

# Community Networks and the Evolution of Civic Intelligence

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*Maybe it's like Casey says. A fellow ain't got a soul of his own, just a little piece of a big soul, the one big soul that belongs to everybody...*

- the character of Tom Joad in *The Grapes of Wrath*, John Steinbeck

## Abstract

Although the intrinsic physicality of human beings has not changed in millennia, the species has managed to profoundly reconstitute the physical and social world it inhabits. Although the word “profound” is insufficient to describe the vast changes our world has undergone, it is sufficiently neutral to encompass both the opportunities — and the challenges — that our age provides. It is a premise of my work that technology, particularly information and communication technology (ICT), offers spectacular opportunities for humankind to address its collective problems. The problems themselves are equally spectacular: war and militarism, poverty, environmental depletion and destruction, disease, etc. and lack of successful alleviation may prove catastrophic. Humankind’s problems won’t be solved by elite fiat, by chance, or as a side-effect of the “free market.” To address these challenges effectively and appropriately “civic intelligence” will be required.

This paper is designed to explore the relation between community networks and the nascent concept of civic intelligence. Civic intelligence describes the capacity of society to consciously adapt to its environment and shape a future environment that is healthy, equitable and sustainable. Although individuals contribute to civic intelligence, the concept describes a phenomenon that is *collective* and *distributed*. This paper argues that community networks were an important manifestation of civic intelligence in the early days of the Internet revolution. It further argues that a theory of civic intelligence can be used to account for the declining influence of traditional community networks and to provide useful prescriptions for renewed vitality and influence of community networks in the future.

## Key words

Civic intelligence, Community networks, Information and communication technology, Intellectual tools, Mental model, Social capital, Seattle Community Networks

## 1. Community Networks

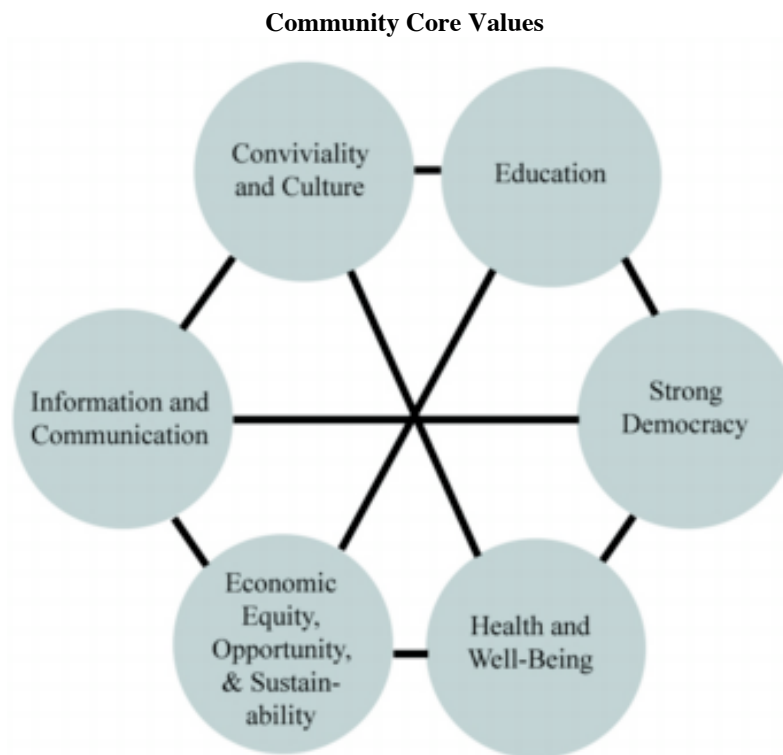
No definition of community networks has ever been universally embraced. Since the beginning of the community networking movement, generally considered to be with the Cleveland Free-Net, many generalizations can be made about projects that self-identified as community networks or Free-Nets circa the 1990s. This self-identification helps to place projects like Seattle Community Network and Blacksburg Electronic Village (both projects, Silver, 2004) into a recognizable category. What it doesn’t provide is assistance in characterizing socio-technical endeavors that embrace some aspects of community networking without necessarily subscribing to an overall community network orientation. Projects that demonstrate community networking without consciously identifying themselves as community networks are, however, natural allies of community networks and should ultimately factor into any discussion of reinvigorated civic intelligence in relation to community networks.

