

Community Informatics: Hope or Hype?

Bill Pitkin

UCLA Advanced Policy Institute
wpitkin@ucla.edu

Abstract

Community informatics is a promising strategy for taking advantage of information and communication technologies (ICTs) to further goals of community development. It is important, however, that proponents of this approach recognize that it is based on the assumption that technology in itself can lead to positive social development. This "techno-utopianism" is subject to various critiques, which can be grouped into three categories: methodological, philosophical and ideological. Reflecting on the implications of these critiques, we can develop several recommendations for "democratizing" community informatics. In order to retain the "hope" that ICTs can help lead to greater social, political, and economic equity, it is necessary to not succumb to the seductive "hype" that surrounds these technological developments. This perspective could lay the groundwork for an "ethics of community informatics."

1. Introduction: hope or hype?

As demonstrated by protests over the past year at the meetings of global financial institutions such as the World Trade Organization and International Monetary Fund, there exists a high degree of uncertainty and anxiety in the face of rapid economic and social restructuring, often referred to as "globalization." Proponents of free trade have hailed these sweeping changes as a new way of doing business, taking advantage of developments in computer networking and information technologies to globalize both production and consumption. The development of the "information economy" has coincided with huge gains in wealth, as witnessed by the 1990s bull stock market in the U.S. At the same time, these changes are increasing economic inequality and social divisions, between first and third world and even between the rich and poor within these worlds.

Social critics and activists question whether these revolutionary changes will ever provide the economic development opportunities that free trade proponents argue will appear. Interestingly, these critics utilize one of the lynchpins of globalization, namely new information

and communications technologies (ICTs) such as the Internet, as a weapon for organizing opposition. It has been well documented how the Zapatista rebels in Chiapas, Mexico have employed the web to "[weave] a new electronic fabric of struggle to carry their revolution throughout Mexico and around the world" [4]. Groups protesting at the 1999 WTO meeting in Seattle used e-mail and websites for disseminating their manifestos against globalization, as well as for more mundane tasks as matching travelling protesters with lodging. Ironically, then, critics of these structural changes are using the very engine of these changes -- i.e. information technology -- to fight back.

Lest we believe that these changes are merely a macro, global phenomena, we should recognize that these dynamics are playing themselves out at a micro, local scale as well. As Borja and Castells show, structural changes are impacting cities throughout the world in many different arenas, some positive and some negative. In fact, it is at this local scale that they see hope for developing innovative responses to deal with the macro-level changes that leave many people feeling helpless [3]. One example of this type of response is a burgeoning field of practice, which has been termed "community informatics."

Community Informatics is a technology strategy or discipline which links economic and social development efforts at the community level with emerging opportunities in such areas as electronic commerce, community and civic networks and telecentres, electronic democracy and on-line participation, self-help and virtual health communities, advocacy, cultural enhancement, and others. [9]

Advocates of this linkage between information technologies and community development tend to believe that they can utilize tools such as the Web or Geographic Information System (GIS) software to deal with local concerns and perhaps even influence policy decisions. Community networks, for example, provide a range of information services for neighborhoods, cities, or even rural areas [13] [28]. City governments have also become

involved in these initiatives by developing "public access computer networks" to improve service delivery and increase citizen participation [10].

Do these efforts represent a new hope for developing communities and engendering social equity, or are their proponents merely subsumed in the hype of the information superhighway? In an attempt to help answer this question, this paper addresses some fundamental assumptions of community informatics, especially that vein which seeks to impact a specific geographic space, such as an urban neighborhood. Moreover, I consider several critiques that could be levied against a community informatics approach and reflect on their implications. It is my hope that this exercise will help proponents of community-based ICT projects retain a realistic hope without succumbing to unbridled hype.

