Chapter 17

Assessing ICT in development: a critical perspective

Manne Granqvist

This chapter suggests some directions for a critical social approach to the assessment of ICT efforts in marginalized regions. It is argued that the dominant way of understanding ICT in the development context, as represented by mainstream assessment models, lacks a critical perspective and neglects aspects of fundamental social relevance. A critical perspective needs to recognize the political nature of technological development and design and in this chapter the notion of the social embeddedness of technologies and the experience of emancipatory design traditions are put forward as ways for critical assessment initiatives to approach this task. The chapter finishes with some observations from a case study of an actual ICT-for-development experience –the Lincos Project in the Dominican Republic– wherein the relevance of the theoretical discussion is illustrated briefly.

Introduction

Information and communication technologies have become major players on the development arena. ICT strategies are now incorporated into the programs of most foreign aid agencies and many NGOs are focusing on the issue of information technology. Governments of economically weak countries which do not wish to appear as backward are readily joining in and so, with the help of development banks and multinational companies on the lookout for new markets, the new technologies are spreading to all corners of the world.

Significant of what may be defined as the dominant approach to ICT in the development context is its priority concern for access. Access to information

technologies is regarded as the road to a better life for the inhabitants of economically weak regions. Not only is the advent of these technologies claimed to increase the 'competitiveness' of a society and its people (which in turn is regarded as the key to a prosperous life), but the technologies are argued to possess in themselves qualities that will enhance the well-being of their users, through amazing communication opportunities and a never before experienced access to information and knowledge (between which a distinction is seldom made). This approach is closely related to the information society discourse, whose underlying beliefs are that "a total social transformation is predicted and that this transformation is generally a good and progressive movement" (Uimonen, 2001).

The single most important myth of the ICT-for-development discourse is the 'digital divide' –a metaphor for the uneven global distribution of new technologies, conceived as a major obstacle for the progress of societies regarded as less developed. Academics, report-writers, journalists, and businesspersons are seemingly competing to present the most striking example or figure of how this great rift reveals itself. "Manhattan has got more computers than the whole of Latin America", "Luxemburg has more Internet hosts than Africa" and so the talk goes. Unfortunately, 'progressive' forces have in many cases not hesitated to embrace this concept. Not only are these accounts most tiresome to read but, in stressing them, authors act as if uneven global distribution of material wealth were a new phenomenon, and one isolated from the economic system that may be argued to perpetuate such inequalities (i.e. Smith, 1993). Further, in the words of Uimonen (2001), "by framing this divide in a technocratic terminology according to which progress is inseparable from access to technology, the concept of the digital divide serves to conceal the political nature of technical systems".

The mere highlighting of this so-called divide does not only indicate technological determinism. It also reflects a modernist worldview and development approach, implying that what most urgently needs to be done is to fortify the deployment of ICT in marginalized countries, thus adapting them to the socioeconomic model of the economically powerful regions. Even among those forces eager to actually reach out a helping human hand, to 'guide' marginalized people with tenderness into the golden era, the basic presupposition remains intact: there is a digital divide, we are on the good side, they are on the bad side –we must help them across. This is the underlying assumption that is never questioned. And so Western culture constitutes an opposite, in which its own splendor is reflected and its 'progress' justified.

Assessment models springing out of this perspective generally seek to appreciate the extent to which a community has "bridged the gap", adapted to the "network economy", and how its ICT efforts are being carried out in line with such aspirations (e.g. Harvard Readinessguide, 2001). They typically focus on the dissemination of access, and secondly, on how this access is utilized in economically rational ways. As commented by Menou (2001), "most of these instruments are fraught with an excessive, when not exclusive, focus on ICT infrastructure".

Typically, in these types of assessment guides, different stages of adaptation or "readiness" are presented, against which a community can check itself. The lower stages relate well to the status of many marginalized regions, whereas the upper ones correspond with the circumstances in economically powerful countries. The idea of development as a series of stages, where Western society is the ideal, is thus explicit.

