Towards Equal Access to Information;

On the Necessity of a Free Knowledge Space for Global Democracy and Global Equality

A Paper By Jacintha Baas, representing Utrecht University

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Abstract

Together with the birth of the internet came the promise of a more equitable and democratic world. Some thirty years after its introduction, however, digitization seems to have only exacerbated existing inequalities. This paper claims that this failure to bring about more equality can be traced back to two misconceptions. Firstly, we have been using too narrow a conception of the role of ICTs in our modern society , viewing it either as the reward of development rather than as a way to it, or understand it solely as an economic catalyst. Asserting that access to knowledge is essential not only for the sake of economic growth, but also for political empowerment and social progress, this paper argues that the distribution of it should not be based on profit, it should be distributed based on need. Secondly,where we *have* tried to utilize the empowering potential of the internet, we have failed to appreciate that the barriers we are facing extend beyond the mere lack of a computer, but rather include the lack of education, the lack of access to certain kinds of information and the lack of appropriate content for users in the developing world particularly. In order to create a more thorough understanding of the role that ICTs can play in battling poverty and inequality, this paper will elucidate both the role of access to information in our modern society as well as shine some light on the ways in which we can secure equal access for all.

Introduction

In a world taunted by inequality, at its introduction some 30 years ago, the internet was heralded as a force with huge transformative power. A place where we could store huge amounts of information and share it with anyone, a medium for governments to communicate with their citizens, a virtual community that did not discriminate on background; we visualized a world that would be more democratic, a society that would be more equal, a global culture that would be based on sharing.

Ever since its introduction, the internet has indeed changed the world we live in. The world wide web has expanded massively, and technology has progressed faster than we could have ever imagined. Our economy has evolved to a knowledge economy, and our society to an information society. The instant sharing of knowledge has become the backbone of our social, economic and political functioning. Being online and available continuously seems to have become a virtue, and our hunger for information and updates is slowly becoming insatiable.

But the internet has failed to keep its promise of global equality and democracy. Poverty and hunger are still omnipresent in many parts of the world, borders have not dissolved, and the gap between rich and poor has expanded massively (Milanovic, 2007). It seems that rather than bringing us together, the progression of technology has torn us even farther apart.

This paper argues that this problem is not inherent to the technology itself; in fact, as the reach of the world wide web is expanding, its potential is only getting bigger, and its application progressively cheaper. Rather, this failure is due to two misconceptions. Firstly, we have been using a much too narrow conception of the role of ICTs (Information and Communication Technologies) in our modern society, viewing it as a private good that is the result of development, rather than the gateway to it. Neglecting the enormous empowering potential that ICTs could confer, the importance of equal distribution of ICT access has been strongly under-emphasized. Secondly, where we have recognized the empowering potential of ICTs, our conception of how the internet will create a more equitable world is perhaps well captured by the phrase "someone builds a machine, the machine sprouts legs and runs around the world changing it" (Evans-Pughe, 2007). Computers, however, cannot solve inequality themselves, and the inability of the developing world to link into the information society is not simplydue to a lack of computers.

This paper will therefore aim to give a more thorough understanding of the potential of ICTs for empowerment, as well as a more through understanding of the barriers that we face in using this potential. To this aim, section 1 will describe the role of access to knowledge for economic, social and political empowerment. Following, section 2 proposes a fourfold model describing the barriers we face in providing equal access to knowledge. Concluding, section 3 will further elucidate how a more thorough understanding of how to truly open up our knowledge space can prove a vital step towards a world without inequality and without poverty.

Section 1: On the Empowering Capacities of ICTs

ICTs are commonly seen as the result of development, rather than a way to it; we still associate a computer more with something a western citizen plays games on than as way to stimulate development in Africa. If we do think about introducing technology in developing nations, this has often been understood in terms of spreading a consumer good or even a consumer culture. Focusing rather on the potential of the internet to store and share information around the globe, this section emphasizes rather the role that ICTs can play in the economic, social and political development of citizens around the globe.

ICTs as an Economic Catalyst

The term "knowledge economy" or "information economy" already implies the growing importance of knowledge as a factor of production. As agriculture and manufacturing constitute a diminishing proportion of our economy, competitiveness is increasingly determined by innovation, information, and technology.