Community networking advocates embraced the promise of the Internet for increased empowerment but applied the concept to the development of the local, geographically-based community. This significant idea was gaining prominence in the early

1990s due to the influence of authors like Howard Rheingold who, although not focused on local communities, popularized the idea of communities in general, especially “virtual” ones, being supported through the Internet (Rheingold, 1993). Tom Grundner, the founder of the Cleveland Free-Net, consciously attempted to build upon other well known civic models such as the American public library and public (television) broadcasting systems (Grundner, 1994). The community networking community, working primarily on a volunteer basis in hundreds of communities worked in numerous ways to make their visions real. Ironically, however, although proponents had a broad public vision, seeking public funding was often rejected as a strategy by community networking proponents for a variety of reasons, including the omnipresence of the “new economy” ideology and residual attitudes from the anti-establishment 1960s.

In this paper, the past tense is used to discuss community networks. Although many community networks still exist, this paper is, to some degree, looking backwards at an era in which community networking had higher visibility than they do today. For over a decade, community members and activists all over the world, often collaborating with other local institutions such as local colleges and universities, K–12 schools, governmental agencies, public libraries, or nonprofit organizations, developed computer-based community networks. In fact, by the mid 1990s, there were nearly 300 known operational systems in the U. S. with nearly 200 more in development around the world (Doctor and Ankem, 1995; Schuler, 1996) and the number of registered users exceeded 500,000 people worldwide. Unfortunately user demographics for the aggregate are nearly impossible to obtain: the worldwide explosion of efforts coupled with a lack of a universally shared concept of what a "community network" is confounded efforts in this direction. Innovative examples could be found in Europe (Amsterdam (Lovink and Riemens, 2004), Milan (de Cindio, 2004) and Barcelona, for example), Japan, and Russia, where the development of civil society was an urgent matter after the abrupt breakup of the Soviet Union. These community networks (sometimes called civic networks, digital cities, Free-Nets, community computing-centers, or public access networks), some with user populations in the tens of thousands, were often intended to advance social goals, such as building community awareness, encouraging involvement in local decision-making, or developing economic opportunities in disadvantaged communities.

In my book *New Community Networks* (1996) I postulated that every community has systems of “core values” that help maintain its "web of unity" (MacIver, 1970). These six core values—conviviality and culture, education, strong democracy, health and well-being, economic equity, opportunity, and sustainability, and information and communication (Fig. 1) are all strongly interrelated: Each core value strongly influences each of the others — positively or negatively (Schuler, 1996). It has long been known, to illustrate the interconnectedness of the core values with just one example, that the higher an individual's education and economic levels, the higher the amount of his or her political participation will be (Greider, 1993; Goel, 1980). Strengthening community core values, therefore, is likely to result in stronger, more coherent communities.



**Figure 1.**

Broadly speaking, the community network's services are intended to support the core values of the community. Some possible community network services based on these core values are listed below (Fig. 2). A community network supports these core values by supporting the information and communication needs of smaller communities within the larger community and by facilitating the exchange of information between individuals within these smaller communities (creating what Putnam calls "bonding social capital" (Putnam, 1995)) and by encouraging the exchange of information among communities ("bridging social capital"). Another objective is to aggregate community information and communication thus focusing attention on community matters. This is addressed in a variety of ways by community networks: through discussion forums; question and answer forums; electronic access to government employees, services, and information and access to social services; electronic mail; and in most cases, basic Internet services, including access to the World Wide Web and Usenet news groups. Some community networks from the 1990s highlighted related work - such as community radio development - and policy issues specifically related to community communication. The most important aspect of community networks was their potential for increasing participation in community affairs. Since the Internet's original design made little distinction between information consumers and producers, the Internet itself helped spur idealism among community network developers that outpaced reformers and critics of traditional media such as newspapers, radio, or television.

Community networks in the US were local and independent. Although many were originally affiliated with the National Public Telecomputing Network (NPTN), the now-defunct organization that helped establish a large number of community networks—Free-Nets in NPTN's terminology (Grundner, 1993), other organizations, such as the Association For Community Networking (AFCN) in the U.S., the European Association of Community Networks (EACN) and the CAN (Community Area Networks) Forum in Japan were launched to support the community networking movement. Although these organizations were created for that purpose, the theory and practice of the idea of stronger and closer relationships between individual community networks was only minimally explored. There have been hopeful signs that a community networking "movement" linking those efforts would develop but, so far, this has not been realized. Global community networking congresses were convened in Barcelona, Spain (2000), Buenos Aires, Argentina (2001) and Montreal, Canada (2002). Computer Professionals for Social Responsibility (CPSR) sponsored symposia on "Shaping the Network Society" in Seattle in 2000 (Schuler & Day, 2004; Day and Schuler, 2004) and 2002 (Carveth et al, 2000). Perhaps most significantly, "global community networks" proponents have

begun to engage with the United Nations International Telecommunications Union as a potential civic sector advisee in the UN 2003 and 2005 "Information Society" summits.