2. The inherent optimism of community informatics

Much of the current literature on community informatics tends to be speculative, reflecting optimistic, futuristic assumptions about the potential role that information technology can play in improving cities and urban communities. These visions of techno-utopia, compu-utopia, technophilia, or whatever you want to call them, are seemingly everywhere:

Despite the obvious uncertainties involved, and the risks of being proved completely wrong, a mini-industry currently thrives on predicting the technological future of cities. A central theme of much of such work have been on forecasting the effects of the radical technological changes underway in computing, media technologies and telecommunications upon cities in the future. [8]

Perhaps not surprisingly, a hotbed of this type of speculation has been at the Massachusetts Institute of Technology (MIT). Nicholas Negroponte, director of the MIT Media Lab foresees a completely digital world in which information technology "can be a natural driving force drawing people into greater world harmony" [22]. William Mitchell, Dean of MIT's School of Architecture and Planning, develops a similarly futuristic outlook of these possibilities in two books that more specifically speculate how cities and urban life are changing. In *City of Bits*, Mitchell outlines the many ways in which information technology will increasingly influence all aspects of life [19]. Mitchell builds on these ideas in the appropriately titled *E-topia*, focusing more specifically on how digital life will play itself out in an increasingly urban world. Mitchell envisions "lean, green cities that

work smarter, not harder" as a result of the digital revolution:

In the twenty-first century, then, we can ground the condition of civilized urbanity less upon the accumulation of things and more upon the flow of information, less upon geographic centrality and more upon electronic connectivity, less upon expanding consumption of scarce resources and more upon intelligent management. [20]

In translating the ideas of these information age sages to practical application in community development projects, leaders of community informatics projects retain the utopian assumption that information technology can aid in effecting social change. Community networks are perhaps the best known community informatics application, and proponents of these "virtual communities" hail their potential for creating and strengthening relationships, well as for providing access to vital information and resources [24]. This movement is diverse in origin and function, but the networks tend to share a common commitment to serving the local needs of a city or community, thus demonstrating that while they may in some sense be "virtual" they are also tied to geographic space.

Even within traditional community development practice, ICTs are increasingly being hopefully employed to improve local communities. Internet-based neighborhood information systems provide community residents with the opportunity to conduct on-line property and neighborhood research and enter into local policy debates, thus pushing the boundaries of participation in urban planning [15]. Even in the traditionally centralized world of Geographic Information Systems, organizations are taking advantage of decreasing computing costs and user-friendly desktop software to utilize GIS in participatory planning processes [12].

In a recent article on the potential for using information technologies in community development, Samuel Nunn presents a litany of reasons why organizations working in community development should take advantage of these new technologies:

[to] become more efficient and lower labor costs, offer better information management, provide more intelligence about clientele and other stakeholders, empower individual employees, improve service delivery, and present the organization as a progressive user of advanced technology. [23]

Although the article is interspersed with examples of how groups are using technology to achieve some of these goals, Nunn's argument is in general speculative and futuristic, presenting what information technology *can* do

for community organizations without necessarily questioning the risks or potential problems with this approach. It is this type of language that in general characterizes common approaches to community informatics.

3. Critiquing community informatics

Just as labor and environmental activists denounce negative impacts of the information economy at the global scale, there are important criticisms that can be lobbied toward a community informatics approach to development at the local level. It is important that people and groups working on community informatics projects reflect on these critiques in order to develop thoughtful, grounded theory on which they base their work. Though these critiques sometimes overlap, we can group them into three general categories: methodological, philosophical, and ideological.

3.1. Methodological Critique

The first series of critiques center around the tendency of community informatics advocates to be non-critical about their work. This is obvious in the utopian, futuristic language of much community informatics literature, reflecting a fascination with the hype surrounding emerging developments in information technologies. Many proponents of community informatics seem to be enamored by sweeping claims of futurists such as Alvin Toffler, who foresaw many of the sweeping impacts that information technology would have on economic and social life in his 1981 book *The Third Wave*. Though he has tempered his overwhelming optimism somewhat, Toffler still holds that information technology can "make possible the substantial alleviation of poverty" [11].

It is undeniable that that much of the source of this hype is mass media, as advertising banners fill the screens of many websites and companies post their website URLs in television and print advertising.