Absent, unsurprisingly, in mainstream discourse is the process of strengthening marginalized groups in the regions that are now beginning to enter the so-called information age. Neglected is the creation of tools and agendas for these people to critically evaluate and respond to the current development, and build a concept of what it means to them. From a social viewpoint, access or infrastructure as such can hardly be regarded as categorically beneficial. Whatever it is that is to be 'accessed', and in what ways, must be subject to sophisticated scrutiny by the people affected. Indeed, socially minded grassroots organizations and pro-active NGOs have long criticized the simplicity of the digital-divide discourse and its exaggerated focus on access, stressing social issues rather than economic and technical ones, and seeking to elaborate assessment models accordingly. Efforts underway by grassroots groups, social movements, and such actors as the Olistica network[1] appear as promising attempts to approach this task.

For such measures to form part of a cogent critical approach, however, there is reason to further elaborate a framework that is capable of dealing with development, as well as technology, and not least the relationship between the two, as conflictual social processes. When approaching ICT in the development context, alternative forces often hesitate to recognize the historical and continuing role of economically dominant societies in perpetuating the conditions of marginalization, stressed by post-development, world-system, and dependency theorists. Further, as regards technology, it is commonly understood by most groups as a tool, ready to be used in different ways and for different purposes, while in itself free from values. There is alarmingly scarce recognition, even among socially minded activists, of the social dimensions of technological development and design. A critical social approach, as proposed in this chapter, builds on a profound critique of traditional development thinking and seriously questions the ICT-for-development discourse. It attempts to rely on the headway made by alternative forces, while extending concerns to include overlooked social dimensions of technology.

A critical stance

The critical social tradition could be associated with Critical Theory and the works of the Frankfurt School, but also with the feminist movement, foucauldian theory,

1 The Latin American Observatory of the Social Impact of ICTs. An action research network dedicated to the assessment of social implications of ICTs in development context. www.funredes.org/olistica.

and post-colonial studies, among other academic lines of thought. Researchers working within the critical tradition typically aim to unmask hidden conflicts, oppressive practices and power structures in the conventional. The critical perspective is often driven by a transformative social vision and an ambition to explore alternative societal practices, based on notions of autonomy, solidarity, self-determination, and emancipation. "The intellectual role […] of the critical researcher consists in creating the conditions that allow an open discourse between different social actors and not in establishing a superior insight or an authoritarian truth" (Alvesson and Deetz, 2000, original in Swedish). In such discourse, the critical approach aims to give recognition to issues and voices that are typically neglected or hidden and seeks to reveal practices that perpetuate such suppression.

In the development studies context, the critical perspective is today primarily represented by post-development and feminist scholars and activists. The post-development approach has confronted the 'development discourse' (Escobar, 1995), arguing not only that marginalization is the effect of Western dominance but also that development theory and practice has done little else than to reinforce both Western supremacy and 'Third World' marginalization[2]. Feminist development theorists, many adopting the post-development perspective, have put forward the role of women in marginalized regions and the effect on women caused by development[3].

In technology studies, critical theories are abundant and were launched to a certain extent already in the early days of critical theory (e.g. Marcuse, 1999 [1941]). For critical researchers, the task is to analyze the political character of technology and the ways in which technologies form part of societal power structures and political struggles. One contemporary attempt to build a critical theory of technology based on the legacy of the Frankfurt School is Feenberg (1995, 1999, 2002), who through the analysis of technology's role in the distribution of power aims to "enlarge democratic concerns to encompass the technical dimension of our lives" (1999). A similar, but less philosophical, attempt in this direction is Sclove (1995). Feminist scholars have contributed here with different critical understandings of technology that take as their starting point the experiences of women and the reproduction of gender systems through technology development and use[4]. Feminists have also approached the field of technology assessment, arguing for the introduction of gender analysis into all assessment of technologies (i.e. Morgall, 1993). When it comes to design studies and information systems design, the emancipatory or "political" branch of the participatory design tradition[5] has been proposed as a way for both critical theory and feminism to approach technology (Asaro 2000, Dahms and Rahmos, 2002).

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2 For an introduction to post-development thinking see Rahnema & Bawtree (1997), Sachs (1992) and Escobar (1995).

