers who live in an urban slum or rural village and find out how and why they are likely to use ICTs. In public sector development practice, the use of participatory rapid appraisal (PRA) methodologies to sound out stakeholders on their goals for ICT projects is common. This practice is important for obtaining stakeholder buy-in to proposed development communication initiatives. Policies create the incentives for both private and public sector actors to reach out to the poor as customers and clients, and for the poor to invest in acquiring ICTs and related skills and knowledge.

We will now examine these aspects of development strategies with some examples.

2.2 Examples of information, knowledge, and communication for development strategies

Case study of the 'Knowledge for development’ strategy: Telenor and the Grameen Bank

This case illustrates a central concept in the knowledge for development strategy, that addressing information gaps is crucial for market success. It is an example of the type of public–private partnerships sought by MDG 8. The expansion of mobile
phone use in Bangladesh showed how an ICT technology that requires low levels of skill could be sold to large numbers of poor people and contribute to their income generation.

In 1997 Norway’s telecommunications company, Telenor entered into a joint venture with the Grameen Bank in Bangladesh to provide mobile telephony. Known for its success in providing microfinance to millions of the poor in villages throughout the country, Grameen Bank had, since 1976, developed a unique expertise in assisting micro-enterprise development for its poor clients. GrameenPhone was set up as a commercial company operated by Telenor with a purely commercial objective. Grameen Telecom was established as a separate interface with the Bank with the objective of maximising the number of jobs created for the poor in rural areas.

By 2006 GrameenPhone had more than six million subscribers and 60% of the market share in Bangladesh. Over the same period, Grameen Telecom had created more than 250,000 jobs for its ‘Village Phone Ladies,’ poor rural women who learnt to operate a mobile phone and use it to generate income. The Grameen Bank’s experience in providing loans and ensuring accountability contributed crucial knowledge to the joint venture on how to select suitable customers and make sure they paid their bills. But, more importantly, the Bank’s expertise enabled the venture to overcome one of the biggest obstacles to creating a market for mobile phones by leveraging complementary microfinance arrangements that allowed customers to convert future earnings into current financing for the purchase of a phone (Seelos 2008).

This experience illustrates the concept that market mechanisms on their own cannot be relied on to deliver benefits to the poor and the importance of designing a development communication intervention with specific pro-poor measures that address poverty reduction objectives. Because the Grameen Bank made mobile phone coverage of rural areas an objective, the joint venture set out from the very beginning to develop countrywide coverage. This turned out to be an important factor in making GrameenPhone successful in attracting customers from all socioeconomic strata in the country and in increasing their willingness to pay. Three other private sector companies that obtained licenses in Bangladesh at the same time, but without support from the Grameen Bank, were much less successful in building market share.

**Case study of ICT4D strategy: LinkNet, Zambia**

The following example illustrates the ICT4D strategy promoting the use of ICTs for development and the development of new ICT applications to meet development goals. This case is based on the information provided in Matthee et al (2007). LinkNet was set up in 2004 as a proof-of-concept pilot in one village to demonstrate the feasibility and benefits of taking telecommunication and internet connectivity to rural areas in Zambia. This was a first step in a US$2 million plan to roll-out internet services at 25 villages over three to five years and a further nationwide roll-out to 200+ rural sites. Partners included the Netherlands Organization for Applied Scientific research (TNO) and the Meraka Institute, a South African national ICT research centre that support LinkNet with training and technology.

The area of Macha, the pilot site in the Southern Province of Zambia, has a population of about 135,000. It is located 75 km from the nearest town and 350 km by road from the capital city, Lusaka. Dirt roads are the only link to other villages
and towns. The main occupation is subsistence maize farming and there are no commercial farmers or businesses in the area. The people are poor: average income in the village is US$1 per day, only a few households have electricity and life expectancy at birth is estimated at 39 years due to the prevalence of HIV/AIDS. The bus journey to the nearest town costs approximately US$7 and takes two hours. Infrastructure is limited but there is a mission hospital and a community centre. There are no fixed lines or optical fibre connections as Zambia's telecommunication operators consider this area unprofitable. The only communications link was an unreliable high frequency (HF) radio link that allowed the exchange of short messages and a very high frequency (VHF) system for voice communication with the main town. Mobile phone services were not available in 2004.