Most large media, computing and telecommunications companies, for example, are involved in some way in encouraging the current frenzy of debate and hype over the 'information superhighways', which are often being cast as some sort of technological panacea for all the social, economic and environmental ills of society. [8]

Therefore, we are bombarded with images of these new networking technologies breaking down physical, cultural, economic and interpersonal borders, implying that we cannot be truly fulfilled employees, students,

parents, lovers, or citizens if we do not jump on the technology bandwagon. Judging by the largely uncritical language of the community informatics literature, it appears that many well-intentioned persons have been seduced by what Kellner calls this "new infotainment society" [14], without recognizing that it has been promoted largely to serve the interests of the media and computing industries.

The inherent danger in this lack of critical reflection is that it stunts historical memory and does not acknowledge possible unintended consequences. Constantly in search of "today's next big something" or "killer app," even community informatics advocates forget the lessons of yesterday. In paralleling Internet hype with the hope that many community activists placed in public access television in the early 1970s, Stephen Doheny-Farina points out that "because we are increasingly afflicted with that particularly postmodern disability, acontextuality, we tend to forget failed dreams" [6].

Because of this tendency to overlook past failures, community informatics proponents are unlikely to consider the possible negative consequences of their actions, no matter how well meaning they may be. In promoting community networks, for example, are they turning people inward, away from face-to-face interaction, thus undermining "the public, civic sense of cities as physical and cultural spaces of social interaction" [8]? Might the promotion of digital interaction "induce democratically unpromising psychopathologies, ranging from escapism to passivity, obsession, confusing watching with doing, withdrawal from other forms of social engagement, and psychological distancing from moral consequences" [29]? By promoting e-commerce economic development strategies, could they be heightening social and economic divisions and contributing to the development of what Borja and Castells call the "dual city"? Finally, what are the implications of networking projects for privacy concerns, in light of current threats to individual privacy as commerce and information increasingly become digitized and integrated? These questions should force community informatics proponents to reconsider their methodologies and be more self-critical in their approach.

3.2. Philosophical Critique

A second set of critiques question the very philosophical assumptions of a community informatics approach that places hope in the power of technology to catalyze positive social change. According to Leo Marx, the historical roots of current utopian views of technology are found in the 19th century Enlightenment ideals of social progress, determinism and positivist epistemology [17]. This modernist heritage has led to linear, simplistic interpretations of how technology impacts society, thus

leaving out the complexities of these relationships. According to a current philosopher of technology, this determinism is based on two premises: (1) that technology follows a "unilinear course" toward progress and (2) that organizations have to conform to the "imperatives of the technological base" [7].

This type of deterministic thinking is obviously embedded in the current hype around the Web and other ICTs and undoubtedly seeps into community informatics thinking and practice. These tenets are likely popular with techno-utopists because they seem to jibe with common sense and justify efforts to solve social problems with the latest technical fix. As historians of technology note, however, seemingly innocuous technical innovations such as mechanical looms, automobiles, and piped water systems have always had negative, as well as positive, impacts [17] [29]. History tells us that there is not a simple, linear relationship between technological innovation and social progress. This should produce caution in proponents of community informatics, especially given our discussion of unintended consequences in the previous section.

While the debate over determinism may seem little more than an argument of semantics -- and writers such as Castells and Kranzberg characterize it as a "false problem" -- it is important to guard against determinism for two major reasons. First of all, given the many negative impacts of technological innovations throughout history, determinism can just as easily lead to a bleak dystopian outlook as it can to a utopian interpretation. Therefore, it sets up the common dualism between optimists and pessimists, techno-philes and technophobics, who share this deterministic outlook despite their divergent conclusions. The second reason to reject technological determinism is -- as I have already mentioned -- it tends to oversimplify causal relationships and -- as I will explore more deeply below -- denies the complex social and cultural contexts in which technologies develop.