3 For comprehensive introductions, see Visvanathan et al (1997) and Saunders (2003).

4 Wajcman (1991) and Grint and Gill (1995) are good entry points.

5 Key works here include Ehn (1988) and Bjerknes et al (1987).

In the context of this study, the critical approach serves to direct atten-
tion to issues that are of relevance to the alleged beneficiaries of ICT-for-develop-
ment projects, and to open up discursive spaces where such issues can be dis-
cussed and reflected upon. Drawing from the critical traditions accounted for
above, the ambition here is to link the post-development perspective with critical
understandings of technology in an attempt to contribute to a framework for the
assessment of ICT efforts in marginalized regions from a critical social viewpoint.

The social nature of technological design

Striving towards analyses that are capable of capturing the social and political
implications of information technology, critically minded assessors must be able
to examine issues that are typically neglected or concealed in mainstream dis-
course. Their analyses must have the capacity to put forward dimensions of tech-
nology that, if they are overlooked, help perpetuate specific power relations and
social conditions. It is necessary, therefore, to delve deeper into the social dimen-
sions of technology, focusing on "key aspects of technology that are rarely, if
ever, voiced by computer manufacturers and political pundits" (Armitage, 1999).
As an entry point for this discussion, I will make use of a time/space graph. The
purpose here, rather than to picture 'reality' in an orderly fashion, is to stimulate
discussion. To be sure, social dimensions of technology could be arranged graph-
ically in many other fashions –or not at all, since they could be argued to be
inevitably intertwined. The present model should thus be regarded as nothing but
a source for reflection.

Figure 1: Social dimensions of technology through time/space axis
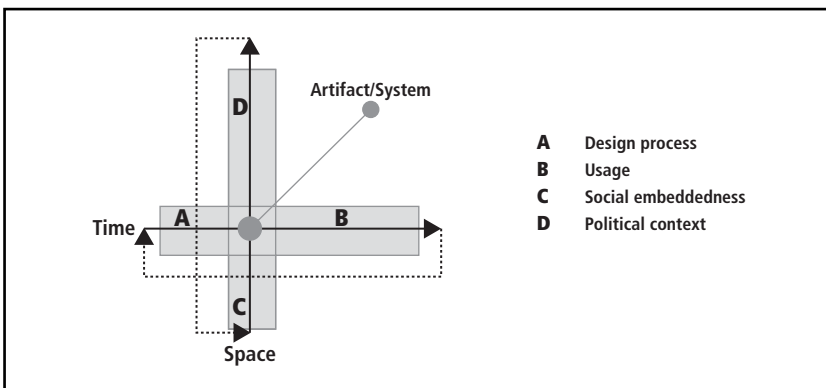
An initial explanation of this figure, before moving on, is appropriate. Starting out
with the horizontal axis representing the flow of time, area A represents the
processes directly leading up to the implementation of the artifact or system; the
design process. Area B, then, illustrates the activities that follow the introduction

of the artifact; its usage. Along the space axis, field C should be interpreted as the social values expressed in, and the behaviors implied or suggested by, the design of the artifact or system. Thus, although the figure might imply that this process is in some way or another outside of the actual artifact or system, it should rather be interpreted as lying 'beneath its surface'. The field D, finally, represents the social and political context, categorically surrounding and interacting with the technology. Neither of these categories, of course, can have a meaning without the others. They mutually reinforce and entwine each other and can be separated only as abstractions. The purpose of the model is to stress that a social assessment of technologies must encompass all of these dimensions.

As noted above, however, the development and design of technologies has been blatantly neglected as a social issue in the ICT-for-development discourse. This fact should not be blamed solely on ignorance. Investigators, users, and average citizens do not typically have the power (the finances, knowledge, and societal positions) to alter the circumstances of ownership, design processes, and technological outcomes. It is therefore somewhat natural to focus on how best to use technologies. And indeed, the actual utilization of a technology naturally remains a vital social ingredient in any ICT experience. For a critically minded investigator, some issues are of more concern than others. How is access to technologies distributed in terms of gender, age, and societal positions, for instance? Are users and community members in marginalized regions dependent on external forces? Are they fostered into compelling technology consumers or critical technology creators? Are ICTs used within broader strategies for social change or does the "new technology travel on old social relations"? (Vandana Shiva, quoted in Rydhagen and Trojer, 1998).

