The Digital Divide:
The Need for a Social Movement

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1 Introduction

Today there is consensus in that the use of ICTs for development offers an avenue for momentous transformations in the development processes of poorer countries and communities. There is also a consensus in that these countries and communities may be left even further behind and excluded from the benefits of the information society if nothing is done to counteract such a possibility at the present early stages. This consensus is underpinning the emergence of many initiatives and activities at multiple societal levels to tackle the challenge of the digital divide. The common sentiment is that ICTs can help to nurture an information society for all and that something can be done about it.

This paper is written against this background of this dilemma and examines some of the key issues involved in the challenge of reducing the digital divide between the have and have-not. The discussion is structured as follows. Section 2 briefly examines the nature and magnitude of the digital divide and poses the challenge of a social movement focused on the digital divide. Section 3 deals with the experiences of one project aimed at bringing hope to people excluded by poverty. The paper ends with a number of ideas to help stimulate the formation of the social movement.

2 The Nature and Magnitude of the Challenge of the Digital Divide

The digital divide can be understood as a predominantly quantitative gap in access to ICTs, or, as an intrinsic element of the much wider and deeper problem of exclusion and relative poverty with all their manifestations. Both present huge challenges but whereas a quantitative vision would imply greater concentration of efforts on ensuring the wide diffusion of ICTs; the deeper exclusion vision would also imply concentration on implementation of ICTs for purposes of improving the quality of life and work of the millions who are at present outside the emerging digital economy either because of poverty, disability, infirmity or any other 'excluding' factor.

2.1 A Quantitative Gap

In its simplest concept the digital divide is about access to telecommunications infrastructures and particularly the Internet, perceived as essential to participate in the emerging electronic commerce and, more generally, the emerging digital or knowledge economy at the heart of the Information Society. Figures 1 and 2 illustrate the striking disparities existing between the 'advanced' countries of the OECD and those outside (i.e., non-OECD) in terms of both telephony access and Internet hosts. Although static, the figures clearly make the point that huge amounts of people are simply excluded from access to the technologies that are today driving the development of the new global economy.

[1] A longer version of this paper was presented at the Third Global Forum in Naples. See Molina (2001).

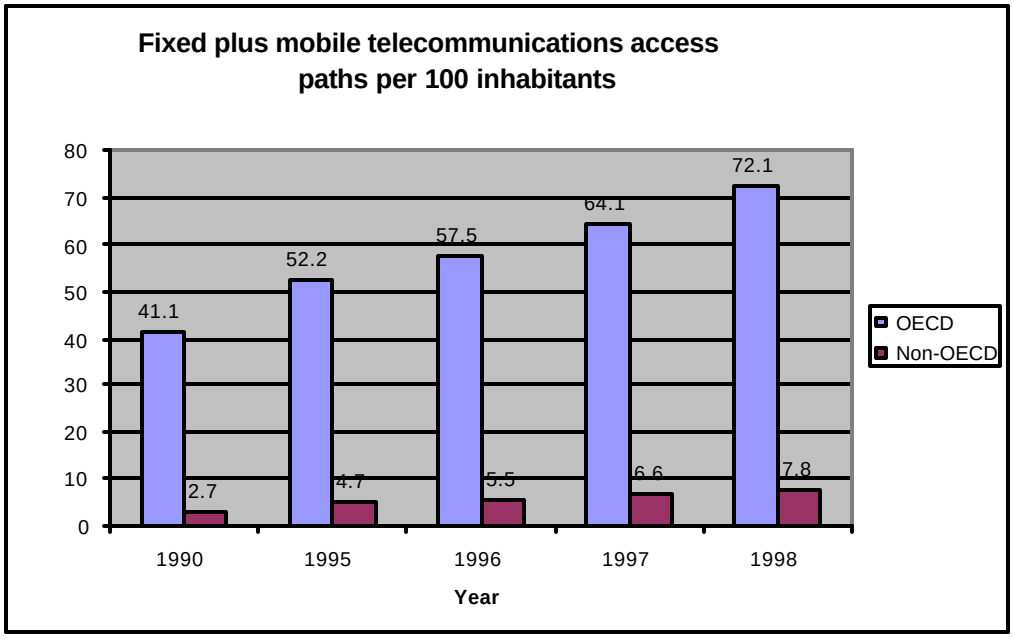

Figure 1. Divide in Telephony
Source: OECD, *Understanding the Digital Divide*, Paris, 2000, p.7.