### **Example Services for a Community Network**

#### **Conviviality and Culture**

- Forums for ethnic, religious, neighborhood interest groups
- Recreation and parks information
- Arts, crafts, and music classes, events, and festivals
- Community calendar

#### **Education**

- On-line homework help
- Forums for educators, students
- Q&A on major topics
- Distributed experiments
- Pen pals
- Online tutorials

#### **Strong Democracy**

- Contact information for elected officials - "Ask the Mayor"
- E-mail to elected officials and to government agencies
- Forums on major issues
- On-line versions of legislation, judicial decisions, regulations, and other government information
- Deliberative systems

#### **Health and Well-Being**

- Q&A on medical and dental information
- Alternative and traditional health care information
- Community clinics information
- Self-help forums
- Public safety bulletins
- Where to find help for substance abuse, etc.
- Resources for the homeless; shelter information and forums
- Pollution data

#### **Economic Equity, Opportunity, and Sustainability**

- Want ads and job listings
- Labor news
- Ethical investing information
- Job training and community-development projects
- Unemployed, laid-off, and striking worker discussion forums

#### **Information and Communication**

- Access to alternative news and opinion
- E-mail to all Internet addresses
- Cooperation with community radio, etc.
- Access to library information and services
- Access to on-line databases
- On-line "Quick Information"
- Access to on-line periodicals, wire services
- Free web space and online publishing applications

Figure 2

Looking back, we see that community networks have almost always had a difficult time financially. Public interest and sporadic infusions from the government, businesses, and foundations helped to alleviate some of the financial problems with some of the systems. For example, in Texas, the Telecommunications Infrastructure Fund, the largest ever in the U. S., devoted over one billion US dollars in a short-lived initiative to launch 200 community networks and other projects. This effort was a major exception, however: very few community networks - in Texas or elsewhere - have been adequately staffed or have had adequate office space, hardware, software, training programs, or telecommunications infrastructure. In many of the

government supported efforts, nearly all of the funding went to technology and infrastructure with little to no thought being given to staff support, training, or public education.

## **The Decline of Community Networks**

Community networks were an early attempt to stake a civic claim in cyberspace. What has occurred that supports the view that community networks are in decline in cities across the United States? Although community networks grew rapidly in popularity, they did not become a significant part of the Internet that exists today. Since its inception until the early 1990s the Internet had been relatively stable from a policy standpoint. Until the early 1990s, for example, all economic activity was prohibited. People not associated with the high-tech industry, academia, or the government did not have access to the Internet, and, as unbelievable as it seems to us today, the web was still virtually unknown. It was within this gated environment that the Free-Nets and community networks were born.

Many early community networks adapted dial-up, non-Internet based bulletin board systems (BBS) style text-only menu-based approaches to information retrieval: “Type 1 for government information, 2 for library, ...” etc. As clunky as this seems today, in the rich — yet commonplace — graphic environment of multiple windows and links to new pages a mouse click away, this interface was appreciably more user-friendly than the text-based UNIX environment that was nearly inseparable from the Internet at that time. A few years later, when the web exploded onto the scene, the user interface of the traditional community network became antiquated nearly overnight and the vast majority of community networks migrated to the web within a few years. At roughly the same time, some of the original reasons for using a community network were being replaced by Hotmail and other free-to-use (albeit commercially-motivated) services. The institutional support from the National Public Telecomputing Network (NPTN) faded as the organization slid into financial insolvency and disappeared and the common technological and organizational base that had been shared by many community networks also vanished. Without this shared identity — and the electronic connections that were built around it — the community of community networks quickly evaporated. The question that we now must ask is whether the movement can recapture some of its lost prominence, and, if so, what could be done?

## **2. Civic Intelligence: A New Paradigm of Thought and Action**

It has long been acknowledged that people’s brains contain a collection of cognitive capabilities that we call “intelligence.” Intelligence is a powerful general mechanism that individual people employ for dealing with the environment and other people as well as with abstract concepts and ideas. Less apparent is the fact that communities and other groups also possess “intelligence.” This collective intelligence is played out in prosaic times and also in times of challenge. It is manifested over the long term through culture, language and institutionalization of values and norms. It is also deeply enmeshed in transient and short-term experience. As Roy Pea (1993) observes, “Anyone who has closely observed the practices of cognition is struck with the fact that the “mind” never works alone. The intelligences revealed through these practices are distributed across minds, persons, and the symbolic and physical environments, both natural and artificial.” In fact it’s not clear exactly where intelligence is located. Is the information that Google unearths in its cyberspace expeditions part of “my” brain? Many times it’s easier to retrieve information from the web using Google even if the same information exists (somewhere) within my own brain.