In order to achieve a thorough understanding of the social aspects of ICT activities, however, I argue that such analysis needs to be interwoven with evaluations of technological design, i.e. the process as well as the outcome. Further, the assessments must be capable of relating these issues to the political context within which they are given a social meaning. In the following, the notion of the social embeddedness of technologies, and the experience of emancipatory design perspectives, will be proposed as ways for a critical assessment approach to deal with the challenges of such a task.

The social embeddedness of technologies

"Technology", claimed Marcuse (1999: 39), "is a social process in which technics proper [...] is but a partial factor". A technological system or artifact could be likened to a written text. Much like an article, a technology can carry and reproduce varying social values through its choice and use of language, its informational content, and its undeclared presumptions. Through its design, it may convey ideological messages and prompt specific social behavior. "In this sense", declares Pfaffenberger (1992), "one may speak legitimately of the political dimension of technological design". Each given technological innovation can be

thought of as carrying with it a conjunction of ideas, "any technology represents a cultural invention, in the sense that it brings forth a world; it emerges out of particular cultural conditions and in turn helps create new ones"(Escobar, 1994). A critical theory of technology, as proposed by Feenberg (2002), is thus "suspicious of the advantages the beneficiaries of technological advance derive from the claim that, like justice, technology is socially blind" (66).

Informed by this understanding of technology as a social and political institution, social constructivist and feminist scholars have engaged in exploring the actual political properties of specific technologies, such as workplace machinery and domestic appliances. For those interested in assessing the social aspects of ICTs in economically weak regions, the space opened up by these academics is particularly relevant. There is reason to put greater effort into analyses of the design of chosen technologies and its meaning for users and society in general, and further, to recognize the prospect of alternatives. A critical perspective asserts that technological artifacts come to life through conflicting social processes, and that the realized design of a technology becomes the platform for continuing struggle, where the design as such supports or suppresses different, essentially political, objectives. Thus, as argued by Ehn, "emancipatory practice must not only aim at changing the use of artifacts but also their technical design […]" (1988: 100). An emancipatory assessment approach must also be informed by this insight, and seek to reveal the ways in which different designs are predisposed towards certain social and political directions.

The corollary of this conception when it comes to the assessment of ICT efforts in marginalized regions is that all technologies, envisioned and implemented, ought to be examined according to the kind of usage they allow, the behaviors they prompt, and the social values they uphold or confront. And not only should the actual information technologies be susceptible to investigation of social embeddedness. One electricity solution may be more sustainable from an ecological point of view than another one, thus affecting the world of citizens and signaling an environmental concern. Manuals and other types of information and instruction accompanying the technology also assist in articulating the values of the technology. Sites chosen for ICT projects, buildings and architecture, organization of user environments such as compilation, placement, and setting out of equipment, all carry with them social meanings and cause reactions with their users. Even the human organization surrounding the ICT practice should be taken into account when assessing embeddedness. Work hierarchies in ICT projects, 'rules of conduct', opening hours, etc., all help constituting the meaning of the technology in the social world.

Of particular concern for the critically minded assessor might be in what ways technologies promote, for instance, activity or passivity; creativity or monotony; autonomy or dependence; critical thought or compliance; collaboration or competition; democracy or hierarchy. In the development context, the findings of such evaluations should be measured against the aspirations of the

people that are supposed to benefit from the technologies. In what ways is the design and the visions it is meant to promote interfering with the values, traditions, and interests of community members and marginalized people in general? It must also be acknowledged that one and the same technology may be interpreted and treated differently by different groups. For instance, women may experience difficulties with technologies that were designed by men and with male users in mind. The promoters, owners, or managers of an ICT project may have a thoroughly different perspective of the ICTs than users (and non-users) who may subsequently be susceptible to other experiences than the ones intended by their design. The critical investigator should pay specific attention to how marginalized groups are affected socially by the design of technologies, but also compare this evaluation with the meaning of the same technology for people in more dominant positions.