The ICT infrastructure technology was chosen to be as cheap and simple as possible: initially, it included a small aperture terminal (VSAT) satellite connection to the internet, a small-scale independent power supply complementing the mains power supply, a wireless local area network (WLAN) connection for PCs, a network server and PCs for training purposes. The network was designed to share the internet connection throughout the community with antenna mounted on rooftops or masts. The total infrastructure cost was US$120,000. Subsequently, this expanded to two VSAT satellite connections needed for redundancy because the VSAT connections go down from time to time. An air-conditioned IT room was established to host the PCs, routers, switches and servers. Open source software was used. The cost for the two VSAT connections total nearly US$1700 per month (roughly equivalent to a monthly income for 56 people in the village).

Within one week of initial training the LinkNet team was able to set up a mesh network providing internet connectivity to ten buildings including the hospital. They also set up an internet cafe. They discovered that many local people were interested in learning about the service but when they heard about the per-minute charges, they chose not to use it. Household connections were mostly used by teachers, hospital staff and international aid visitors. A study of internet usage found personal communication via e-mail and chat was the most common activity, but included e-learning and buying books and other goods not available locally. The usefulness of the internet connection in improving local access to information was demonstrated when a local farmer used it to find information about alternative crops. As a result, he introduced sunflower production successfully on his farm, selling the oil locally and generating enough additional gross income to feed his family of 11 people for a year and using the residue from oil extraction as a supplementary pig-feed. During the village's 2006–2007 production season, local sunflower production increased ten-fold. LinkNet also set up a data entry service for a company based in the USA done entirely through the internet. Approximately 20 local people were employed, demonstrating the potential for employment generation. Use of the ICT service by Macha's hospital improved the number of people receiving HIV/AIDS care and preventative services. Locally trained ICT experts supported an electronic patient information system and care providers used the internet to find information that improved the quality of care and the supply of medicines.

The project faced several technical problems. Bad roads meant the equipment arrived at Macha in bad shape, with more than half the computer hard disks dead on arrival or failing. Repairs could take several months as components were not available locally. The second, Ku-band VSAT had practically no connectivity during office hours and, in general, the connection suffered from traffic overload leading to
low throughput and long delays. Administration of the network and customer relations was done on the Intranet but faced difficulties due to the low level of IT expertise available locally. Moreover it proved difficult to run a viable billing system. A major problem was the instability of the power grid, causing regular outages and high voltage spikes that damaged the power supply equipment, routers, motherboards, memory chips and computer hard disks. No good quality batteries were available in the country to provide backup. High temperatures and dust also damaged a large number of computers and affordable hard disks were difficult to source.

**Case study of ICT4D strategy: The Impact of Mobile Telephony on Micro-Enterprise in Nigeria**

This case analyses the impact of mobile telephony on the supply chains of one micro-enterprise sector: the cloth-weaving sector in Nigeria (Jagun et al. 2008). It specifically looks at the question of whether the improved communication made possible by mobile phones was empowering for the small producers at the bottom of the market chain.

Availability, quality and the cost of information as well as the ability to communicate information are critical aspects of small business undertakings. In developing countries buyers and sellers can suffer from information uncertainties. They may not know who to trade with or the appropriate prices and have information problems because communication traditionally has to take place face-to-face. This means trade may be slow and risky because accurate, timely information is hard to come by and it is difficult for small businesses to trade outside their immediate locality.

These problems are often addressed by intermediaries (or middlemen) who are usually in a powerful position because they command better information than other actors in the market chain. As a result, intermediaries can impose higher prices on buyers and sellers and often impose loans with high interest rates on sellers. Mobile phones help small businesses to obtain accurate information about prices making trading less risky and can help to speed up trading and make it less costly if travelling to obtain information can be reduced. This means that small business operators can be empowered – increasing their ability to go around intermediaries – or to negotiate with them for better prices and a higher share of the profits in the market chain.

The market chain in this case study involves the trading of hand-woven cloth called *aso oke*, used for ceremonial occasions by the Yorùbá people of south-western Nigeria. Weavers, buyers and intermediaries are geographically dispersed in this market chain: weavers travel long distances to intermediaries to see if they have orders, intermediaries travel to weavers and to buyers to make orders. The net result is that weavers’ income and buyers’ profits are squeezed down by intermediaries who manage the costs of all these transactions.