Besides the debate over determinism, several of the most prominent philosophers and social critics of the 20th century have questioned the role of technology in society on more substantive grounds. Writers such as Heidegger, Weber, and Ellul represent "a grand tradition of romantic protest against mechanization" which argues that "technology is not neutral but embodies specific values" [7]. Likewise, for Habermas media co-optation and the "technization of the lifeworld" are impediments to democratic discourse through communicative action. For Jean-Francois Lyotard, technology is "a game pertaining not to the true, the just, or the beautiful, etc., but to efficiency" [16]. This ontological argument has more recently been taken up by Albert Borgmann, who laments the social distancing impact of "hyperintelligence":

Plugged into the network of communications and computers, they seem to enjoy omniscience and omnipotence; severed from their network, they turn out to be insubstantial and disoriented. They no longer command the world as persons in their own right. Their conversation is without depth and wit; their attention is roving and vacuous; their sense of place is uncertain and fickle. [2]

These substantive critiques of technology should likewise produce caution and reflection for community informatics advocates, as they again question the unintended consequences of increasing reliance on ICTs. Instead of "increasing democratic participation" as many community informatics proponents naively assume, it is important to consider how these new technologies might deepen current divisions and create new ones.

3.3. Ideological Critique

I call the final set of critiques ideological, though they could perhaps just as easily fit within the philosophical category. Therefore, there is substantial overlap between the critiques in these two areas. Perhaps the defining feature of what I call ideological critiques is that they tend to come from a "postmodern" or "poststructuralist" perspective. For example, one of the basic questions raised by postmodernism is that of agency and expertise. Whereas traditional modernist views of technology led to a form of "technocracy," popular social movements and postmodern writers of the 1960s began to question the foundational positivism and determinism of science and technology. Building on the substantive critiques of Heidegger, writers such as Marcuse and Foucault analyzed the power relations inherent in the technocracy. As Feenberg explains:

It is not easy to explain the dramatic shift in attitudes toward technology that occurred in the 1960s. By the end of the decade early enthusiasm for nuclear energy and the space program gave way to technophobic reaction. But it was not so much technology itself as the rising technocracy that provoked public hostility. [7]

These doubts bring into question the very role of technical experts, something that has prompted crises in many professions. More fundamentally, postmodern writers such as Alcoff challenge the right of experts to "speak for others," as all forms of communication and representation are biased by the contexts of both the giver and receiver. Speaking for others perhaps becomes even more problematic with electronic forms of

communication because, as Alcott points out, it is "increasingly difficult to know anything about the context of reception" [1]. Obviously, technical experts appeal to the supposed neutrality of technology in order to retain their "privileged space," but postmodernism's critique reveals the prominence of biases in the technocratic tradition.

While in general advocates of community informatics may not be aloof technocrats, it is crucial that they consider the critiques outlined above, as there is likely some degree of "representation" or "speaking for others" in any conceivable community-based technology innovation. Probably the great majority of community informatics projects involve some type of information provision, often to information that would not otherwise be readily accessible to community residents. One common vehicle for providing community data is through Geographic Information System (GIS) software, and geographers with a postmodern sensibility have raised serious ethical concerns about the use of GIS. As Curry warns, for example, any data used for policy decisions projects some type of representation of the "other," thus insinuating that those with access to the information are "empirically better able to make decisions" than those who do not [5].

This should produce reflection for those who purport to enhance policy making or community involvement through community informatics, as there is generally some type of filtering process before providing information in maps or on a website. The question of how that representation takes place is critical for ensuring that community informatics projects move toward their goal of improving communities by mobilizing residents through information technology. As Curry points out:

It is helpful here to distinguish between knowing *how* and knowing *that*. Knowing *how* refers to the ability to do something, the ability of the average person, say, to use a computer, to enter data, or to do analysis using simple, perhaps menu-driven routines. Knowing *that* refers to knowledge about how something works. When we look at the role of technology in society, we find a somewhat complicated story. In the last few years some technological systems -- and computers are a prime example -- have obviously become much more complicated. Hence, for the average person, the ability to operate a system is increasingly a matter of knowing *how*, and decreasingly a matter of knowing *that*. It is less and less related to the understanding of how a system works, and technological

systems look more and more like black boxes. [5]

If the leaders of community informatics projects do not recognize their own privileged position as experts and how this role is challenged by these ideological critiques, they will limit the political viability of their work and, ultimately, their impact on communities.

