

Are ICTs prerequisites for the eradication of poverty?

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This chapter provides a philosophical analysis of the claim that information and communication technologies (ICTs) are necessary preconditions for the eradication of poverty. What are the links between ICTs and poverty? First, technology is defined and then a brief depiction of ICTs is given. Thereafter, poverty is defined and a brief explanation of its context and causes is given. Then follows a discussion of the relationship between poverty and ICTs in three paradigm cases: (a) the role of ICTs in poor societies; (b) the effect of poor ICT knowledge and skill of individuals in highly developed technological societies; and (c) the impact of impoverished ICT knowledge and skills on the rich, powerful and intelligent in society. A procedure is proposed for decision making about the appropriation of ICTs by individuals and societies. The chapter closes by assessing the claim that both access to ICTs and their effective use are preconditions for the eradication of poverty.

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Introduction

Everyone who is familiar with the development of information and communication technologies (ICTs) over the past few decades is amazed at the spectacular progress made in designing new, more powerful technologies with an ever wider range of useful applications. For example, to observe the ICT-automated production of motor vehicles or to draw cash in different countries from one's own bank account through ICT-enabled automatic teller machines leaves almost anyone astonished at the precision, speed and effectiveness of these powerful technologies.

As with most new pioneering technological innovations in the past two centuries, such as telephones, automobiles, radio and television, the availability of, access to and effective use of ICTs are unevenly distributed both within countries and between them (Compaine, 2001:102). The expression, "the digital divide", describes uneven access to, and use of, ICTs throughout the world, both within and between countries (Bolt & Crawford, 2000:20, 98). Many people regard the digital divide as a matter of serious moral concern, as they judge that people without proper access to ICTs in today's interconnected global village lose out on important economic and social opportunities to secure their survival and improve their quality of life.¹

Is this judgment correct? Has proper access to ICTs become a precondition for survival and flourishing in our world today?² If this judgment is correct, it would imply an empirical claim that every poor person in whichever part of the world needs one or more of the following – a computer, television, radio and mobile phone – as a pre-

requisite for eradicating his or her specific case of poverty. Somehow such a claim seems to fly in the face of our common sense judgments about the eradication of poverty in many areas of the world.³ Informed people everywhere deem that poor people need proper jobs with adequate income to escape poverty. If such income is sustained over time, basic necessities such as decent housing, sufficient food, proper shelter and appropriate clothing can be acquired. This solution was good enough to eradicate poverty throughout most of our known history. Thus, are ICTs really a prerequisite for the eradication of all cases of poverty?

One could approach this topic from another angle. Sometimes poor people need fitting skills and the right kind of training to be able to get a job. At other times, their country's economy must grow and diversify to offer opportunities they qualify for. But do poor people need ICTs as such to eradicate their poverty, i.e. to get rid of their poverty at its roots? Does their society necessarily have to employ ICTs to make a success of their income-generating activities so as to be able to offer employment to all citizens?⁴ Is our contemporary world so different from all previous human worlds that we now require ICTs for our mere survival?⁵

In this chapter, I want to provide a philosophical analysis of the claim that ICTs are a necessary precondition for the eradication of poverty in our world today. I will ask questions like the

¹ Some warn that the Internet could amplify the social differences rooted in class, education, gender and ethnicity (Castells, 2001:260). Current evidence suggests that in the first decade of its existence, the Internet has therefore reinforced existing economic inequalities (see Norris, 2001:66; Moss, 2002:162). Note the deep concern of the G8 Heads of State who set up the Digital Opportunity Task Force to identify ways in which the digital revolution can benefit all the people of the world (DOT Force, 2001).

² Castells (2001:269) thinks not being connected to the Internet is "tantamount to marginalization in the global, networked system. Development without the Internet would be the equivalent of industrialization without electricity in the industrial era".

³ In 1973, E.F. Schumacher could still suggest that "there is nothing in the experience of the last twenty-five years to suggest that modern technology, as we know it, can really help us to alleviate world poverty" (Schumacher, 1973:123). See also the relative absence of ICTs among the solutions to the ten most urgent global challenges, as identified by the Copenhagen Consensus in 2004 (see <http://www.copenhagenconsensus.com>).