In the study area there were no fixed telephone lines so all telephone communication depended on mobile telephones. About one-quarter of the weavers had mobile phones and used third party phones available in street phone-call vendors; all buyers and intermediaries had mobiles. Mobile phones were especially important for helping all actors to avoid unproductive and costly travel. However, journeys were still required for physical inspection of the cloth to be traded.
The study finds that a new kind of competitive divide was emerging as a result of mobile phone use, a reflection of the digital divide. One impact of mobile phones was that weavers who had no phone were losing out on making orders which were being transmitted by phone to weavers who own a mobile. In fact the mobile phone facilitated the emergence of a new kind of intermediary who has a mobile phone and manages the relationship between other weavers without mobile phones and the buyers. This new, phone-owning intermediary is able to co-ordinate and manage bigger orders than traditional intermediaries and was a gainer from the mobile phone. The study concludes that unequal access to information and, ultimately, the inequalities of power between intermediaries and weavers were at least maintained by mobile phone use, and in some cases reinforced.

**Development paradigms and the case studies**

The modernisation paradigm of development put forward the transfer of technology model that is still reflected in MDG 8 and in the ICT4D strategy, both heavily focused on the transfer of communications technologies. This approach and some of its advantages and limitations are illustrated by the LinkNet case study: on the one hand, access to the internet brought new information and skills into the remote community that stimulated new ways of farming and created new employment opportunities. On the other hand, the cost of the service made it unattractive to many poor members of the community and, while the study does not give information on LinkNet’s impact on inequality and poverty, it is not clear that the service benefited the more disadvantaged. This illustrates the risk of many ICT4D and technology-driven communications interventions, of reinforcing and even deepening the digital divide and the social inequalities it reflects – if definite strategies are not employed to reach the poor.

The transfer of technology model has been modified in post-industrial and neo-liberal thinking as expressed in the knowledge for development strategy. Investment in technology transfer has to be accompanied by the knowledge and skills needed for the poor to make effective use of ICTs. While market forces are of pre-eminent importance, pro-poor benefits can be obtained by organising public–private partnerships. The Grameen Bank played a critical role in providing this knowledge: by selecting suitable customers from among the poor, providing loans so they could purchase mobile phones, and using its experience with social accountability in microfinance to make sure poor customers and loan recipients paid their bills, thus removing much of the risk for the private sector partner in reaching out to service the poor as customers.

Dependency theory argues that transfer of technology and knowledge from developed to developing countries is likely to increase economic and cultural dependency and impoverishment of those on the periphery of the global economy. Nonetheless, communication and information have an important role in helping the poor and disadvantaged to understand and contest dependency. The human capabilities approach builds on this theoretical foundation with the argument that development involves the freedom to choose among and the agency to act upon a broad range of human rights and opportunities, and requires empowerment of the poor. The case study from Nigeria illustrated that, although mobile phone use and improved access to information had the potential to empower small producers at the bottom of the market chain, in fact it was creating a new kind of competitive and
social divide, between the approximately 25% of producers who could afford to own mobile phones and quickly access information about new orders and the remainder who could not. Mobile phone use also stimulated the emergence of a new group of mobile-phone-owning intermediaries who began to co-ordinate orders and who appeared to be gaining even greater power over producers who were dependent on an intermediary for phone orders than the traditional intermediaries. Broad-based empowerment of small producers would require a strategy to make sure all small producers could afford mobile phones and had the knowledge and organisation to use them.
Section 2 Self Assessment Questions

Question 4

How does the ‘communication for development’ strategy attempt to bridge the digital divide?

Question 5

What new idea did the knowledge for development strategy add to communication for development? How important is knowledge creation and what are the roles of the private sector and government in knowledge creation according to the knowledge for development strategy?

Question 6

Why does current thinking in ICT4D emphasise working simultaneously on policy, institutions and human capabilities to capture the full benefits of ICTs?
UNIT SUMMARY

In this unit we saw how communication technologies are given an important role as enablers for the Millennium Development Goals (MDGs). We discussed how MDG 8 is narrowly defined and reflects the technology-centred, ‘transfer of technology’ model of how knowledge and communication contribute to development. However, as understanding of the digital divide has broadened, so has interpretation of the role of ICTs in the MDGs expanded to embrace a broad set of development programming areas that reflects a more human-centred development paradigm.