Information and Communication Technologies (ICTs) have played a vital role in the huge productivity increase that Western countries have witnessed in the past decades. By allowing for just-in-time delivery techniques, providing real-time information on changing prices and market conditions, allowing for increased specialization and off-shoring, and encouraging innovation through the sharing of know-how and ideas, ICTs have shown to have a positive and significant impact on economic development (Waverman, 2001) (Sector Project ICT4D, 2011). In this sense, they form the foundations on which the knowledge

economy was built, so that "[c]ountries and firms that lack access to modern telecommunication systems cannot effectively participate in the global economy" (Wellenius & Stern, 1994)

More than profiting businesses, ICTs can benefit individual actors in making informed economic decisions and devising livelihood strategies, for instance by providing up-to-date information on job and good market conditions, making them better fit to deal with economic stresses and shocks (Carney, 1998).

ICTs as Social Progress

Even though economic benefits for both individuals and companies are perhaps more easily measured, and have indeed been emphasized in much of the literature, free access to knowledge, contribute to social progress in many direct and indirect ways.

For example, by offering access to diagnostic information, information on the causes of diseases such HIV/AIDS or by describing simple treatments, ITs can contribute hugely health standards, heralding even websites as Wikipedia as a "key tool for global public health" (Pathan & Rahman, 2010) (World Bank, 1999) (Heilman et al., 2011) .

More generally, even though acquiring knowledge cannot be equated to "education", the internet can provide many opportunities for e-learning and distance education, both for students and teachers (Okunye, 2010). Indeed, as stated by Joseph Stiglitz, "[t]oday a child anywhere in the world who has Internet access has access to more knowledge than a child in the best schools of industrial countries did a quarter century ago"(Stiglitz,1999).

More than basic information, the internet hosts thousands of scientific journals that together contain what we may call our "global knowledge pool". Although the importance of science for the progress of a modern society cannot be emphasized enough, it should suffice to say here that the ability to produce and access scientific information is imperative in stimulating academic progress as well as innovation, and is a driving force in societal progress in its broadest sense.

ICTs as Pillar of Democracy

But knowledge is more than *beneficial* for economic, scientific or even health purposes; it is *vital* to the exercise of democratic citizenship. Although some authors may have been too quick in concluding that ICTs in any way "lead" to more democracy, as suggested by Burkett (2000), ICTs can politically empower people by informing them about their rights, current policy making, and the duties governments have towards them, while at the same time giving them a medium with which to articulate their desires and interests (Marker, McNamara & Wallace, 2002) (Rakodi, 1999), also helping governments to more accurately assess demands from their citizenry (Chapman, 2002). Based on the classical notion that democratic citizenship requires one to be informed, much more than forming the backbone of the economy, ICTs also form the backbone of democracy. According to Arjun Appadurai:

"The capacity to distinguish knowledge from rumor, fact from fiction, propaganda from news, and anecdote from trend, is vital for the exercise of informed citizenship. […] Full citizenship today requires the capacity to make strategic inquiries—and gain strategic knowledge—on a continuous basis. (Appadurai, 2006)

Research as part of Daily Life

The ability to systematically acquire necessary knowledge, what we may refer to as "research" in its broadest sense, is thus a prerequisite for the economic, social and political development of any individual. By providing access to a huge knowledge pool, ICTs can provide us with exactly that ability. In a time where we can thus increasingly acquire knowledge that extends beyond our own environment, the modern world increasingly requires us to possess this exact capacity:

" [y]oung people are faced with questions that transcend their own local experiences and are permeated by global forces and factors: call centers, specialised production techniques, new methods of borrowing and investing money, and new technologies for organising information and expressing opinion, all make it hard for people with strictly local knowledge to improve their circumstances"(Appadurai, 2006).

In the current world, thus, continuous access to information, the ability to do *research*, is increasingly vital to making decisions in our daily lives, as well as to our social, political and economic development – thus becoming something something that it becomes increasingly harmful to be deprived of. This has lead Appadurai to even claim a *right* to research for all individuals. If the ability to systematically acquire knowledge that we need is so important, it is imperative that we asses how we can ensure this ability for all. This will be the subject matter of the coming section.

Section 2: Barriers to the Empowering Potential of ICTs

"Give the poor a computer and they will move from being information poor to information rich", seems to have been an assumption commonly made in literature connecting ICT and development (Burkett, 2000). Even though access to physical infrastructure has great explanatory power in analyzing the differential impacts of ICTs, assuming that all that is lacking for developing countries to link into the global knowledge economy is a computer is a gross oversimplification that ignores both the dimensions that have lead to the differential spread of ICTs in the first place, as well as the differences in the way that ICT technologies work out in different contexts.