Civic Intelligence describes the capacity that organizations and society use to find solutions to environmental and other challenges collectively. Civic intelligence represents *potential* — not unlike Putnam’s concept of social capital (1995). Civic intelligence is creative, active, non-deterministic and human centered. This perspective significantly contrasts with most theories of social change. It places people — not abstract systems or very general historic forces — at the core. Civic intelligence combines community (or “bonding social capital” (Putnam, 1995) with civic (“bridging social capital” (Putnam, 1995)) networking. The choice of the word “intelligence,” moreover, was motivated by its correspondence to cognitive capabilities in individuals. Although a slavish commitment to every conceivable analogy is unlikely to be warranted it is anticipated that fruitful analogies between individual and collective intelligence can be made and the initial models support this

supposition. Also, it should be pointed out, that although civic intelligence highlights the role of cognition, it is not intended to deny the reality of emotions and other largely non-cognitive aspects of human behavior. At this evolving stage of the concept, it's enough to note that the non-cognitive aspects are important to individual human behavior and probably also to collective behavior as well. These aspects shouldn't be ignored in a civic intelligence enterprise for long.

Civic intelligence uses available tools in appropriate ways. These would certainly include communication and information systems including environmental monitoring systems and discussion and deliberation systems. Yet civic intelligence requires intelligent — and concerned — *people*. Technology by itself will not solve humankind's problems. Civic intelligence incorporates principles such as inclusivity, cooperation, justice, sustainability and other notions beyond that which a simplistic measure of intelligence implies. The most important aspect of civic intelligence is that it can be improved. No system is perfect, nor totally "rational." Fundamental limits to human understanding always exist, yet our approach to the world of nature and to each other can become more enlightened.

### Requirements for the Concept of Civic Intelligence

A literature search of the term "civic intelligence" will reveal several uses. One of the most relevant use was probably in "A Vision of Change: Civic Promise of the National Information Infrastructure" (Civille et al, 1993). Although uses of the term there and elsewhere were generally complementary to the usage expressed here, previous uses were generally informal characterizations rather than as a theme for serious study and focus in their own right.

My exploration of the concept is motivated by the fact that activists, researchers, and other people working on social and environmental issues are actually in some way all *working on the same project*. I am interested in developing intellectual tools that describe this phenomenon in a way that provides insight for people working in fields of social or environmental amelioration, preventing wars, for example, or repairing environmental damage. At the same time, I hope that people build on the idea that they are part of a common project and that they all can contribute to and derive strength from the common project. Ideally this would be a holistic vision that instructs and inspires. Hopefully it would pave the way for increased collaboration and network building across boundaries wherever they exist around the world.

#### Requirements for Civic Intelligence Paradigm

- A paradigm that describes current — and points the way to future — social change work.
- A paradigm that links and motivates social and environmental ameliorization activities - but doesn't constrain them arbitrarily
- A paradigm that is based on the idea that citizens can be actors in social change and that intentional human action can improve the situation
- A paradigm that acknowledges and promotes distributed, collective, flexible, creative and inclusive involvement of people
- A paradigm that is pragmatic, contextual and visionary at the same time; it is built on realities and possibilities
- A paradigm that addresses both the global and the local and seeks to integrate them
- A paradigm that detects and repairs tears in the social and environmental fabric
- A paradigm that challenges and cooperates with existing organizations and trajectories
- A paradigm that builds upon traditional and modern communication and information systems

Figure 3.

Although something which we could call civic intelligence probably does exist, the idea needs to be *socially constructed* in order to become a viable concept intellectually for service in research, organizing and integrating shared work. Hopefully, a broadly inclusive, collaborative exploration will yield models, paradigms, methodologies, projects, and services to support general creation of civic intelligence throughout society. This belief, in turn, implies that (1) community processes that explore the idea should be initiated; (2) viewpoints and findings from related disciplines should be incorporated into the theory; and (3) models need to be developed, tested, evaluated, and then reworked in the near term. This paper endeavors to begin that

process. In the meantime, the broad requirements for this new paradigm promoting civic thought and action are described in Figure 3.

## 2.1 The Significance of Civic Intelligence

While the “proof of the pudding is in the eating” there are aspects of a civic intelligence orientation that make it a hopeful approach. The first is that it is explicitly oriented towards a *dynamic* social inquiry that is *explicitly* directed towards social and environmental ameliorization, not as a vague, always possible but rarely addressed or attained, *side-effect* of conventional social science (Comstock, 1982). The second is that it is intended to be used both as a way to characterize past and present endeavors and as a way to *critique* current efforts and to help envision improved ones. It should hasten, in other words, social and environmental *progress*. Finally, by linking it — at least metaphorically — to models of human intelligence and learning, with attention paid to mental models, learning, communication, and metacognition, for example, an exploration of civic intelligence can be integrated with a variety academic disciplines including education, social psychology, political science, and cognitive science and to concepts such as equity or a healthy environment that are in common usage in the non-academic world as well.