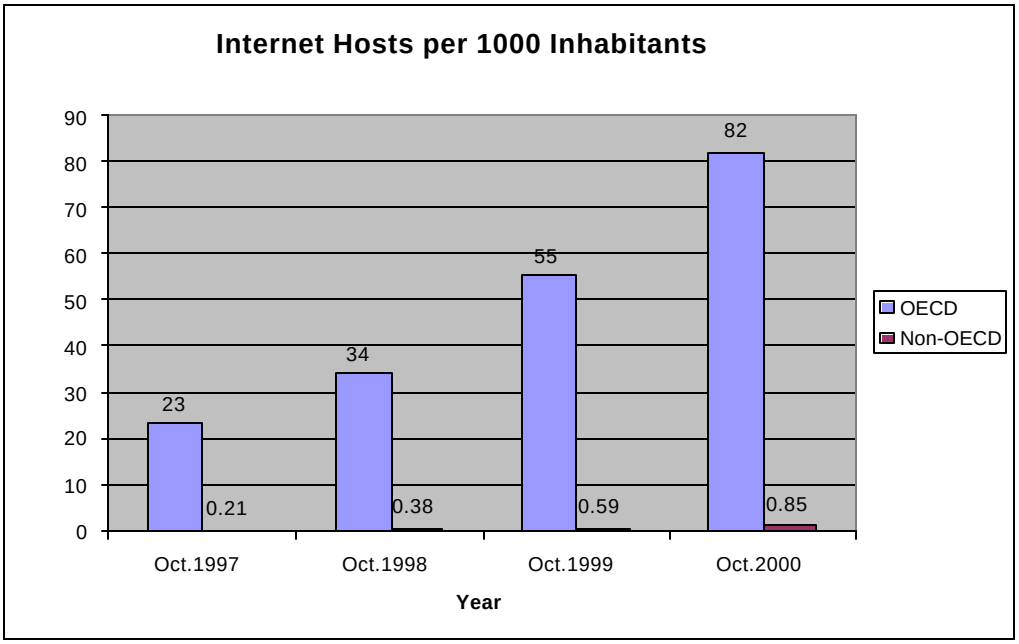

Figure 2. Digital Divide in Internet
Source: OECD, *Understanding the Digital Divide*, Paris, 2000, p.8.

The same message has been put in the following words by Kofi Annan, UN Secretary General, "At present, a yawning digital divide still exists in the world. There are more computers in the USA than in the rest of the world combined. There are as many telephones in Tokyo as in all Africa..."[2] or, "Visions of a global knowledge-based economy and universal electronic commerce, characterised by the "death of distance" must be tempered by the reality that half of the world's population has never made a telephone call, much less access to Internet."[3]

Of course, there OECD and non-OECD countries are neither homogeneous nor free of divides between and within them. Various reports exist providing finer statistical details for different countries, technologies and different segments of populations.[4] Figure 3 provides details of geographical distribution of Internet hosts in July 1999.

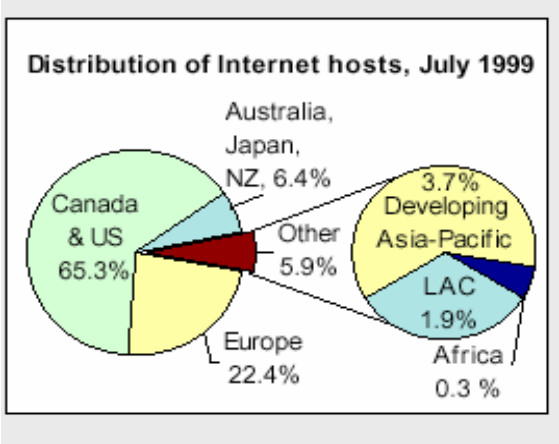

Figure 3. Geographical Distribution of Internet Hosts, July 1999.
Source. ITU, *Challenge to the Network. Internet for Development*. Executive Summary, ITU, Geneva, 1999, p.5.

Even in the cradle of the Internet, the digital divide has been well documented. In the words of Larry Irving, Assistant Secretary for Communications and Information in the Clinton administration: "Overall, we have found that the number of Americans connected to the nation's information infrastructure is soaring. Nevertheless, this year's report finds that a digital divide still exists, and, in many cases, is actually widening over time. Minorities, low-income persons, the less educated, and children of single-parent households, particularly when they reside in rural areas or central cities, are among the groups that lack access to information resources."[5]

[2] Extract from the Report of the United Nations Secretary-General, Dr Kofi Annan, to the Millennium Assembly. (Found in http://www.itu.int/wsis/brochure-4.htm)
[3] OECD (1999).
[4] See ITU reports. Information in http://www.itu.int. Also Department of Commerce (1999).
[5] Ibid., p.xiii.

2.2 A Manifestation of Poverty and Exclusion

The more the issue of the digital divide has been examined, the more it has become accepted that the nature of the challenge is not just one of access to ICTs, be it telecommunications infrastructure, computers and the Internet. It is simultaneously one of implementation and use for effective development. Thus, according to OECD (2000), "the term "digital divide" refers to the gap between individuals, households, businesses and geographic areas at different socio-economic levels with regard both to their opportunities to access information and communication technologies (ICTs) and to their use of the Internet for a wide variety of activities." (p.5)

Other organisations aiming to help tackle the "divide," for instance, Digital Partners, Bridges, MIT's Digital Nations and Harvard's Center for International Development, have made similar arguments.[6] These inclusive visions achieve perhaps the widest expression in the G8 Charter on the Global Information Society signed in Okinawa in July 2000.