The coming section will therefore propose a more holistic framework that outlines *four* dimensions that affect the extent to which people can harness the potential empowering forces of the internet. Firstly*, low educational levels* prevent people from being able to extract knowledge from the information. Secondly, even if the appropriate skills are present, ICT *infrastructure* is often not available*.* Thirdly, even when infrastructure has been laid out, not all knowledge that is contained within the internet is (freely) *accessible*. Fourthly, and following, with content being both produced and consumed by its current user base, the internet may fail to provide *relevant content* for all users, greatly reducing the ability to do meaningful research. In providing a more holistic view, the coming section will attempt to shed some light on what is required to harness the empowering potential of the internet for all.

Barrier one: Low Educational Levels

Education is probably the most vital prerequisite for the capacity to make use of the benefits that they internet may offer. Low educational level may reduce potential benefits either because of low literacy rates or because individuals may not have the right skills to use computers to extract information relevant for them (often referred to as "computer literacy"). Even though primary school attendance rates are relatively high in most countries of the world, as illustrated in figure 1, basic education remains problematic in countries in South Asia, the Middle East, South America and particularly in Africa. A similar geography is reflected in literacy rates, which are of particular concern in South Asia and Africa (See figure 2). Adult literacy specifically, with rates as low as 12.8% in Burkina Faso, constitute a major impediment to participation in the use and production of knowledge on the internet of the current working age population (UNDP, 2006).

Barrier Two: Lack of ICT Infrastructure

Even with appropriate skills present, however, connectivity remains unequally spread. Figure 3 below, portraying internet penetration, shows similar patterns as those of education, where Africa and South Asia seem most deprived of internet access, with relatively low connectivity also in Latin America. Even though the costs of internet access are dropping, and mobile telephony can now provide people in developing countries with a more affordable alternative than broadband connections, relative to income, the costs of Internet access in a low-income country is still approximately 150 times the costs of a comparable service in a high-income country (UNCTAD, 2006).