The design process as politics

Users are of course not always helpless victims of a technology's social embeddedness and, as pointed out by Pfaffenberger (1992): "the ideologies crafted in the course of technological innovation are inherently ambiguous and susceptible to multiple interpretations [...]. But while "there is always a margin of flexibility in how existing technologies may be used or operated, or in what activities may occur in conjunction with them", Sclove (1999) stresses that "a technology's greatest flexibility exists before its final deployment, when artifacts and their accompanying social organization are being conceived and designed". One of the most potent strategies to bias technological outcome towards the interest of its future users, therefore, is to involve them in its design phase. But while the notion of 'participation' has lately appeared as ubiquitous in the development world, it is seldom more than an empty word, adopted by development agencies that in spite of a new vocabulary remain essentially modernist (Heeks, 1999). In development projects related to ICT, the superficiality of the concept is evident in the general incapacity of such projects to build upon specific community interest and knowledge, and also in a failure to learn from the extensive experience of the participatory design tradition, which provides both a theoretical and a practical framework for democratization of the design process.

In the typical ICT-for-development case, non-Western communities are conceived as "know-nots", underdeveloped, and in need of Western structures and infrastructure. Computers and Internet access are provided not as a means to strengthen traditional livelihood and local knowledge, but as an important and very symbolic step on the road to 'modernity', along which non-dominant truths and knowledge are discarded. The information society discourse reinforces this practice in launching categories like 'information-rich' and 'information-poor', which, correlated with technology, deny "the validity of the different types of knowledge that people possess, much of which is transmitted by other means than those of advanced digital technologies" (Uimonen, 2001).

In marginalized regions, the case for using participatory design methods might be particularly strong, especially from a post-development point of view that promotes the emancipation of marginalized regions from the dependence upon Western economic forces and acknowledges the right of the inhabitants of these regions to define their own solutions (and problems for that matter) instead of having ready-made models and accompanying technologies forced upon them. The political branch of participatory design evolved as computer scientists made common cause with industrial workers instead of management when designing workplace information systems (Asaro, 2000). In the development context, similar conflicts of interest prevail, making the design process a thoroughly political process. The expertise of external project members, representing authorities or foreign aid agencies, who 'know about development', is seldom questioned. Sadly, few designers recognize the political agency of their work and few projects in marginalized regions adopt the principles of participatory design[6].

Socially minded actors ought to look closely at participation in the design process. To what extent is a project building upon local knowledge and tradition? Are users taking part in the planning of the project? Are they involved at all in the design work? If they are, how is their participation assisted? Are efforts made to facilitate users' understanding of project plans and requirements specifications? Do community members have the right to turn down suggested technological implementations? If participation in the creation of a society's basic structures is conceived as a fundamental social right, these and more questions must be investigated.

It should further be acknowledged that participation is most often cosmetic. As Heeks points out, "membership is often skewed towards the powerful and away from the marginalized". Even when community members are invited to take part in the realization of a development project, the persons who tend to be selected already share the perspectives of the (normally alien) project initiators, or are willing to adapt to them. And whether formal discrimination is practiced or not, groups of people whose knowledge and interests are culturally and historically suppressed often underestimate their own capacities. A critical evaluation, therefore, cannot be content with participation as such, but must explore the social organization that surrounds it and analyze the power relations that set its foundation. In assessing ICT efforts, critical investigators should strive to reveal whether and how participation, given that it exists at all, actually enforces those voices that are commonly suppressed, in specific situations as well as in society in general.

Observations from the Lincos project

The remainder of this chapter presents a glimpse into the Lincos experience in the Dominican Republic, by presenting a few concluding comments based on a study carried out in late 2002 (Granqvist, 2003). These excerpts make no claim

6 For one exception, see Ramos et al (2002).

to give a thorough account of the Lincos project, but are recounted here only to briefly illustrate the applicability and relevance of the previous discussion in an actual ICT-for-development situation. For an extended report, the original study should be consulted[7].

Lincos (an acronym for "Little Intelligent Communities") is a project initiated by the Costa Rican business-oriented NGO Entebbe in cooperation with an array of commercial and academic institutions (among them Microsoft, HP, MIT, and Harvard University). The idea is to distribute multi-application ICT centers to marginalized regions, and the specific concept is to accommodate the centers in industrial containers. Each center is equipped with a host of technologies: computers, cameras, telephones, a fax machine, a radio transmitter, a telemedicine kit, a tool for water and soil analysis, television sets, plus more. Lincos centers have so far been set up in Costa Rica and the Dominican Republic, and according to the Lincos webpage[8] the project is not only pioneering but also highly successful. A critical social assessment might reach other conclusions, however.