⁴ These questions about the role of technology in development have often been asked in the past, as technology has always held promise as an engine of economic growth for transforming developing nations (Norris, 2001:6).

⁵ Note how the change in the work situation is described: "The large-scale introduction of computers into the workplace has changed the very nature of many jobs from hands on to computer-aided or controlled processes requiring an entirely different skill set" (Bolt & Crawford, 2000:53).

following: What are the links between ICTs and poverty? Can poor people appropriate ICTs and thereby hasten the eradication of their poverty? Can lack of knowledge about, and skill in the use of, ICTs cause people to become or remain poor?

To answer these broad questions, I will first define technology and then give a brief depiction of ICTs. Thereafter, I define poverty and give a brief explanation of its context and possible causes. Next, I discuss the relationship between poverty and ICTs in three paradigm cases:

- The role of ICTs in poor societies
- The effect of poor ICT knowledge and skill of individuals in highly developed technological societies
- The impact of impoverished ICT knowledge and skills on the rich, powerful and intelligent in society

In a final section, I will propose a procedure for decision making about the usefulness of the appropriation of ICTs by individuals and societies. I conclude by assessing the claim that both access to ICTs and their effective use are preconditions for the eradication of poverty.

What is technology? And ICTs?

What is technology? Technology is the art and craft, i.e. the smart use of human rationality and the intelligent development of specialised bodily functions, to design and develop skills and techniques and fabricate artefacts. We use these skills, techniques and artefacts for making and doing things necessary for our survival or useful for our flourishing. This means we develop and use technology to ensure the material necessities for us to survive and acquire the comforts of life for us to thrive. Technology provides us with means, tools and instruments for realising the fundamental goals we as humans set for ourselves.⁶

Through technology we optimise our human potential in a diversity of daily activities. We apply our technological skills to improve our efforts to produce food, make clothing, construct buildings, transport ourselves and our belongings, communicate with others, provide medical

care, and defend ourselves and our society (Jonas, 2004:24). The kind of technology available in a society is affected by the materials and instruments readily accessible, the amount of financial means available for investment, the number and quality of skilled and knowledgeable people, and the kind of ideas in circulation that might stimulate or suppress innovation and receptivity to new ideas (Kaplan, 2004b:xiv). We typically evaluate our technological products by:

- Their effectiveness, i.e. whether they serve the purpose we had in mind, or produce the desired or intended results
- Their efficiency, i.e. whether they work productively with a minimum wasted effort or expense.⁷

How do ICTs fit into this definition of the nature and role of technology? What we currently refer to as ICTs are based on a variety of analogue and digital technologies that give us telephones, radios, television and computers. My focus is on digital technologies, as these computer-based technologies are either the cause of worldwide concern about their effects that reinforce existing inequalities, or the reason for excitement about the promise that they might yield important solutions to get rid of crushing poverty.⁸

One possible definition of a computer, the

⁷ Note how McNamara (2003) states this point: "The measure of any tool or process is whether it answers a need in the most efficient fashion, relative to other options, given existing constraints."

⁸ McNamara (2003) articulates both the promise and threat of ICTs: "The hopes engendered by the new technologies and networks had as their mirror image a fear that differential access to these tools and innovations would increase inequality, further handicap the poor and disadvantaged, and deepen (perhaps irreversibly) the economic decline, social instability, and environmental degradation of poor communities and countries. Concerns about a digital divide and about its economic and social implications first appeared primarily in the United States, an expression of the growing awareness that access to the Internet and the broader economic and social opportunities it represented mirrored – and threatened to exacerbate – existing economic, social and ethnic divides within American society. Yet quickly the concept – and the concern – took on a broader global dimension, as analysts and policy-makers focused increasingly in the late 1990s on how the spread of a global Internet-enabled economy held the risk of leaving the poor behind."

⁶ See Kaplan's (2004b:xiii–xiv) remarks on the difficulties of defining technology.

symbol of digital technology, is provided by the *Concise Oxford English Dictionary* (COED, 2004):

An electronic device capable of receiving data and performing a sequence of logical operations in accordance with a predetermined but variable set of procedural instructions (a program) to produce a result in the form of information or signals.