> Our vision of an information society is one that better enables people to fulfil their potential and realise their aspirations. To this end we must ensure that ICT serves the mutually supportive goals of creating sustainable economic growth, enhancing the public welfare and fostering social cohesion, and work to fully realise its potential to strengthen democracy, increasing transparency and accountability in governance, promoting human rights, enhancing cultural diversity and to foster international peace and stability.[7]

This paper argues that this embracing approach is the only consistent with serious developmental goals for the poor and excluded peoples of the world. It puts technology access in its proper perspective: a necessary but not sufficient condition. It also helps to highlight that behind striking contrasting numbers such as those of Figures 1, 2 and 3, there are realities of people living in *integral environments* of families, communities, employment, health, education, government, etc. The pictures in Figures 4 and 5 below help illustrate the point more forcefully.

Figure 4 shows a fully-included citizen and knowledge worker of the information society in his work environment. His problem is likely to be information overload rather than the satisfaction of basic needs of health, education, employment, environment, etc.

[6] See http://www.digitaldivide.org, http://www.bridges.org, Digital Nations: New Research Consortium at the MIT Media Laboratory. Prospectus. Found in http://dn.media.mit.edu/prospectus.html and Information Technologies Group (ITG) (2000), found in http://www.readinessguide.org

[7] G8 (2000).

Fig 4. Fully Included

In contrast, figure 5 shows Cyntia from Chile. Cyntia is potentially excluded from the emerging information society because of disability. Yet it has not got to be this way!

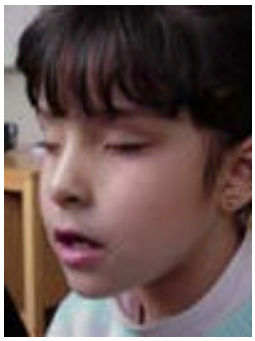

Fig 5. Potentially Excluded (Disability)

2.3 Tackling the Digital Divide

Can the digital divide gradually reduce in the future even if it may be expanding today between richest and the poorest areas of the world? If we focus on access alone and look back at Figures 1 and 2, in the long term the answer is most likely yes, for a simple logic. As developed countries gets closer to full access and saturation, the developing nations are most likely to increase their proportions of access and, consequently, reduce the quantitative access gaps between them.

Of course, this is only impressionistic and behind the figures there are issues of pricing, monopolies, liberalization, regulation, language barriers, etc., in short, the economic, political and policy processes of the governance of local and global network infrastructures and their contents.

Furthermore, this touches only on the quantitative perspective of access and not on the more complex challenge presented by poverty and exclusion as discussed in the previous section and as crystallised in the goal of the UN Millenium Summit, namely, reducing poverty by half by 2015. Such wonderful goal demands a much more exacting effort, probably entailing the formation of the widest social movement focused on poverty and exclusion seen on the planet. This 'digital divide' movement would itself be inclusive – inclusive of governments, international organisations, private sector, non-profit sector (NGOs, foundations, etc.), civil society/communities, and indeed, any organisation or individuals sharing the sentiment of an information society for the benefit of all.

There are some encouraging steps in this direction, particularly, in the work of organisations such as the G8 *dot.force*, the UN ICT Task Force, the World's Bank Global Development Gateway, the non-profit sector and governments adopting digital divide policies today. Also important is the adoption of 'social inclusion' policies by the private sector,[8] as well as the emergence of organisations such as Bridges, Digital Partners, Technology Empowerment Network,[9] Digital Nations and the Stockholm and Rome Challenges.[10] Above all there are the many community and grassroot experiences already pioneering the path for an information society for all.[11]

Yet the optimism must be tempered by lessons from the past since it is not the first time that technology brings the issue of economic development at centre stage. There has indeed been a long tradition of science and technology policy for development, particularly following the end of the Second World War. During the seventies and eighties it was computers and microprocessors that triggered the imagination and many national and international organisations focused on IT policies and programmes for development. Among the initiatives, France launched the Centre Mondial de l'Informatique under the leadership of Jean Jacques Servan-Schreiber and Seymour Papert and in the UK there was also the UK Council for Computer Development (UKCCD). In their time they were well-intentioned experiences but they faded as concerns for Third World development diminished in the West during the late eighties and nineties.[12]

Maybe we are just experiencing the wave of just another cycle of concern for economic development for the poorer regions of the world, this time opened by the rapid spread of the Internet and the digital economy in the most advanced regions of the globe. Maybe it will fade without much real impact like other efforts in the past. Maybe yes, but this should not stop people now from trying to make a difference to world's poverty and exclusion taking advantage of the opportunity created by the technology and the perception that it can help to improve the lives of millions of people across the globe.