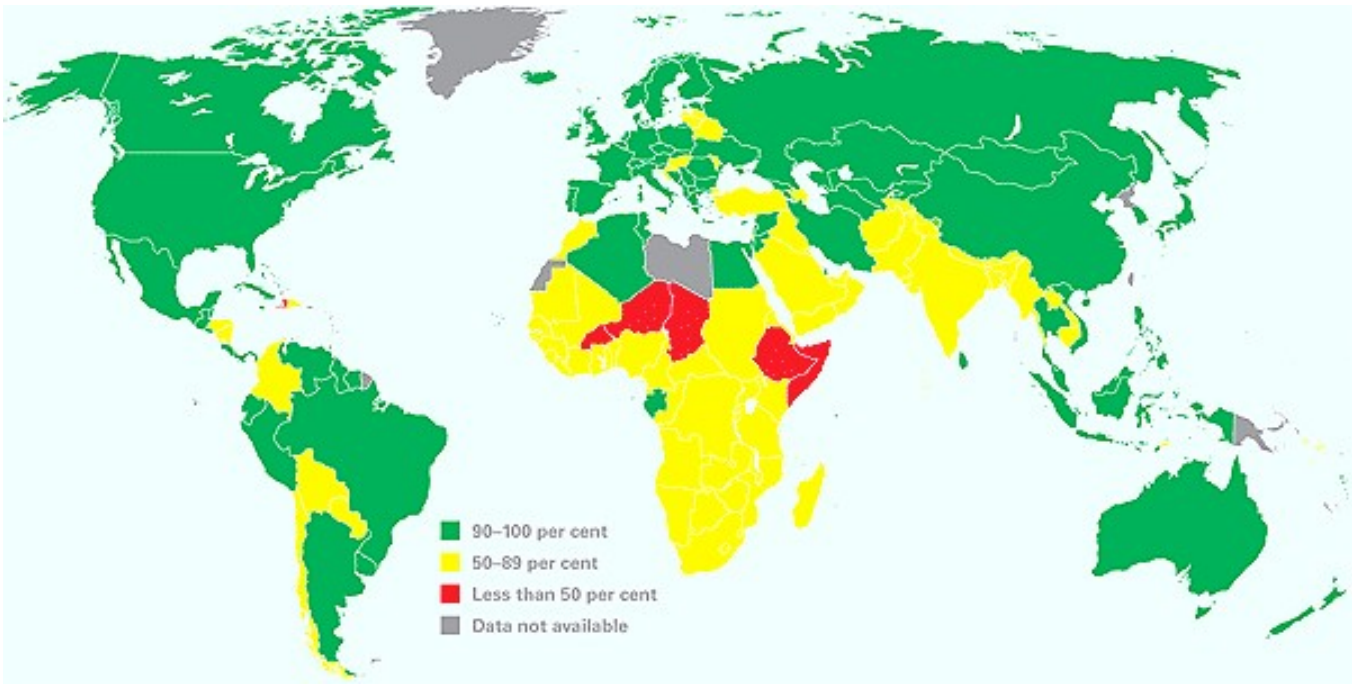

Figure1 Primary School Net Enrolment (Source: Unicef Progress for Children 2007)

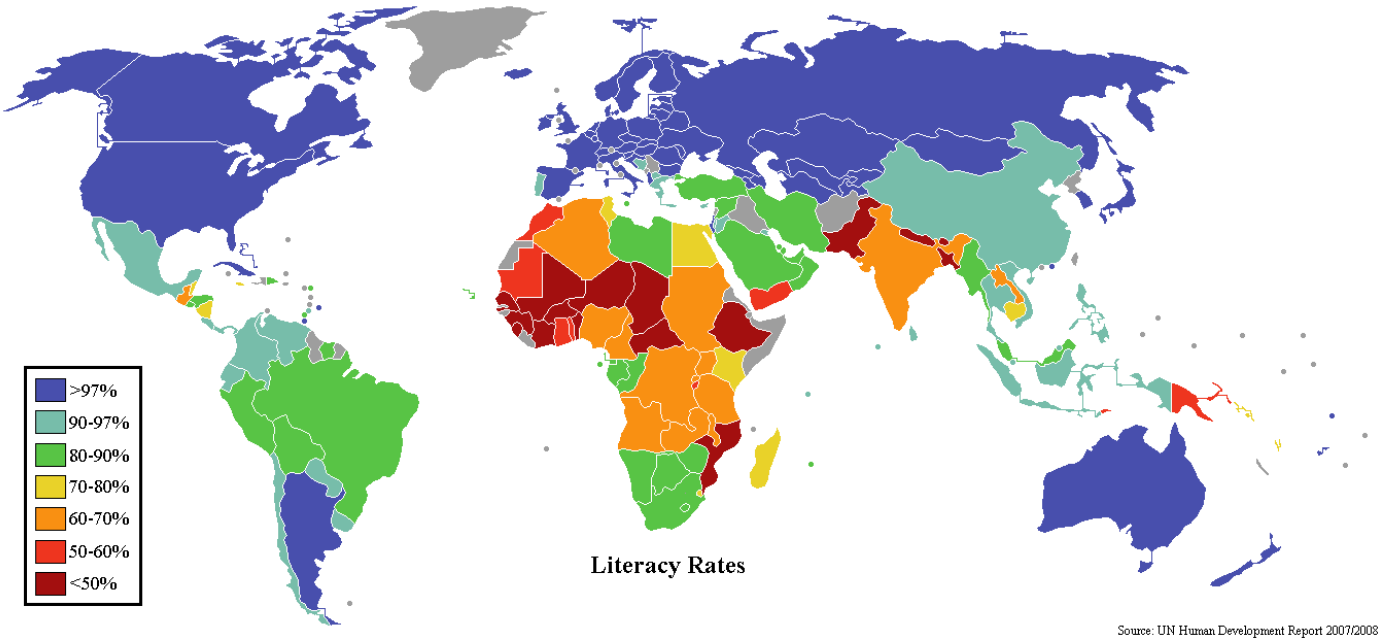

Figure 2 Literacy Rates (Source: Human Development Report 2007/2008)