This definition points us in several directions that make deeper understanding of this technology possible. An “electronic device” points to the fact that computers are designed, need maintenance and require a constant flow of electricity. “Capable of receiving data” means that this technology can only deal with particular kinds of problems through receiving certain kinds of “material”, i.e. so-called “input”. Input here refers to matters that can be presented to a computer in the form of data, i.e. information offered in specified formats to be processed.

Data input is processed by “performing a sequence of logical operations in accordance with a predetermined but variable set of procedural instructions (a program)”. To do something useful with data requires people who are capable of designing programmes that convert the input according to the requirements of the people in need of the computer’s functions. The conversion of input leads to output “in the form of information or signals”. The output must be a result useful to some detailed aspect of one or more of our fundamental human goals related to survival or flourishing. Again, output can only be meaningful if there are people to understand and interpret it, or people who can connect and convert such output to other technological processes reliant on information or signals for their effective functioning.

Two issues follow from this discussion of a possible definition of a computer. The first issue concerns the kinds of problems that ICTs can address, and the other issue is the prerequisites for sustainable, productive use of ICTs. The definition of ICTs implies that ICTs embody very specific kinds of advanced technologies that are applicable to, and useful for, particular problems only. What are the kinds of problems that are amenable to ICT solutions? The spectacularly fast development of this technology in less than a century has enabled us to use its wide range of applications for a variety of functions. As technology, ICTs function as instruments, means

and tools to accomplish some of our fundamental goals related to our survival and flourishing.⁹ So, what are the kinds of things that these technologies empower us to do better, faster, more productively, and perhaps more economically?

ICTs have overlapping functions, which can be dissected and classified as follows:

- A *calculative-financial* function in which ICTs calculate complex mathematical formulae, do sophisticated statistical computations, and perform intricate financial transactions
- An *administrative* function in which ICTs enable us to keep track of how we organise aspects of our dealings with the world and one another, such as business transactions, academic records, lending and returning books in libraries, recording climate patterns, or managing livestock on farms
- An *information* function that enables us to store and retrieve all kinds of information in large quantities, such as encyclopaedias and expert databases
- An *automation* function by which manufacturing, operational, design and administrative processes are taken over from human labour and done automatically by the superior programmed functioning of ICTs, such as the manufacturing of automobiles
- A *communication* function through which human communicative abilities are extended, such as electronic mail and text messages, websites and cellular telephone technology
- An *entertainment* function through which ICTs provide us with almost endless possibilities for playing games, watching movies, listening to our favourite music, and taking and manipulating as many photographs as we wish

These functions can be combined in various ways, for example, to facilitate education in the schools and universities, and enable more efficient management in corporate and public enterprises.

ICTs also require that certain preconditions are met for them to be usable. To be able to access and utilise the functions of ICTs requires several other technologies and skills as prerequisites. For

⁹ McNamara (2003) says that “to the extent that ICTs can help achieve those other goals, they are a worthwhile tool of development efforts, but they remain tools, not goals”.

example, the definition above refers to a computer as an electronic device, which means that a constant supply of electricity is needed to operate a stand-alone personal computer. A telecommunication infrastructure is necessary for full use of the Internet, mobile phones and digital television. Similarly, basic literacy and adequate acquaintance with the mindset of software functioning are needed for minimally competent use of these technologies. For more advanced uses of ICTs, more sophisticated skills are needed.

There is not a single standard way in which to utilise ICTs. Almost all ICTs can be used at a wide variety of different levels. They constitute a set of multifunctional technologies that can be used at many levels for a variety of purposes by users with a varying range of skills. For example, some people with basic literacy skills use a personal computer as an electronic typewriter for their personal communication. Others, like highly trained physicists, also use their computers for complex mathematical modelling of stellar phenomena. In whatever depth or functionality a person uses ICTs, the crucial question for any technological innovation remains: Does this innovation help us do some things more productively or more efficiently and thus add more value to our lives? The use of ICTs in a specific society exposes its level of technological modernisation. To judge the level of technological modernisation one must note the following:

- The quality of the electrical and digital infrastructure and the competence of people trained in the use of ICTs show the possibilities for effective utilisation of ICTs in that particular society.
- The range of ICT functions applicable to, and useful for, societal functioning exposes the extent to which a society depends on state-of-the-art technology.
- The depth of penetration and the scope of diffusion of ICTs in a society point to the various functions of ICTs employed, the depth and quality of their use, and the range of their penetration into the personal and working lives of individuals.