### Emerging Civic Intelligence

Civil society historically has been at the forefront of social movements like human rights, civic rights, women's rights, environmentalism, etc. (Castells, 1997). To many observers (Barber, 1984, for example) the strong participation of civil society will be necessary if problems facing humankind in the 21st century are to be successfully addressed. There is a growing sense that communication, new modes of organizing, and new insights are helping us to address shared problems in new ways. How society uses its civic intelligence in an era marked by rapid change (propelled by new transportation and communication systems) and by daunting challenges of population growth, new diseases, environmental degradation and deadly conflict is becoming increasingly critical. Concomitant to these new circumstances, the extremely rapid growth of new civil society, business, government, and scientific collaborations across traditional boundaries suggests increasing civic intelligence — at least — within some areas of society.

Successful intelligence coexists with and reflects the world in which it inhabits (Calvin, 1996), particularly those aspects of the world that have the capacity to sustain or threaten life. The richness and complexity of modern life, replete with threats and opportunities of all sizes and shapes drives the need for a broad-based civic intelligence. Evidence that the new civic intelligence that our increasingly complex world seemingly requires is mounting. According to the theory of civic intelligence, this would come about as a natural response to an increasingly complex and, possibly, dangerous environment. Incidentally, this conclusion would be valid regardless of whether the environment was actually complex and dangerous or whether it was just *perceived* that way. The number of transnational groups number in the thousands and is still growing exponentially (see Fig. 4) providing evidence that civil society (in some sectors at least) is increasing its capacity for civic intelligence (while governments and business may, in many cases, be *causing* the problems). The diffusion of groups with a civic intelligence perspective worldwide, their agendas, strategies and tactics, are qualitatively different from their predecessors according to various observers. Keck and Sikkink (1998), for example, provide evidence that these new groups are more likely to engage in policy development and multifaceted approaches rather than simply being for or against something. They also show that many organizations are working outside of the conventional reward structures of money and power. For that reason, the importance of those groups can be undervalued by the academic disciplines that are established to deal with them.