The Lincos container is the obvious example of how a design solution imposes certain social behavior on its users. The limited space offered by these containers prevents people from accessing them, and in some cases causes the technology to be left entirely unused. Its material and its lack of a/c and ventilation have similar effects (producing an unbearable heat), and the same goes for the inadequate electricity solution. Further, the container concept as such signals temporariness, and invigorates the (in this case very well-founded) feeling that the project has been developed externally and brought to the community in a top-down manner as a wrapped-up 'development package'.

For the people of the communities, the design is more or less disastrous. For other persons, the same design may be conceived as successful –particularly for the Lincos officials who view it as a valuable marketing concept, signifying modernity and innovativeness. "They have their reality, we have ours", as one of the staff members currently on strike (protesting the conditions of their workplace) aptly commented, referring to those responsible of the design of the container. The design of the container and its consequent social implications for users may be interpreted in political terms. One understanding is that the interest of the Lincos officials, eager to accomplish a marketable product, has taken precedence over the interest of the community members. As the dominant force in the development of the project and its technologies, the visions of Entebbe and the government have been favored, at the cost of the interests of the community.

The organization of the Lincos project did not only exclude users from participating on any level of the design process, it also kept them from taking part in the planning and introduction of the project, failed to provide a structure for evaluation and totally neglected the local knowledge and situation. To the limited

7 The full text is available at the combined webmag/archive Globala Tider, <www.globalatider.nu>.
8 <www.lincos.net>.

extent that community members were involved, membership was biased towards the already powerful and users were not included. The design team, practicing in another country –not paying visits to the communities at all, let alone sharing their everyday life– had the sole right in both defining the problems and working out the solutions, which were of similar appearance and subsequently applied in an equal fashion in all of the communities. The social consequences of these conditions are at the same time both obvious and serious. Out of a host of expensive technologies, only a handful are used to a reasonable extent. Moreover, since the development of the technology has not formed part of strategies in line with community members' own visions, and since decision making has taken place above their heads, people in general do not feel affiliated with the project and express indifference or, as in the case of some staff members, even frustration towards the project.

The experience might be best summarized by a community member in one of the Lincos villages, in an interview made during the above mentioned study (translated from Spanish):

> "In the case of the Lincos project... there was no real introduction. They didn't tell the people first, before bringing the project, instead they came with the project first and then they spoke to the people. The first thing should be to speak to the people, 'we're bringing a project, and we're bringing it to show you', speaking to different sectors...that way they will know what the people think, 'well, we're going to modify this, we'll drop this thing that the people are not interested in'".

> "*That's what they call 'participatory design'*..."

> "Exactly, participatory design was never practiced [...]. The obvious consequence of this is that the people didn't give their support, they didn't attach importance to it, and with time the project diminishes, it won't be growing, because the people don't regard it as useful, because it doesn't have any importance for them, it doesn't have any value [...]. The consequence is fatal, very negative, and then the project is lost."

Summary

The main ambition of this chapter has been to highlight the importance of a critical understanding of technological design to form part of a critical social assessment framework and to subsequently provide some practical examples of why such an understanding is relevant. Emphasizing these issues is not enough of course. Elaborating a critical assessment framework is a thorough task that requires further exertions, not least involving those directly concerned. The purpose here has merely been to point out that design issues should be taken seriously in such efforts.

What need is there for a critical assessment framework, then? Can we really ask projects such as Lincos to live up to the radical demands posed by a crit-

ical approach to technology and development? Perhaps not, but the point of creating such tools, in my opinion, is not so much to enable simple conclusions on the appropriateness of specific ICT efforts, as it is to guide people into a way of looking at such efforts that does not exclude fundamental social and political issues, thus allowing them to better judge whether the introduction of technologies into their communities is in their interest. If and how citizens of marginalized communities should use ICTs are decisions that have to be made by these people themselves. Today, however, the dominant discourse informing such decision-making is so biased towards the idea of 'progress' and the excellence of Western technology –even to the degree that marginalized people commonly understand their own culture as inferior and equate computers with prosperity– that one important task of critical activists and investigators is to direct attention to alternative understandings and strategies.