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[8] ICL for instance has defined that "as a leading IT services company, we aim to make a significant contribution to 'social inclusion' in today's Information Society." (http://www.icl.com/about/community/index.htm). So is the case with many other major corporations. See for instance http://www.digitaldivide.org/corps.html for social responsibility declarations and policies from over 50 corporations.

[9] See http://www.techempower.net/

[10] See www.challenge.stockholm.se and www.gjc.comune.roma.it

[11] See Okinawa Charter on the Information Society (G8 2000)

[12] Freeman (1999) makes the point that "Concern with social inequality is a recurrent theme in political life" (p.2)

Moreover, there are good reasons to believe that this time the digital opportunity may be more lasting and profound than previous occasions.

First, it has been shown that with ingenuity the market economy can create business solutions that address the problem of the poor. The microcredit movement started by the Grameen Bank is the classical example, but other experiences such as Village Phones and Telecentres are following suit. Prahalad (2000) has made the intellectual argument for the business opportunity offered by the millions living in poverty across the globe.[13] His first condition however is challenging: "there must be a mind shift in the way we look at our poverty. Rather than considering the poor as a problem, they should be seen as an opportunity to innovate."

Second, in an increasingly interconnected and globalising world, massive widespread poverty is highly destabilising for development and peace with consequent negative impact on uncertainty and risks for business investment and market growth. The present situation is hardly in the interest of anyone, let alone a digital exacerbation of the gulf between rich and poor leading to an even more unfair and unstable information society.

Third, people are more than *homo economicus* and although profit and market rationale have tends to dominate arguments, the fact is that humanity also possesses a generous, altruistic humanitarian streak whose drive is solidarity with fellow human beings in the pursuit of a better world for all. This humanitarian streak tends to be more visible in the work of the non-profit sector and government policies for the public good, but it is also present in the private sector through corporate policies of social responsibility.[14] Whether the drive comes from pure altruism or from enlightened self-interest is immaterial for purposes of tackling the digital divide as long as the focus remains the improvement of the life of less fortunate fellow human beings. In this light, the market is a powerful force as expressed in the first point above.

Fourth, the end of the Cold War has all but brought to an end the deep ideological divisions between radically different social systems. This has opened the way to more pragmatic national and regional centre politics but it has also removed from the agenda much of the 'big dreams' and 'utopias' of a global society free of poverty and with equal opportunities for all peoples in the planet. This is probably one of the reasons why people, particularly the young, feel less excited to participate in traditional politics and voting abstention has been reaching very high levels in some countries. Yet as Giddens (2000) has argued this is not the same as 'despolitizacion' since the 'sub-politics' of social movements, single issues groups, NGOs, etc. has been on the increase. In this context, a wide social movement focused on poverty and exclusion might just provide a powerful dream to give people a worthwhile cause to channel time and energies.

Fifth, the existence of the network technology itself that enables a much faster spread of information and concerns on a wide international scale, making possible the development and implementation of concerted actions by what has been referred to as

[13] See also *Business Week* (2000).

[14] The Technology Empowerment Network is a good example. It was created by the Technology Pioneers, a community of companies of the World Economic Forum.

'communities of concern.'[15] Some of these communities of concern may have the potential of becoming influential social movements on a wide scale (e.g., the Seattle movement). The same is possible for the digital divide social movement.

These five reasons (and there may be others) reinforce each other and should provide the foundations for the widest digital divide social movement. This global movement is not just desirable, it is a necessity if the UN Millennium Summit goal of reducing poverty by half by 2015 has any chance of becoming a reality:

3 The Digital Divide Social Movement – "Let One Thousand Flowers Bloom"

The beauty of a social movement is that it is a boundless, free flowing association of people sharing and pursuing in myriad ways the realisation of a dream. It is a space for leadership, creativity, innovation, emulation, cooperation, competition, fulfilment and disappointments in pursuit of change. It may be partly coordinated or simply loosely associated through mechanisms for sharing and learning about different experiences. The bond –whatever its manifestation- is simply the shared dream and the desire to do something about it. So it should be with the 'digital divide' movement and the key is just to plant the seeds worldwide and "let one thousand flowers bloom" so that in years to come we may see the Earth as a garden for all.