This penetration and diffusion show the extent to which sophisticated technologies have been embraced and integrated as useful means to ensure people's survival and enhance their flourishing. In some technologically highly

developed societies where ICTs have penetrated deeply into the lives of citizens, and have been widely diffused in many industries and sectors of society, access to and competence in the use of ICTs have become requirements for most employment opportunities available. The intriguing question that remains unanswered is whether these technologies have altered the conditions for high performance economic functioning to such an extent that integrated use of ICTs has become a *sine qua non* for economic success in today's global village?

What is poverty?

What is poverty and what can ICTs do to change the lives of poor people and poor societies? In this section, I want to establish possible links between poverty and technology. Through a brief definition and explanation of poverty, I want to show which problems of poverty can be solved by means of technology and which aspects of poverty call for different kinds of solutions.¹⁰

Poverty is a concept uniquely applied to humans to indicate when a specific person has fallen below the standard of life thought appropriate for someone in that culture. My general definition of poverty is as follows: Poverty can be seen as a lack of adequate economic capacities to maintain physical health and engage in social activities distinctive of human beings in a particular society. "Economic capacities" refer both to available resources, and to human abilities and capacities for utilising resources effectively.

This general definition of poverty can be split into two parts. One part refers to *absolute poverty*, which means that people do not have adequate economic capacities to provide enough food, clothing, shelter, security and medical care to maintain their physical health. It stands to reason that people living in absolute poverty will find the cost of access to ICTs, and training in their use, prohibitive.

Another part of the general definition of poverty refers to *relative poverty*, which means that although people may have adequate economic

¹⁰ The section on poverty contains ideas I worked out in two conference papers titled: "Defining poverty as distinctively human" and "Why poverty is such a complex affair".

capacities to provide enough food, clothing, shelter, security and medical care to maintain their physical health, they cannot participate in any other activities regarded as indicative of being human in that society. People who are relatively poor will also be hard pressed to find the resources to enable them to make productive use of ICTs.

Poverty must be understood against the following background. A basic challenge for human beings is the need to identify, locate, extract, convert and consume resources for survival first, and for flourishing lives thereafter. These resources can be the following:

- Edible products found or cultivated by means of natural resources such as soil, water or organic material
- Materials for designing, manufacturing and constructing new composite materials, tools, buildings and infrastructure
- Living beings to provide or produce things we need as food, clothes or tools
- Ideas and innovations that improve or enhance any aspect of our lives
- Skills, talents, knowledge or insight that can provide services to others

The role of technology with respect to these resource identifying, extracting, converting and consuming processes is obvious. Good technology in its various guises enables us to do these things better, faster and more economically. Human beings have the intellectual and bodily characteristics that allow them to locate and convert resources in complex ways. We use resources in different ways that require variable degrees of human intervention. Words that refer to the location and conversion of food resources, like “collect”, “harvest”, “produce”, “slaughter” and “prepare”, reflect these degrees. We consume or use some resources directly, like fruits and flowers. Others need simple preparation, like meat and seeds that we process and cook or bake. In some cases we use complex processes to produce food, for example, followed by even more detailed processes of design and manufacture to deliver highly intricate products like beverages or fancy sweets. In all these cases of resource-dealing processes, people manifest a particular level of technological prowess. The plans, procedures or mechanisms we devise to do these things illustrate our knowledge of the issues involved, and demonstrate the level of

applicable technological and other skills we have acquired, developed and mastered.

Once a particular community has successfully located and converted resources to ensure its survival, and builds a flourishing social life, several new demands arise. New needs and wants for more sophisticated products and services develop, which in turn put increased pressure on the community’s abilities to locate new kinds of resources and find novel ways of converting them to suit and meet new demands. In this context, new and improved technologies play a crucial role in satisfying growing demands.