4. Democratizing community informatics

There has recently been a burgeoning interest in answering some of the critiques mentioned above by "democratizing" various aspects of information technology such as data [26], GIS [18], and technological design [29]. In order to reflect on the implications of these critiques for community informatics, I now offer four recommendations for ensuring that these projects contribute to the democratization of the information age.

4.1. Enter wholeheartedly the debate over the role of ICT in society

Lest community informatics leaders be discouraged by the critiques of their utopian assumptions, they should be admonished to not retreat from these criticisms, but rather to meet them head on. Several writers with a sympathetic, yet critical, view of the community informatics approach present the conflictual nature of information age struggles. Graham and Marvin liken the struggle to fights over neighborhood planning issues:

The battle is on over the future complexion of electronic spaces. Many of the new telematics networks on the Internet for special interest groups are 'places' that they defend from incursions in similar ways as physical neighbourhoods of cities. [8]

For Kellner, many different forces are positioning themselves for a place in the information age power structure:

The Internet is thus a contested terrain, used by Left, Right, and Center to promote their own agendas and interests...Those interested in the politics and culture of the future should therefore be clear on the important role of the new public spheres and intervene accordingly. [14]

Rather than fleeing from the critiques that can be made against a community informatics approach, it is possible to take advantage of them in developing a more coherent approach. Thus, Feenberg combines a radical Foucauldian "counter-hegemony" to technocracy that will help realize a Habermasian vision of "communicative

action" in developing what he terms a process of "democratic rationalization. This approach looks to technology to break down power structure and barriers that have excluded social movements from participation in public decision making [7].

Perhaps the most pragmatic advice comes from Doheny-Farina:

Just as it is naive to trust the design of the net to the technopists, it is equally naive to assume that by turning off our televisions and boycotting the net, we can somehow recapture something we've lost. The only long-term option is to work to use the technologies for the local good.... What communities need are people who have some technical skills, a willingness to examine how electronic communication technologies can enhance the community, some drive, and *a healthy dose of constructive skepticism. Bring doubt to every claim about the net, but be committed to moving forward.* [6]

Advocates of community informatics would do well to heed these balanced words. It is precisely those who are skeptical about the potential of community informatics projects that need to be involved in designing and implementing them. This will allow them to avoid the methodological errors of succumbing to information age hype and losing historical memory of past failures. Understanding why this approach is important, as well as the critiques against it, will only help increase the ability of community informatics advocates to impact the political process.

4.2. Recognize that information technology is part of a social, political, and cultural context

Community informatics advocates should anticipate philosophical critiques by rejecting technological determinism, instead basing their understanding of how technology relates to society in what Graham and Marvin call a "recursive relationship." Melding together a political economy approach with social constructivism, these theorists of electronic urban space contend that technical innovation in cities is "socially, politically, and culturally shaped rather than being purely technical" [8]. Commenting more generally on technology, Feenberg argues similarly that technological innovation is not due simply to efficiency -- be it technical or economic-- but rather part of a social construction: "What singles out an artifact is its relationships to the social environment, not some intrinsic property" [7].

This constructivist perspective certainly makes analyzing impacts and potential impacts of information technologies more complicated, but it will also enrich the potential for community informatics projects. Instead of merely setting up computer centers in low-income neighborhoods or providing information over the web, projects developed with this outlook will have to take into account the "human element" in both planning and implementation. This will not only force the community technology "experts" to open up the design process, it makes possible what Feenberg calls the "interpretative flexibility of technology" [7]. Though not in itself an objective agent of change and innovation, technology is malleable and therefore can be adapted and evolve into uses that were not even imagined in the design process.