Table 1 provides and idea of the enormous variety of possible digital-divide initiatives and actions by geographical source and reach, by donor or implementor, by purpose and by final aim. The table is constructed in four layers, with multiple columns and rows to stress the huge combinatorial possibilities of initiatives and actions. The *first* broad layer (green column-row) shows the geographical possibilities at many levels, illustrating the point that there might be multiple forms of interactions (eg., bilateral, multi-lateral). The *second* broad layer (light blue column-row) shows that inside the geographical possibilities, there are many organisational possibilities both as donors and/or implementors, including the private sector, public sector, non-profit sector, civil society/communities, individuals and the many hybrids forms combining them. The *third* broad layer (light red column-row) illustrates that inside the other combinatorial potential of the previous two layers, there are various possibilities for the broad purpose pursued by the different initiatives and actions. This includes governance purpose with all those initiatives aiming at changing or creating legal frameworks and more broadly changes in cultural practices and attitudes in government, business and other stakeholders such as those referred to by Prahalad (2000). It also includes funding/suppport purpose for other initiatives, grassroot projects and all the hybrid possibilities.

[15] Phrase used by Nitin Desai, Under Secretary General for Economic and Social Affairs, United Nations

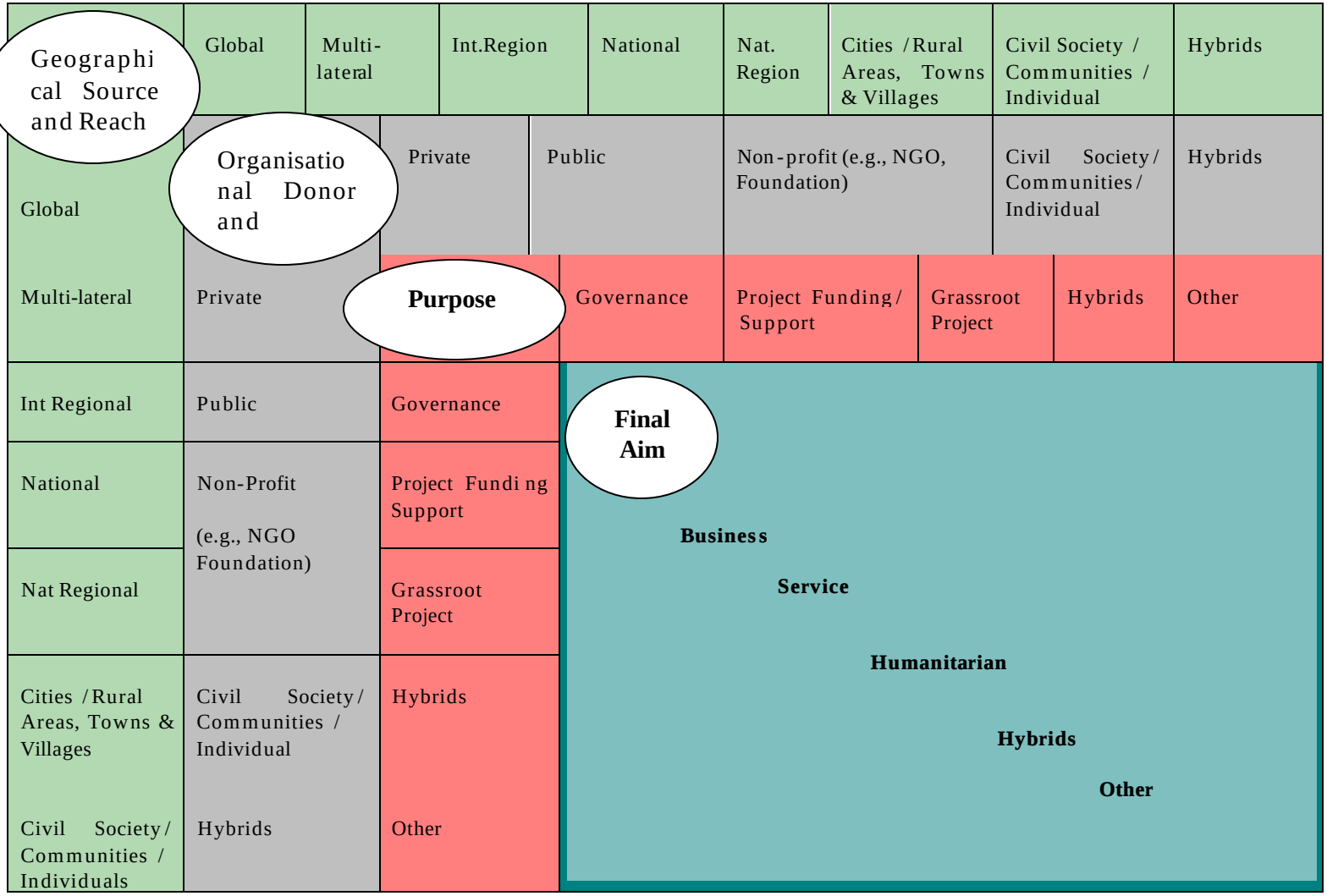

Table1. Variety of Initiatives, Actions by Source-Reach (Geography), Donor-Implementor, Purpose and Final Aim

The final box inside all the other layers (deeper blue) shows the various possibilities for final aim, including business or profits, public services such as improvements in education, humanitarian such as non-profit projects aimed at improving the livelihood and/or working conditions of fellow human beings, and all the possible hybrids forms.