## Growth of Transnational NGOs

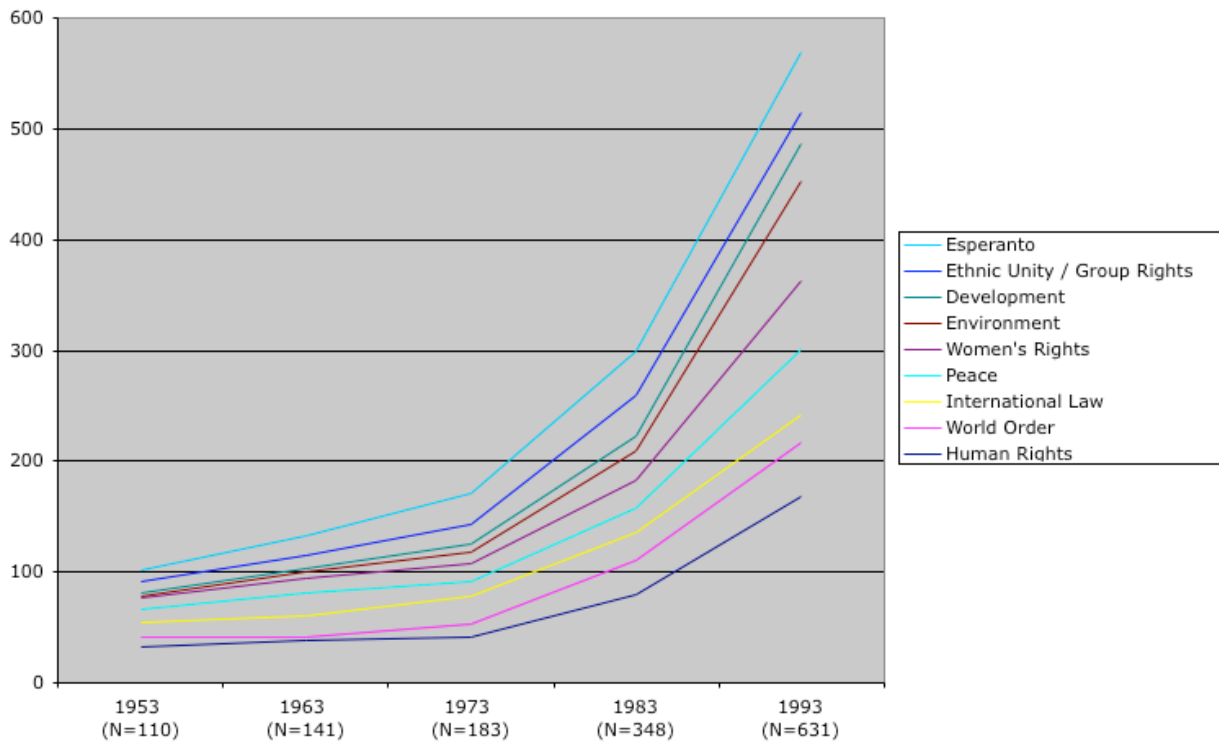


Figure 4.

The rise in the number of transnational advocacy organizations probably echoes the risks posed by the changed and changing environment. At the same time new technology is providing opportunities for information and communication utilization by civil society. This new technology has breached barricades that help maintain civic ignorance while providing new venues for publishing independent viewpoints, developing shared issue frames, and organizing activist communities.

A multitude of new organizations are being launched, devoted to civic causes such as human rights and economic justice. The organizations often develop a networking structure which helps mobilize a critical mass. These organizations are growing in sophistication as well as in numbers. Qualitative differences in new and established organizations are emerging in ways that indicate a richer appreciation of the world and a more sophisticated and more ambitious approach to engagement. Civic intelligence organizations are creating a new "issue environment" that includes changes in number, constitution, and/or diversity of issues under consideration. Accompanying this are vocabulary changes and new framing concepts including "human rights", "sustainability" and "anti-globalism" which are all of relatively recent vintage. New active campaigns are becoming highly visible and references to their work are becoming more prevalent in educational and cultural venues such as literature, schools, museums, theater, art, music, and the mass media. Finally, increased resources, financial and contributed time resources flow to civic intelligence organizations.

### 2.2 Civic Intelligence

The evolving idea of civic intelligence can be used to characterize civic society (and other) organizations. Two models thus far have been developed for this purpose (Schuler, 2004) and obviously, the knowledge gleaned through exercises like this will be used to adjust the models. The first model is a descriptive one which is used to recognize, characterize and, hopefully, guide organizations or other collective enterprises. It a naturalistic way to capture information about an enterprise which can be used to compare and contrast other organizations. A complementary model which identifies functional relationships — how an organization actually operates within an environment — is then described, and a preliminary analysis of the community network movement is performed in a subsequent section.



## **Descriptive Model**

In an earlier paper (Schuler, 2001) I discussed six areas in which civic intelligence projects can be characterized and how a project that demonstrated effective civic intelligence would differ from one that didn't. The six categories (*orientation, organization, engagement, intelligence, products and projects* and *resources*) are described below using language and terminology adapted from the original paper. We begin with definitions:

*Orientation* describes the purpose, principles and perspectives that help energize an effective deployment of civic intelligence.

*Organization* refers to the structures, methods and roles by which people engage in civic intelligence.

*Engagement* refers to the ways in which civic intelligence is an active force for thought, action, and social change.

*Intelligence* refers to the ways that civic intelligence is manifested through learning, knowledge formulation and sharing, interpretation, planning, metacognition, etc.

*Products and Projects* refers to some of the ways, both long-term and incremental, that civic intelligence organizations focus their efforts. This includes tangible outcomes and campaigns to help attain desired objectives.

*Resources* refers to the types of support that people and institutions engaged in civic intelligence work need and use. (The resources they *provide* would be discussed in *Products and Projects*, above.)

### **Orientation**

Thriving civic intelligence stresses values that support social and environmental meliorism while acknowledging and respecting the pragmatic opportunities and challenges of specific circumstances. Central to the idea of a thriving civic intelligence is that inclusive democratic mobilization and strengthening of the civic sector will be necessary to address the primary issues of social inequities, human suffering, environmental devastation, and other collective concerns including the social management of technology. Castells (1998) describes how the civic sector is responsible for initiating the major social movements of our era, including environmentalism, the peace movement, civic and human rights movements and renewed emphasis on feminism. The civic intelligence orientation is toward moving beyond the present status, accepted norms and reward systems. As Margaret Keck and Kathryn Sikkink in their book *Activists Beyond Borders* (1998) state, networks of activists can be distinguished from other players in international, national, regional and local politics "largely by the centrality of principled ideas or values in motivating their formation."