Resource-dealing processes, i.e. the complex series of activities consisting of the location, conversion, exchange and distribution of resources, can be short-circuited and thwarted in a diversity of ways, some being of natural and others of human origin. People can directly or indirectly influence these activities as follows:

- A particular community might be without sufficient resources, or run out of resources, and fail to find replaceable ones. These cases point to the possibility of failure of scientific knowledge or technological skill.
- Population growth might outstrip available resources and conversion skills.
- Societies might neglect the transfer of scientific knowledge and the development of technological skills for the location and conversion of resources.
- Fewer recruits, or recruits with lesser knowledge and skill, might fail their particular community in locating, converting or exchanging resources in the quest for survival and flourishing. It might be that the importance of the acquisition and application of technology was not adequately stressed in such societies.

Reasons other than neglecting scientific research or a lack of technological innovation are more often the causes responsible for making people poor. Political and economic factors are some of the important causes of poverty:

- A skewed or restricted allocation of opportunities to members of society for participating in the location and conversion of resources might diminish the society’s capacity to ensure survival.
- A disproportionate distribution of rewards to some participants at the expense of others on grounds such as the supposed extraordinary

value of their work, or their group membership, can create poverty, as well as resentment and conflict.

- Powerful political groups can employ political processes and mechanisms to determine and enforce distributions of resources that deliberately enhance some citizens and exclude or neglect others. They deny citizens' voice and vote to struggle for their fair share in resource-dealing processes.

If some groups dominate their communities through accumulation of excessive rewards for their role in resource-dealing processes, other groups may be significantly disadvantaged through their meagre share of resources, so that it weakens the central social project of location, conversion, exchange and distribution of resources in a particular community. In this way, poverty disables the capacities of segments of society to contribute their share to the joint societal project of ensuring survival and enhancing flourishing. Eventually, the existence of such disabled segments harms society as a whole.

Many forces independent of human influence also cause poverty, i.e. they thwart, distort or short-circuit the complex human activities of locating, converting, exchanging and distributing resources, i.e. resource-dealing processes. Natural disasters like hurricanes, volcanic eruptions, floods, droughts and tsunamis can devastate resource-dealing processes. Climates can enhance or destroy the cultivation and production of food and clothing. Geology can determine which mineral resources are available. Epidemics can devastate the economies of continents or exacerbate existing poverty by dealing fatal blows to key actors in resource-dealing processes.

Poverty can affect individuals only, or a society as a whole. Whole societies become poor when the highly complex processes of location, conversion, exchange and distribution of resources are short-circuited or foiled on such a large scale that significant parts of the population are classified as poor. Individuals are, or become, poor when they do not have, or cannot find, any rewarded role within resource-dealing processes, or are excluded from them, for whatever reason. Their poverty is due to the fact that they do not have roles or functions rewarded in their society's quest for the location, conversion, exchange or distribution of resources, nor are they compensated for this lack.

In summary, poverty is the result of any of many possible kinds of failure or obstruction somewhere in the highly complex series of processes involved in the location, conversion, exchange and distribution of resources. Lack of appropriate technology to realise fundamental goals can be an important one among the many causes of poverty.

If the lack of appropriate technology is one of the important causes of poverty, what role can ICTs play in the eradication of poverty? This question must be answered in two parts. One part of the answer is that ICTs must be introduced and applied in a society in the broader context of the general guidelines for eradicating poverty. The following truism undergirds my view on the eradication of poverty. Individuals and society are deeply intertwined, in the sense that their fates are linked and have a reciprocal influence on one another. This means that individuals and society have a complex complementarity, i.e. strong individuals with properly focused outputs can, though not necessarily will, benefit their society, whereas weak societies often, though not always, fail to equip their members for successful survival. If this truism is accepted, then interventions to eradicate poverty must never focus on either individuals or society alone.

The guideline implies that any intervention to eradicate poverty must ensure that a multitude factors are in place in society that will enhance the ability of poor individuals to acquire capacities and learn responsibilities that will enable their escape from poverty. Not only individual transformation to equip people for survival and flourishing, but especially social transformation is necessary to create and establish conditions favourable for the effective eradication of poverty. Social issues, such as governmental budget priorities, a state's macroeconomic policies and entrepreneur-encouraging practices that indicate the need to transform a society, require as much attention as individual requirements for education and training, or feeding and housing schemes.