Clearly the huge challenge of the digital divide demands initiatives and actions at all these layers, some having larger impact than others, some maybe in competition with others, but all focused on the challenge of reducing poverty and exclusion through the exploitation of the digital opportunity. This is what would make it a global social movement. Sometimes the initiatives of international organisations (e.g., G8's dot.force, UN's ICT Task Force, OECD, ITU and others) attract most of the limelight, but in reality they are only one player in the total ensemble required to effect a real change. There can be no claim to overall supremacy or control of this movement, only the will to play a part, publicly or anonymously, for the sake of an information society for all.

In this movement the frontline of change is occupied by the myriad projects and experiences that are in direct contact with the poor and excluded in countries, regions, cities, rural areas and communities. Ultimately, it is at this grassroot level that the realisation of the dream of an inclusive digital economy is being made to happen by the pioneers and innovators of the information society. For this reason, to a large extent, the entire ensemble of governance, policy and support/funding thinking and action at all geographical levels will be tested in their effectiveness in the degree to which they help create the fertile terrain and environment for these "digital-divide" projects to flourish. Conversely, grassroot digital-divide projects will be also tested in their effectiveness in the degree to which they are able to effect change in the living and working conditions of the poor and excluded and, implicitly, in the degree to which they are able to generate the resources necessary to exist. One problem and opportunity at this early stage of development of the global information society is that its governance is still in process of formation and the issue of the digital-divide, although largely absent from the spontaneous workings of its predominant profit-driven market mechanism, may yet find a salient place in the consciousness, attitudes and actions of all players – public, private and non-profit sectors, civil society/communities and individuals. This new governance would be the fertile environment for "1000 'digital-divide' flowers to bloom."

In the following, the paper briefly describes one of these "digital-divide flowers."

4 A Tale of the Pioneering Project Hyperstories for Blind Children[16]

Project Hyperstories was started in March 97 by Jaime Sanchez and his team at the Department of Computer Science of the University of Chile. From all the possible applications of their knowledge, it was the concern for the needs of excluded blind children that attracted their efforts to develop an innovative application of ICT. The team was not satisfied with this exclusion and wanted to change it. For them,

[16] Based on Lumbreras, M., and Sanchez, J. (1999). Sanchez, J. and Cernuzzi, L. (1999). Also on information found in http://www.gjc.comune.roma.it/uk/show.asp. For further information visit www.c5.cl/hhblind or www.c5.cl/hh.

"Childhood is an exciting period for the discovery of the surrounding world and, due to the primary role of vision in learning, visually impaired children risk of falling behind in their cognitive development. Furthermore, this type of disability imposes a strong barrier to access to different media, mainly those of interactive nature."[17]

The answer was Hyperstories, a project exposing Chilean blind children to a learning methodology that uses a set of 3D sound interactive software to help them construct cognitive structures that allow the representation of their surrounding space.

The start was not easy. In 1997 most blind schools in Chile did not have computers and most funding organizations in Chile did not finance projects for disabled people. Curriculum materials for the blind are based on Braille and no interactive materials were available for blind learners in Chilean schools. Sound-based software was very uncommon in the literature. This did not discourage the team who brought their own computers to the schools to work with blind learners in the effort to break the walls of exclusion through patient trial and error and learning by doing. Looking back, they had no experience of how to work with blind children, nor did they know much about their interests, needs, and the way they think. Furthermore, the team found that to understand the learning processes of blind children, they had to unlearn many of the assumptions related to learning of sighted people.

> We developed the first prototypes little by little, testing and retesting with blind learners, learning from them in their contexts, exposing parts of the software to them, asking them to criticize, redesigning, and redo and redo again and again. As a result, we came with prototypes very much suited to blind learners to start doing the initial testing from the scratch. We learned a lot from the initial testing to the full cognitive testing. Research, questioning, criticizing, testing, constructing, and creating were our main motto of the project group.[18]

Four years later, Hyperstories has worked with 50 to100 poor blind learners discovering that each of them is a real individual case, because many, besides their blindness, have cognitive disabilities that make more complex the learning work. Above all, the project has made significant advances in the development of an ICT application that truly helps bridge the digital exclusion of blind children.

Thus Hyperstories has confirmed that blind children enjoy computer applications and the learning enabled by them. It has revealed that it is possible to achieve the construction of mental structures rendered with only 3D sound, and that spatial imagery is not purely visual by nature, but can be transferred through spatialized sound. In so doing, the project has contributed to the improvement of the quality of learning and introduced a new way of training blind learners for cognitive learning and development. Not surprisingly, the Hyperstories team are proud to say that their work has resulted in "happy blind children that are highly motivated to have the opportunity to interact with learning software through their most developed sense, the auditory."[19]

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[17] See www.c5.cl/hh. In Marco Teorico, translation of following text in Spanish, "La niñez es un período excitante para el descubrimiento del mundo circundante y debido a que la visión juega un rol primario en el aprendizaje, los niños con impedimentos visuales enfrentan el riesgo de retardar su desarrollo cognitivo. Más aún, este tipo de discapacidad impone una fuerte barrera para el acceso a medios de variada naturaleza, principalmente los interactivos."