We discussed how a deep social divide between those who obtain knowledge and skills valued in the global world economy and those who are disadvantaged in this respect is built into the process of globalisation. The case was discussed with examples, that the benefits of improving knowledge and communications are neither automatic nor guaranteed by pure market interventions. Instead, they require development interventions that include strategies to ensure that benefits reach the poor and explicitly shape the use of ICTs and the roles of knowledge and communication in development with this end in view.
UNIT SELF ASSESSMENT QUESTIONS

Question 1

Discuss why this statement from your reading for Section 1 from Unwin (2009) might be correct or incorrect, using the information in Table 1 of Section 1 and Figures 2.3 and 2.4 on page 29 of the reading: ‘The integration of ICTs more widely into the ‘globalisation project’ may have actually led to an accentuation of inequalities rather than their reduction’ (Unwin 2009 p. 26).

Question 2

Analyse in your own words the approach to development that guided the way ICTs were used in the LinkNet (Zambia) case presented in Section 2 and what advantages or limitations did LinkNet encounter as a result?
KEY TERMS AND CONCEPTS

agency  a person’s power to pursue their desired goals

capabilities approach  rather than merely low income, this perspective sees poverty as deprivation with respect to capabilities for political freedom, economic opportunity, social opportunities, transparency guarantees and protective security. Each of these helps to advance the general ‘capabilities’ of a person

dependency theory  dependency theory states that the development of the industrialised economies in the West required the exploitation of less developed societies and so created and prolonged their underdevelopment. The rise of capitalism generated an intrinsic division between rich and poor countries as well as between the rich and poor within developing countries

development paradigms  widely-held world views rooted in different sets of values and beliefs that are used to explain historical patterns of desirable social change. A development paradigm is an explanation of how development change occurs

development strategy  refers to plans and approaches designed to bring about the desired developmental change in society

digital divide  refers to the concern that global ICT expansion is bypassing a large proportion of the world’s population and leaving the poor behind. The digital divide includes not only inequality in access but inequalities in the knowledge, skills and other resources required for people to be able to use ICTs. The digital divide not only separates rich and poor countries but is found within countries, including countries which are well-endowed with ICT infrastructure

empowerment  improvement in a person’s agency particularly having the power of participation in action to effect social change

globalisation  global integration in finance, production, consumption, migration and the emergence of a global division of labour throughout the world. Powered by the expansion of global trade, globalisation involves flows of people, technologies, financial resources and the exchange of knowledge and culture facilitated by the expansion of electronic communications

MDG 8  this Millennium Development Goal entitled ‘Develop a global partnership for development’ specifies improving access to information and communications technologies (ICTs) as a target
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<tr>
<th>Term</th>
<th>Definition</th>
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<tr>
<td>neo-liberalism</td>
<td>a policy perspective that espouses free markets as a means of promoting economic development</td>
</tr>
<tr>
<td>network society</td>
<td>a society whose social structure is made up of networks powered by micro-electronics-based information and communications technologies. The key factor that distinguishes the network society is that the use of ICTs helps to create and sustain far-flung social networks in which new kinds of social relationships are created</td>
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<td>participatory approach</td>
<td>an approach that prioritises involving stakeholders in decision-making for planning, implementation and evaluation of development change</td>
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<tr>
<td>poverty trap</td>
<td>a situation of being unable to escape poverty</td>
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<tr>
<td>power</td>
<td>the ability or capacity to perform or act effectively on one’s own behalf. Power also comprehends the ability to compel others to do one’s bidding even against their wishes or interests</td>
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<tr>
<td>technological leapfrogging</td>
<td>the notion that areas which have poorly-developed technologies and economies can move themselves forward rapidly to a state of advanced ICT-application without going through intermediary steps</td>
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<tr>
<td>transfer of technology model</td>
<td>more developed societies or groups or more educated individuals within countries transmit their knowledge and technologies to less developed societies or groups or individuals who are expected to adopt whatever is new to them</td>
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