The ideas about the societal infrastructure and policy framework needed for the empowerment of individuals, and the developed capacities of individuals required to strengthen the intellectual skills and capacities available to society, apply similarly to the challenges of providing a society with comprehensive ICT connectivity that

reaches the majority of the population. National policies and subsidies for creating enabling environments for investment in, and deployment of, ICTs must go hand in hand with individual training, capacity building and empowerment to deliver the human labour power needed to exploit the usefulness of ICTs optimally.¹¹

These general guidelines for the eradication of poverty aside, what specific role can ICTs play to eradicate poverty? The second part of the answer to the earlier question now comes into play. In terms of what I have mentioned thus far, ICTs can only play a role in eradicating poverty if certain preconditions are met:

- Enough resources and infrastructure must be available to provide a constant flow of electricity and effectively functioning telecommunication connectivity, as well as resources to afford appropriate ICT equipment and software and their maintenance.
- Sufficient numbers of people must have adequate literacy skills and appropriate training to master ICT programmes relevant to poor people's needs and to maintain ICT equipment properly.
- The challenges requiring detailed attention in order to enable the eradication of the poverty of specific persons must be amenable to the particular functions that ICTs can fulfil, i.e. advanced and improved administration, automation, calculation, information storage and retrieval, communication and entertainment.

What are possible links between poverty and ICTs?

In the context of the human nature of poverty and its multiplicity of causes as sketched above, what difference can ICTs make to the lives of poor people? I want to examine the possible impact of ICTs in three cases I deem to be typical of situations where ICTs can be relevant to the lives of poor people.

¹¹ Accascina (2000) sets as prerequisite for the use of ICTs the following: "Appropriate and forward-looking IT [information technology] and telecommunication public policies, legislation and an understanding of their overall impact on a country's welfare". See also Peters (2005), DOT Force (2001) and Arunachalam (1999).

Case 1: ICTs, individuals, and poor societies

Imagine a very poor society where the vast majority of the citizens make a livelihood from agriculture. The citizens are illiterate and have barely enough means to buy seeds, agricultural tools or fertiliser. ICTs for use by themselves make no sense, as the people have more urgent priorities for simpler technologies enabling them to secure the necessities for survival. One can imagine that government or civil society relief organisations might use ICTs to improve the productivity and effectiveness of the services they provide to such rural poor people. One could also think that the children of the rural poor might be empowered by being taught basic uses of ICTs, provided that ICT-competent teachers, electricity and telecommunication infrastructure are available.¹²

Desperately poor people might have other needs for ICTs not related to the means they require directly for survival (Compaine & Weinraub, 1997:154). For example, they could want improved communication with their children, parents and friends. They might benefit a great deal from knowing in advance about inclement weather approaching, or from receiving accurate information about governmental services available to them. Poor people might want to become involved in protest action to strengthen their voice to express demands for better government services.¹³ Through the use of ICTs that empower their communication and improve their information they can participate more readily in activities such as the ones listed above. One should also not underestimate the value of the entertainment ICTs can provide to poor people. Lack of suitable, affordable entertainment is a fairly common complaint made by poor people.

¹² Note how important it is to have teachers who are properly trained in the use of ICTs and have the ability to integrate ICTs into the curriculum (see Bolt & Crawford, 2000:26, 40, 55–56).

¹³ Some authors refer to the "democratic potential" of ICTs (Norris, 2001:6). Norris (2001:171) further states that "the networking potential of the Internet and its ability to link transnational advocacy networks, grassroots political organizations, and the independent media around the world has aroused hopes that civic society can be nurtured and mobilized through digital technologies".

Now let us imagine a slightly better-off society with huge urban populations and semi-literate to literate citizens. Suppose such a society has an upwardly mobile economy where at least some opportunities become available for decently trained individuals by way of permanent employment in civil service departments or administrative, managerial or specialist positions in smaller or larger companies. Skill and knowledge in ICTs might just provide the edge for many talented people to grasp opportunities for employment in order to escape their poverty. Similarly, in such a society some kinds of entrepreneurs can set up small businesses that might easily outperform others through the advantages that good accounting software (the calculative-financial function), excellent information retrieval software (the information function) or stock-taking software (the administrative function) can provide.