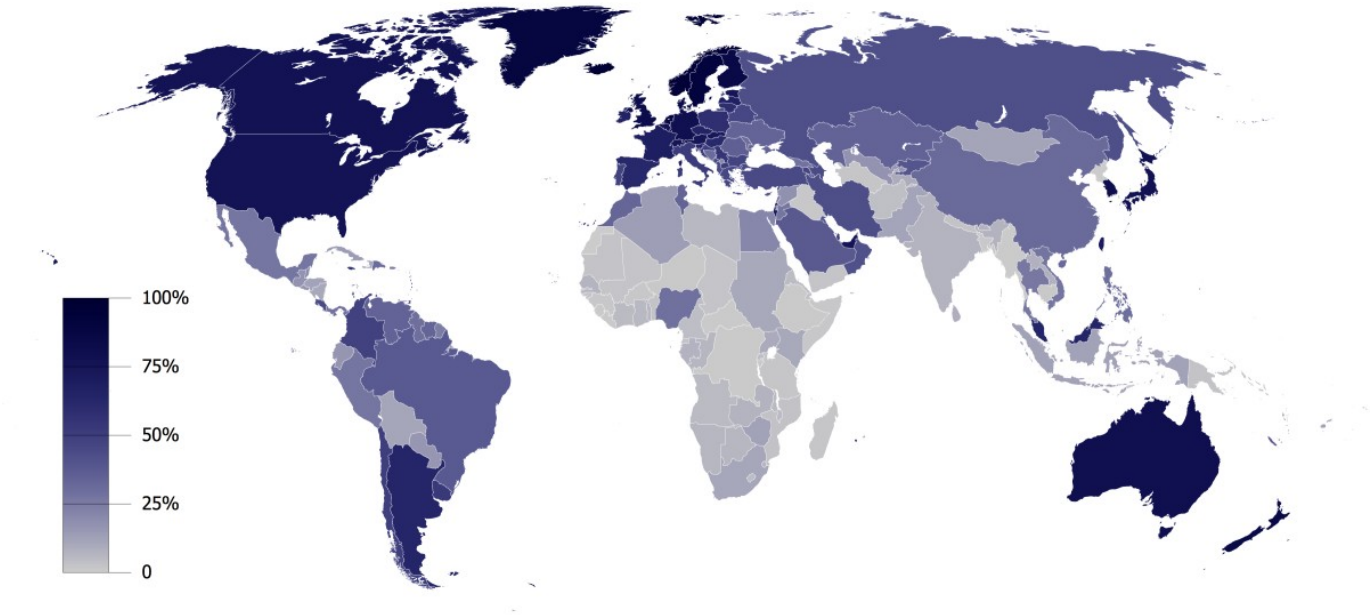

Figure 3 Internet user penetration in % of population. Source: International Telecommunication Union, 2009

Barrier Three: Knowledge Accessibility

The presence of a computer, however, does not guarantee free access to our global knowledge base. In particular, scientific information is published in journals that often charge subscription rates unaffordable for developing countries or individual internet user not affiliated to a research institute (Arunachalam, 2003) . The skyrocketing subscription rates have effectively excluded universities from developing worlds from achieving proper access to academic literature. For example, of the 75 countries with a GNP below $1000 per capita, 56% of the research institutions have had no subscription to any academic journal at all in the preceding 5 years (Aronson, 2003).

Even though the amount of knowledge that is financially closed off constitutes a relatively smart part of the aggregate information that is contained within the world wide web, scientific information plays a particularly central role to development, and the lack of access to it has further ramifications for scientific progress in developing countries, as will be elaborated on below.