[18] Hyperstories entry to Global Junior Challenge, see http://www.gjc.comune.roma.it/uk/show.asp

[19] Ibid.

One of the blind children to benefit from the Hyperstories ICT application is Cyntia who was shown in Figure 5 and is now shown in Figure 6 (a) and (b) working on a computer in her school for the blind (a) and reproducing her visualisation of spatial distribution on a Lego (b).

Figure 6. (a) Cyntia in front of computer and
(b) Cyntia enacting "sight" of space distribution

From darkness to 'aural vision'! is what Hyperstories has began to give disadvantaged blind children in Chile. And for this work the project has received a great deal of international acclaim. Thus, in 1999, Hyperstories won the Health category of the Stockholm Challenge Award (SCA), the world's largest contest of information society projects. Figure 7 shows Jaime Sanchez with the SCA award received from the hands of the Mayor of Stockholm.

Figure 7. Jaime Sanchez, Leader of Hyperstories Project with the Award received from Mayor of Stockholm, Carl Cederschiold

And there is more to come. Hyperstories pioneers are developing software editors for parents and teachers of blind children to enable them to design a wide variety of software for their needs. The software may include the design of their neighbourhood with squares, supermarkets, streets, etc., in such a way that children can early learn the spatial structure of their surrounding environment. Most importantly to take the benefit of the ICT application beyond the confines of schools for the blind in Chile, the team is also designing the Hyperstories environments for the Web. This will make it accessible worldwide and will enable the development of distributed activities synchronously and asynchronously.

Securing funding, however, is still difficult and the project has benefited from its protective environment in the university. The rapid realisations and exploitation of the full potential concept is certain to require the investment of more resources. Hyperstories may have the potential to generate a marketable product, albeit for a niche market. Maybe this is the place for university-industry partnerships for an inclusive information society. Whatever the path, if the digital exclusion of disabled children is going to be mitigated, endeavours such as those of the Hyperstories pioneers must continue to happen with the support of those concerned with the goal of making a reality an information society for all.

5 Concluding Discussion

It is useful to start the concluding discussion with a fresh reminder of the huge magnitude of the challenge of the digital divide. In this paper, I have posed this as the challenge presented by poverty and exclusion and crystallised in the goal of the UN Millennium Summit of reducing poverty by half by 2015. The sobering fact is however that the present state of affairs is not leading to the fulfilment of this goal. Flemming Larsen, Director of the IMF Office in Europe, has made the point: "There is a striking contrast in the global economy… The income gap between the rich and the poor has never been so great." [20]

Among the explanation for the failure of aid to put countries on the path of sustainable growth, the Larsen cites:

> (1) the absence of associated measures essential to the viability of public and private investment projects; (2) the tendency of donor countries to favor projects more in keeping with their own exporters' interests than with the needs of the countries receiving aid; and (3) the propensity of recipient countries to give precedence to military spending or wasteful projects and, all too often as well, shortcomings in public administration or corruption.

An angle from a developing country is given by Nii Quaynor, Executive Chairman of Network Computer Systems (NCS), Ghana. In a speech to a recent conference on the Digital Inclusion in Berlin, he expressed the following thesis,

> developing countries are embracing the requested reforms. But it may also be that the developed countries will also have to reform in a somewhat different way… We

[20] Larsen (2001).

> heard that action was very necessary. We've been discussing this for ten years. The investment that we've seen is actually quite little.

He went on to focus on a simple example of scale of investment required for IT training in a country of 20 million and 5% population growth simply to stay the same.

> in terms of awareness, without widening the gap, in one year you have to train a million… If you want provide one million PCs, which is really just 5%, you're probably talking one billion dollars of investment. If you want to provide one million telephone lines you're also talking about one billion dollars additional investment… Thus the investments are in billions of dollars just to improve the penetration on various indices to 5%, yet many of our government's annual revenue is less than one billion. The countries cannot implement such a monumental task without assistance.

These are the harsh realities facing the challenge of the digital divide poverty crystallised in the goal of the UN Millennium Summit of reducing poverty by half by 2015. Any logical extrapolation of the present state of affairs is likely to lead to some pretty pessimistic conclusions which would make a great deal of what we have discussed earlier look rather idealistic. Fortunately, there is also some logic in the five factors identified in Section 2 of this paper.

This leads us back to reiterate the importance of stimulating the formation of the widest digital divide social movement as a boundless, free flowing association of organisations and people sharing and pursuing in myriad ways the realisation of the dream of reducing poverty by half by 2015.