4.3. Preserve public access to information

A critical battlefield on which community informatics proponents should position themselves is the debate over the privatization of public information. As Graham and Marvin explain:

Telematics and computing allow information to be controlled, processed and managed with unprecedented sophistication and precision. This means that highly individualistic market solutions become possible where previously services often had to be offered at generalised charges or as free public services. [8]

This leads to what Mosco calls the "Pay-per Society," in which consumers are forced to pay per phone call, per television show, or even "per bit or screenful of material in the information business" [21]. The "commodification" of information poses a serious threat to access, as only those with the necessary financial resources are able to purchase it. This happens even with supposedly public data sets, such as property records, that are sold by local governments to third party vendors, which then repackage the data and resell it, thus effectively limiting access to supposedly public data [25].

Website projects such as the Right-to-Know Network (<http://www.rtk.net>), the Center for Neighborhood Technology's Neighborhood Early Warning System (<http://www.cnt.org/news>), and Neighborhood Knowledge Los Angeles (<http://nkla.spsr.ucla.edu>) are bucking this trend by providing free public access to environmental and housing information that community residents and organizations might otherwise have to purchase. Community informatics advocates should support right-to-know legislation and involve themselves in fighting to keep information public. This will ensure that, despite the growing influence of market relations determining trends in the web, community informatics

will retain relevancy by democratizing the role of ICT in society.

4.4. Open up space for complementing representational democracy with direct democracy

The final recommendation provides a response to the ideological critique, which questions the privileged role of community informatics professionals. Instead of responding with syrupy rhetoric of "community empowerment," leaders of community informatics projects should acknowledge that they do have their own biases that stem from their role as "technical experts." At the same time, they should resist the development of any type of community informatics technocracy by ensuring that their projects become truly participatory in every stage.

After Alcoff elucidates the danger of experts speaking for others, she provides four "interrogatory practices" that can help professionals avoid paternalism [1]:

1. The *impetus to speak* must be carefully analyzed and, in many cases (certainly for academics), fought against.
2. We must also interrogate the *bearing of our location and context* on what we are saying.
3. Speaking should always carry with it an *accountability and responsibility* for what an individual says.
4. Analyze the *probable or actual effects of the words on the discursive and material context*.

Therefore, community informatics advocates should consider the potential implications of representation in their work, critically analyzing their own context and taking responsibility for the impact of their actions and words. By considering and heeding these warnings, community informatics proponents would avoid harmfully speaking for others and increase the potential for democratizing their work.

As Sclove argues, this democratic process should begin in the design phase and be much more than just broadening participation [29]. Feenberg posits a "deep democratization" of technology that would provide an "popular agency" as an alternative to the dominant technocratic ideology [7]. This is precisely the type of democratic process to which community informatics should strive, and one for which information technologies such as the Internet are particularly suited. With the potential for multiple-way communication in computer networking technologies, community informatics projects can enhance representational democracy with applications that provide residents the opportunity to directly enter

policy discussions. A simple example of this might be that a community network hosts an on-line discussion of city housing policy, in which tenants, homeowners, business owners, municipal staff, and elected officials all participate.

A final of caution on this matter must be mentioned. As noted by researchers who conducted a participatory GIS project in South Africa, "the question of 'who' participates will be central to the outcome of a participatory process" [12]. This statement should serve as a mantra for all leaders of community informatics projects. Just when they think that they have included all necessary "stakeholders" in the design and implementation of their project, they should ask themselves what interests may still not be represented. This constant questioning of assumptions will allow them to escape the bounds of technical expert and make community informatics more participatory and democratic.

5. Conclusion: toward an ethics of community informatics

The purpose of the paper was to analyze the assumptions inherent in community informatics in order chart a balanced course between indiscriminate hope and careless hype. Keeping in mind the danger of uncritical methodologies, simplistic philosophies and elitist ideologies, it is my hope that activists and researchers will collaborate in constructing a participatory, transformative "ethics of community informatics." I believe that the four recommendations offered here would be a good starting point.

As we embark on this effort, we would all do well to heed Doheny-Farina's call to constructive skepticism: "Bring doubt to every claim about the net, but be committed to moving forward." Community informatics appears to be a promising approach to taking advantage of new developments in information technology to improve communities, and there are many projects that would seem to bear this out. Before and while embarking on these ventures, however, designers and participants should reflect on the possible negative consequences of their actions, bringing doubt but with a positive disposition to moving forward.

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