Barrier Four: The Lack of Relevant Content

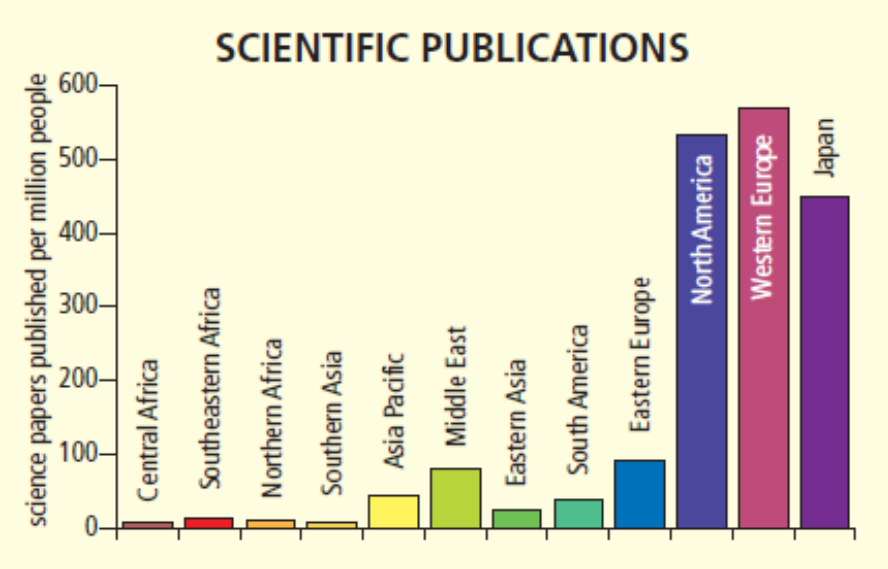

Figure 4: Scientific Publications Per Million People (Source: Worldmapper, 2011)

In an academic world dominated by citation numbers and reputation, the lack of access to quality, state-of-the-art articles is proving to be a huge barrier to developing nations in producing academic work that is of high enough quality to be published (Chan, Kirshop & Arunachalam, 2011). The enormous cleavages in scientific production are illustrated by figure 4, portraying the number of scientific papers published per million people. Only 10% of global health research is undertaken in the developing world (Global forum for Health Research, 2004) , and out of the 3000 journals that are indexed on Medline, only 2% are from developing countries (Smith, 2002).

Subbiah Arunachalam explains how the publishing system is structurally cutting scientists off from locally produced knowledge:

The issue is quite simple: research performed in India, and funded by Indian taxpayers, is reported in a few thousand journals, both Indian and foreign. Since some of these journals are very expensive, many Indian libraries — including sometimes the author's own institutional library — are not able to subscribe to them. As consequence, other Indian scientists working in the same, or related, areas are unable to read these papers. This is a problem common to all developing countries (2006).

This distribution pattern poses a significant threat to equal development, as research priorities differ markedly between different nations and people, and knowledge cannot necessarily always be applied directly from North to South (Lore & Britz, 2004). Thus, much more than high subscription rates impeding North-South flows of information, the problem for researchers in developing nations lies in the obstruction of *South-South* information exchange.

The lack of local content extends beyond the scientific realm. In general, the content that is currently available on the internet is produced and consumed by its current users, and thus favors the needs and preferences, broadly speaking, of the Global North. This is reflected, for example, in the dominance of English as a language on the internet. Estimates are that some 70% of internet content in 2001 was English, with most of the world's 6000 languages not represented at all (Bowen, 2001). For the internet to become an empowering force,there is thus a dire need for local content to be added to the spectrum of information contained on the internet. Habibsy correctly notes that "Africans must be able to feed into

the Net their perspectives and strategic needs, news and research results. Otherwise, African Internet users will remain passengers on the information highway—not drivers" (1999).

One Door - Four Locks

The significant overlap in the geographies of all 4 barriers described above has lead some to analyze unequal access patterns to ICTs in terms of a "Digital Divide" between the Global North and the Global South. However, as access to digital infrastructure to more generally relates to socio-economic standing, it is more accurate to speak of *Digital Divides*. Research has indicated that internet access benefits men over women, rich over poor, urban over rural, North over South and white people over black people(Market, McNamara, & Wallace, 2002) (Patterson & Wilson, 2000). It seems that the progression of digitization therefore does not only exacerbate North-South inequalities, but rather, follows every socio-economic fracture line already present in our society. A US Government report called "Falling through the Net" described how computer services within the United States are limited for people living in rural areas with low incomes, people living in poor central city areas, black people, single parent households and those with limited schooling (McConnaughey & Lader, 1998), illustrating that differential access patterns are not simply a problem of the Global South, but rather, a problem of all those already marginalized.

When being marginalized becomes the best predictor of being further marginalized in the future, it becomes clear that the current structure of our digital space is keeping the poor poor, and preventing them from getting access to the empowering potential of the net. It is as if the freeing of our knowledge space requires the opening of a door with 4 locks: if you lack even a single key, the door will not open. As the access to knowledge takes on an increasingly central role in our society, the costs of being locked up behind that door becomes increasingly high. It is therefore of vital that we recognize that these unequal access patterns predicated on existing marginalization will not resolve themselves, and that we need a holistic solution to the problem of unequal digitization and unequal empowerment.