Looking back to Table 1, this movement should have initiatives and actions at all layers - by geographical source and reach, by donor or implementor, by governance, support/funding or grassroot-project purpose, and by final business, service, or humanitarian aim. They are all necessary to give 'institutional thickness' and reality to the massive transformation and endeavour required. The leadership of such movement should be everywhere, geographically and organisationally. In fact, such movement should be an environment to stimulate entrepreneurship and innovation in all spheres, in partial coordination or loosely associated through mechanisms for sharing and learning about different experiences. We have seen how grassroot projects such as SITA are in the frontline and similar valuable contributions are being made by the initiatives of international organisations (e.g., G8's dot.force, UN's ICT Task Force, OECD, CEC, ITU, IBD, etc.) and by others such as Rome and Stockholm Challenges Digital Partners, Bridges, TEN, Digital Nations, ITG. Many more are required to make reality of the idea of "letting one thousand flowers bloom."

At these early stages, the initiatives of international organisations and government have a significant responsibility to give an impulse to the movement by promoting awareness, conditions and initiatives to mobilise and facilitate the actions of the total ensemble required to effect a real change (see Table 1). This includes the issue of access to digital infrastructures as well as the development of appropriate governances for this access to happen together with improvements in living and working conditions through employment, health, education, and sustainable development.

As said in Section 3, the governance of the global information society is still in process of formation and this provides a problem and a window of opportunity. On the one

hand, it is true that the issue of the digital-divide is at present largely absent from the spontaneous workings of its predominant profit-driven market mechanism. On the other, a momentum is building up and it may yet find a salient place in the consciousness, attitudes and actions of all players – public, private and non-profit sectors, civil society/communities and individuals.

To take advantage of the window of opportunity, three interrelated sets of actions should be pursued.

(1) Continue to stimulate and support all initiatives and actions (public, private, non-profit, etc.) emerging and taking place at the moment as well as their networking to exploit synergies. Brokering of grassroots projects with support/funding organisations is particularly important, including reviews and support for sustainable business development purposes. An annotated 'mapping' of such initiatives and actions would be useful probably building from the databases of current initiatives. Equally important is the reporting of experiences for learning and inspirational purposes. This has not got to be only about successes because 'failures' are a natural part of learning especially at early stages very much dominated by trial and error.

(2) Stimulate massive awareness on the issues of the digital divide and its deep relation to the challenge of poverty and exclusion reduction raised by the UN Millennium Summit: reduction of poverty by half by 2015. This should be high on the agenda of every player and every opportunity should be taken to persuade others to join the challenge. Participation need not entail radically new activities or change for individuals and organisations. There will be this too, but most participation can actually happen through minor incremental changes in scope.

Just ask yourself:

- is there a possible way in which what I do can be of benefit to the digitally excluded?
- what incremental change would I need to implement to be able to benefit the digitally excluded with what I already do?

True, an incremental contribution by one individual or organisation in isolation may look like "a drop in the ocean." However, if millions do the same such drops have the potential to become an "ocean of change." The task is therefore to make true the sub-title of this paper "transforming drops of concern into an ocean of change," and here the networking capabilities of the technology itself can play a critical role in enabling the emergence of a shared spirit on a global scale – the digital-divide social movement.

(3) Continue to demand from the most advanced countries to act in consequence with their avowed commitment to reducing digital poverty and exclusion. For instance, Larsen (2001) states that "The IMF has long stressed that debt has risen to intolerable levels. We therefore place great hope in the "enhanced" initiative introduced in 1999 to ease the debt burden of countries applying reform programs to combat poverty. Debt service relief for the first twenty beneficiaries is expected to substantially exceed US$30 billion." He then continues to demand that advanced industrial economies should:

- make greater efforts to completely open their markets to developing country exports. A 50 percent reduction in the trade barriers throughout the world would generate gains for everyone exceeding US$100 billion per year.
- find the way to support farm incomes without recourse to export subsidies, which hamper the introduction of profitable agriculture in many developing countries.
- improve their official development assistance (ODA) in terms of quality and volume. The level of ODA is currently well below the target of 0.7 percent of GNP which the international community had agreed upon. The gap between promises made and the effective level of ODA is on the order of US$100 billion per year.[21]

(4) Encourage the formulation, sharing and implementation of local, regional, national, international action plans or programmes for inclusive digital economies. The purpose of this initiative would be to bring all relevant players in to work together in partial or holistic processes of strategy-making and implementation. Any programme should be the crystallization of such processes and not just a document devoid of roots. Here government and international organisations have a major role given their 'public good' nature.

All these policy aspects reinforce each other and as long as they are bound by the challenge of reducing poverty and exclusion through the exploitation of the digital opportunity, then we may harbour great hopes for an information society for the benefit of all.

[21] Ibid.

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