### **Organization**

This project is global. Since the purview and resources of this project are distributed throughout the world, global "civic intelligence" is also distributed all around the world. The global civic intelligence project likewise needs to be undertaken "everywhere at once" in order to be successful. But how should this massive effort be organized? There is no central force or institution possessing the full set of skills, resources, or authority necessary to direct the effort. Moreover, the idea of a centrally controlled hierarchical organization is antithetical (and unrealistic) in this global project plan. The organizational structure of global civic intelligence becomes a vast network of people and institutions all communicating with each other and sharing information, knowledge, hypotheses and lessons learned. This network is necessarily composed of dissimilar institutions and individuals who cooperate with each other because they share values and commitments to similar objectives. Neither authoritarian directives nor market transactions provide the adhesive that could hold this evolving, shifting, growing ensemble together. The glue that binds it is a composite of values and commitments.

### **Engagement**

Engagement is both a tactic and a philosophy. Engagement as a tactic means that the elements of the civic intelligence networks do not shy away from interactions with the organizations or institutions or ideas or traditions that are indifferent or opposed to the objectives of the network. These organizations may be promoting or perpetuating human rights abuses or environmental damage. They may also be thwarting civic intelligence efforts by preventing some voices and viewpoints from

being heard. Engagement, of course, assumes many forms. An organization that employs civic intelligence should, as we might expect, behave intelligently. The nature of the engagement should be principled, collective, and pragmatic. Engagement represents an everyday and natural predisposition towards action; it represents a challenge and an acknowledgment that the status quo, is not likely to be good enough. Engagement, ideally, is flexible and nimble and it is appropriate for the situation. Timing plays an important role in appropriate engagement. Research and study also have critical roles to play, but they must not be used as a substitute for action, postponing engagement while waiting for "all the facts to come in." (See [Rafensperger 1997] for a thoughtful approach to integrating thought and action.)

## **Intelligence**

Intelligence implies that an appropriate view of the situation exists (or can be constructed) and that appropriate actions based on this view can be conceived and enacted on a timely basis. (How this happens is explored a bit more in the functional model section.) Clearly, the creation and dissemination of information and ideas among a large group of people is crucial. Learning is important because the situation changes and experimentation has shown itself to be an effective conceptual tool for active learning. Therefore, some of the key aspects include: (1) multi-directional communication and access to information; (2) discussion, deliberation, and ideating; (3) monitoring and perceiving; (4) learning; (5) experimenting; (6) adapting; (7) regulating; and (8) metacognition.

Let's briefly touch on one aspect of intelligence — monitoring — and some examples of new civic uses. Technology ushers in both challenges and opportunities. We find, for example, that at the same time our technology (fueled largely by economic imperatives) is creating vast problems, it is also introducing provocative new *possibilities* for the civic intelligence enterprise. One recent innovation, a system employing seven earth orbiting satellites, enables us to monitor earth's vital signs from space (King and Herring, 2000). While the system doesn't specify what the earth's inhabitants will do with the data, it's clear that systems like that can improve our picture of the state of the earth. This type of surveillance can expose other events to public scrutiny; it was the French "Spot" satellite which first alerted the world to the Chernobyl disasters. Also unlike previous enterprises this project makes its data readily and cheaply available to people all over the world.

## **Projects and Products**

Projects — both campaign and product oriented — help to motivate and channel activity. An extremely wide variety of projects is important within the context of cultivating a civic intelligence. There is ample evidence that the "project" is necessary to marshal sufficient force to accomplish the desired goals (Keck and Sikkink, 1998). One such example is the manifesto or declaration that communication activists have been developing in recent years, often in conjunction with conferences. These collective statements offer a distillation and articulation of their beliefs, objectives and services which they hope will then be used by themselves to help motivate and inform future projects and products.

## **Resources**

Adequate resources, including paid or volunteer labor, time, money, physical facilities, communication capabilities, and focused initiatives for people and institutions are necessary but not sufficient for effective civic intelligence. Although it would be difficult to measure the magnitude of the need for these resources the overall project can't wait until all the "necessary" resources are at hand before starting. At the same time, helping to ensure that adequate resources do exist is critical for the project.

How each of these characteristics in these areas was originally developed and how it changes over time is a product of interaction internally and with the environment. These interactions are discussed with the functional model in the next section.

## **Functional Model**

The functional model of civic intelligence (Fig. 5) attempts to present how civic intelligence can be generated through interactions. Note that it focuses on what happens, not *how*. Obviously one of the upcoming tasks of this enterprise would be developing a *structural* model that describes how these functions are — or could be — accomplished.