The two examples above refer to the value of ICTs for individuals in poor societies. But what about the role of ICTs in improving the situation of a poor society in the global context of interdependent states that have strong trade, sport and cultural links that spur on even more development and growth?

Note the challenges to modernise technology that face developing countries in the context of our global economy. Can any developing country refuse to convert to the full-scale use of ICTs in order to make its production processes more efficient? Can it refuse technological modernisation that will enable its businesses to become more competitive in local markets, which nowadays all form part of what has become one diffused, interconnected global market? As in all cases of decision making about appropriate technologies, the main questions will be whether:

- A particular technology assists us to do things better, faster and more efficiently.
- The technology will deliver good returns on investment over the longer term.
- We can make the infrastructure and labour power available to utilise a proposed new technology effectively.

Case 2: ICTs and poor individuals in rich societies

Let us now imagine how the lack of ICTs in a person's employability profile can impoverish

that person and impair his or her effective functioning in a rich, modernised society. In most well-off, technologically advanced societies competencies in the efficient use of ICTs have almost become a prerequisite for employment in a very large range of jobs. People who are ICT poor are almost disqualified from good employment. They are furthermore excluded from many opportunities to get the benefits offered by ICTs, such as improved communication. Their interpersonal functioning is not as optimal as their society makes possible and their abilities allow. In a metaphoric sense, their lives are therefore also impoverished by their inability to utilise technological resources that can enhance the quality of their lives and help them accomplish some of their fundamental goals.

Case 3: Lack of ICTs as an impoverishing factor for rich and intelligent people

In wealthy, technologically advanced societies, rich companies and intelligent individuals can be impoverished if they fail to adapt meaningfully to the sweeping changes brought about by a technological shift, such as the winds of change generated by the ICT revolution. Imagine a highly successful, large grocery store that refuses to computerise in any way. Management cannot keep track through administrative software when it has to order goods to avert running out of stock, nor can it order via the online websites of suppliers or through their email addresses. As the company refuses to buy automated financial software, customers cannot pay by credit card and employees' salaries cannot be administered through effective payroll software. The company cannot keep in touch with the drivers of its vehicles via mobile phones and cannot make use of security satellite tracking systems. Such a store will soon be judged a dodo and be rejected by customers, suppliers and employees for its ineffective service.

Even highly intelligent people, such as excellent academics, can lose out if they are incompetent with respect to ICTs. Although many academics might think the nature of their job does not require great ICT competencies, even the best minds in the world might suffer inconveniences, be deprived of valuable information and opportunities, or lose time if they fail to adapt to the ever-increasing use of ICTs. An ICT-impover-

ished academic will become dependent on others for typing or emailing teaching materials and research reports. This might mean waiting unnecessarily to get things done. Similar losses will occur when such academics cannot use state-of-the-art technology for communicating with their peers or for retrieving intellectual resources contained in the latest online published research. Thus, even in a job based on reading books, writing research reports and talking to students, ICTs can enhance the academics' productivity and creative output.

Decision making on the role of ICTs in poverty eradication

Can ICTs play a meaningful role in eradicating poverty? Not necessarily, as their role depends on various factors. I want to propose the following three ideas for possible guidance in decision making on the potential value of ICTs in every specific case of poverty.