Section 3: Opening up the Knowledge Space

This section aims to illustrate how both recognizing the necessity of free access to knowledge as well as a more complex understanding of the conditions under which ICTs can truly empower people are vital to truly opening up the knowledge space.

Recognizing the importance of access to knowledge

Even though universal access to education remains problematic, the necessity of education has long been recognized by both governments and development agencies; improving access to basic education was adopted as one of the Millenium Goals by all 193 United Nations Members states in 2000, and the United Nations have even recognized it as a human right (UN, 2010). With primary school enrollment rates of developing nations reaching rates of 89% already much progress has been made. Even though much needs to be done still to include the remaining 11%, much effort is being put in by governments and NGOs to close this gap.

The same does not hold true for ICT infrastructure provision. Governments have largely left the provision of ICTs to the market, hoping the private sector would be able to "close the digital divide" by itself (UNCTAD, 2006). This approach, however, has been unsuccessful in providing equitable access to telecommunications infrastructure, and the profit driven distribution of ICT has even been suggested to lead to systematic worsening of access for those most marginalized (Sinha, 1991).

Recognizing instead that ICTs are beneficial not only economically, but also socially and politically, emphasizing again the necessity to make informed inquiries, acknowledging that as it is the most marginalized that are currently lacking infrastructure the market will not be able to solve the current inequality, ICTs reveal themselves to be a public good much more than a private good. The policy implication of such a claim, of course, is that the government should carry responsibility for its provision. Indeed, Patterson and Wilson claim that "public intervention in the name of public service and equity considerations is not only possible, it is essential" (2000).

The willingness of governments to commit financially, however, has been inhibited by the failure of public ICT provision especially in poorer regions to become financially viable. The motivation to provide ICT infrastructure for governments, however, should not stem from the economic gains that telecommunications may provide, but, more importantly, because of the vital role information plays in any democracy. Recognizing that rural populations, for example, have as much right to proper information provision by the government as urban regions, regardless of the profitability of doing so, governments should abandon visions of ICTs as economic catalysts and see them for what they can also be; catalysts of inclusion of those most structurally marginalized in society. Even though the profitability of including them may be lowest, the need is highest, and it is the government responsibility then, to recognize that distribution of ICTs should not be based on purchasing power or predicted profitability, but on the necessity of people to be informed; a necessity that is equal for everyone.

Recognizing the importance of a truly open knowledge space

In fact, the recognition of the fact that knowledge is a "quintessential global public good that should be freely available for the benefit of all" (Alberts, 2002), "much as fresh water and the air that we share" (Smith, Woodward, Acharya, Beaglehole, & Drager, 2004) is exactly what has driven the *Open Access* movement in promoting the use of the internet to make scientific articles freely available online, either through publishing in Open Access Journals, or by archiving previously published articles in online databases. Recognizing that the net offers the opportunity to open up a colossal amount of information to the global public, the Open Access movement aims to improve research opportunities for scholars, improve visibility for publishing scholars, and stimulate the scientific contribution of developing countries (Chan, Kirshop, & Arunachalam, 2011), thereby both making more knowledge accessible, while at the same time allowing scholars from all over the world to contribute to scientific literature.

If we can successfully provide equal access to ICTs and the knowledge they contain, we can offer anyone the opportunity to contribute their local knowledge, creating a knowledge base that is much more reflective of the diversity of interests and needs of the global population.

What is needed, then, is a paradigm shift more than anything. The beauty is that internet can be anything we make it, and we can make it a tool for empowerment. Even though open access journals do require some financial backing, archiving articles online where they are freely available requires no more than a little effort, and permission from the publisher. If

we start seeing the internet as an information hub, we can make it exactly that, by stimulating people to share their information and knowledge with the world.

Even when it comes to physical infrastructure, a study by UNCTAD reveals that 800,000 villages in the world have no access to internet at all (2006). If we can recognize the importance of ICT, as well as the failure of the market to provide equitable access to it, the task of providing some 800,000 public computer centers seems a rather modest investment relative to its potential impact (to compare, approximately 93,5 million PCs were shipped around the world in the last 3 months of 2010 only) (Paul, 2011)).

This is not to say that equal access to knowledge is a panacea in reducing global inequality, or that providing equal access will be an easy task. But if we recognize the potential the internet has, and work together to put it to use, the equal spread of ICTs could prove to be a first step towards a world without poverty, and without inequality.

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