ICTs must add value

Introducing new technologies into the lives of poor people must add value to their existing livelihoods, or create new livelihoods that are better than the existing ones.¹⁴ This means that ICTs must enable poor people to acquire basic necessities more easily without adding too much extra cost, or assist them to know about and access governmental services without wasting their time. Access to, and use of, ICTs must make poor people more employable or aid them to improve the management and administration of their economic activities. Also, ICTs must improve their communication with family, friends, business associates, colleagues and important service delivery institutions without too much hassle. ICTs must open up new vistas of a better quality of life for poor people that are within

¹⁴ See McNamara's (2003) point regarding this issue: "The challenge, then, is both to improve the current livelihoods of the poor and provide them with new opportunities appropriate to their circumstances while building their capacities and reducing their vulnerabilities so that, over time, they can broaden their economic opportunities as the economy itself grows and diversifies."

their grasp, and suitably developed.¹⁵

ICTs must fit in

New technologies must fit into existing lifestyles, sets of values and patterns of activity, or create new ones that can meaningfully convert older ones (Pacey, 2004:96). Meaningful conversion means new technologies will modify lifestyles, generate values and produce patterns of activity that can be maintained by already existing or easily acquired educational levels, sustained by available resources and acceptable to the people involved and affected (McNamara, 2003; Schumacher, 1973:141).

ICTs must thus be adapted to the people they are meant to serve. What does this mean? Once people have basic literary skills, they must be made familiar with, and be trained in, appropriate ICT skills to suit their needs. The chosen ICTs must also be affordable and their use must be sustainable over the longer term. Poor people must be assisted to adapt to the changes ICTs bring about in their lives and be guided to utilise new opportunities available to them. Software, and even the Internet itself, must be developed and adapted to suit people's specific needs. The Internet should be shaped by its users according to their needs and values so as to have value in their lives (Couldry, 2003:90).

ICTs must be chosen judiciously

The decision to implement new technologies must be made judiciously. This implies that the new technology must be appropriate in the circumstances. Thus, the technology must be tailored to the society's most urgent needs.¹⁶ It

¹⁵ McNamara (2003) puts it as follows: "ICTs, properly adapted to specific circumstances, have enormous potential. The key to realizing that potential is to begin the analysis not with the presence or absence of ICTs, but with the specific, interdependent causes (both local and global) and components of persistent poverty in a given country, the most effective measures for addressing those causes, and then and only then the tools (not just ICTs, but other resources, policies, partnerships, etc.) necessary to proceed."

¹⁶ For McNamara the case is clear: we must select the most urgent needs to focus on: "[Any] development strategy requires difficult choices, and priorities need

must be for purposes that will benefit the society the most, and fit the developmental level of the people and the economy it is intended for. Most possibly, poor societies will find it difficult to afford a comprehensive introduction of state-of-the-art ICTs in all sectors of society. Cool heads and wise judgment will be required to determine the areas of intervention where the introduction of ICTs will be in the best interest of the further growth and development of ICT knowledge and skills that will enhance the productivity and competitiveness of that society.

Note how McNamara (2003) suggests we make decisions on these matters:

One begins not with the question of what ICTs a given country lacks and what we can do about it (the implicit question underlying much digital divide analysis), but what specific types of change are required to make this country more sustainably prosperous, in ways that include even the poorest. ICTs are then brought into the analysis as possible instruments (among others, including both resources and policies) of these desired changes, not as a thing to be desired in themselves.

Conclusion

In this chapter I have argued for ideas that can assist us to rely on our considered judgment to determine the appropriate role of ICTs in the eradication of specific cases of poverty. If these ideas are taken seriously, limited funds for aid to poor people can be optimally employed to make the biggest difference to their lives. Note, however, that new technologies must always be used conjointly with other measures for eradicating poverty, as the idea of quick technological fixes for serious problems of poverty flies in the face of state-of-the-art expertise in the complexities of eradicating poverty (see Pacey, 2004:100).

I plead the case for a nuanced use of ICTs based on our considered judgment of the most urgent needs that must be addressed to eradicate specific people's poverty. We can already clearly see the tremendous range of application of ICTs and their pervasive influence throughout the world.

to be chosen on the basis of an understanding of what are the most urgent needs of a given country and the actions most likely to have a positive impact on those needs."

Some or other form of ICTs, which are appropriately adapted to people's needs and competencies, is practically already a prerequisite as an important tool to complement other strategies needed to eradicate poverty.

Considered judgment about the introduction of ICTs is necessary, as any technology can be deemed obsolete in a specific context, regardless of how old or new it is. Even the latest and most sophisticated technology can fall into disuse, becoming something no longer used, or not used at all, if it does not appropriately address the needs of the people concerned or does not fit their capacities.

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