The functional model is divided into three main components, an external component, an internal component and a “core” within the internal component. The functionality expressed in this model is a result of the interactions between these three components, which are all expected to change over time. The “environment” in the model corresponds to the “environment” of the entity being considered. The term is intended to be used in a very broad sense. It includes any factor that influences the organization and is external to it. To a community network, for example, the environment might consist of people in the community, local funding agencies, other community organizations, policies, etc. The internal component corresponds to the organization itself. In the "middle" of the internal component (the organization itself) another component exists — the "core." The core contains the knowledge, formal and informal, tacit and explicit, human- and artifact-based that guides the thinking and actions of the organization. The “core” corresponds to the “mental model” of the organization (or other entity) and it is analogous to the “mental model” in humans (Bransford et al, 1999).

### Functional Model of Civic Intelligence

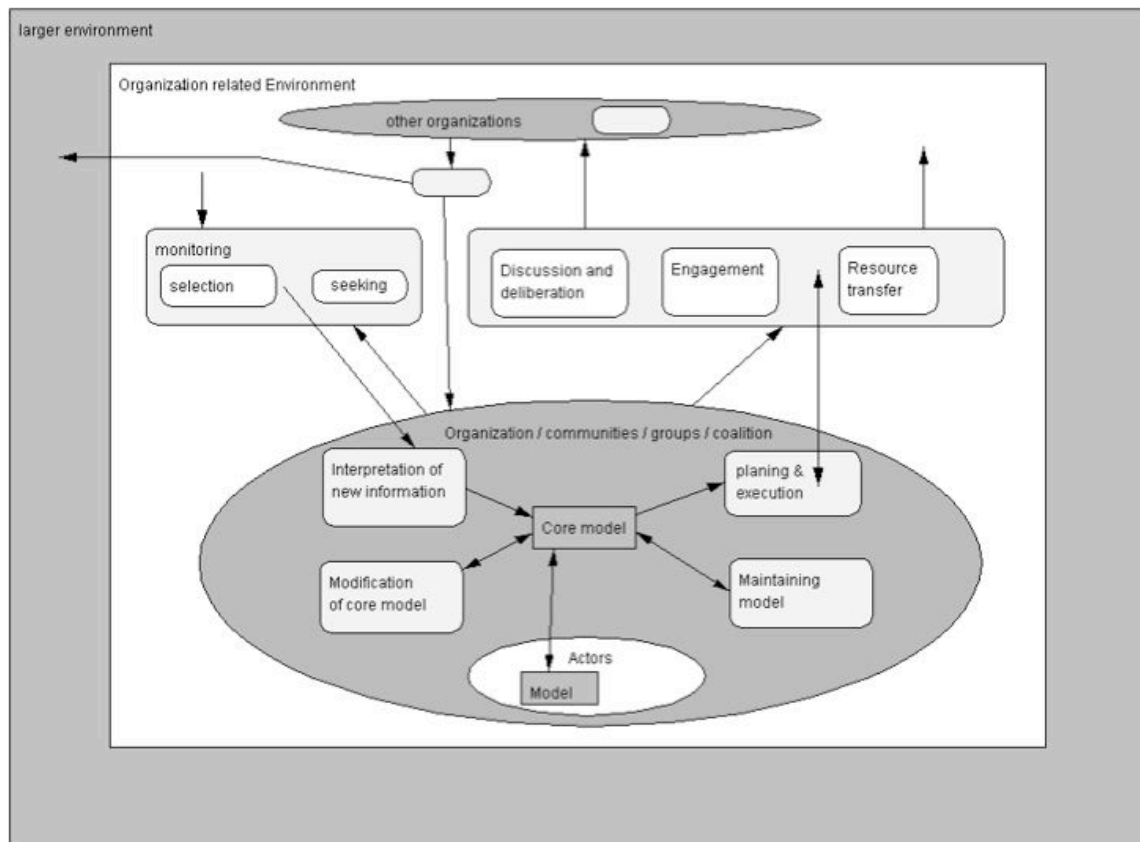


Figure 5.

We have identified four primary means through which the internal component (often an organization) interacts with the external world.

*Monitoring.* This describes how the organization acquires new relevant information non-intrusively. It includes how organizations develop and implement their information seeking and selection techniques.

*Discussion and deliberation.* This describes how organizations (including "virtual" organizations like public policy networks) discuss issues and determine common agendas, "issue frames" (Keck and Sikkink, 1998) and action plans with other entities. The internal component (and its core) of any participants of these interactions can change as a result of the interactions.

*Engagement.* This is how the organization attempts to make changes in the world. This can be done with varying degrees of cooperation and combativeness

*Resource transfer.* This describes how non-informational resources like volunteer and money are acquired from outside.

We have identified four primary means through which the core component interacts with the remainder of the component.

*Interpretation of new information.* This describes how new information is considered and how it ultimately becomes (or doesn't become) part of the core. New information can also be information about the organization.

*Maintaining mental model* (includes resource management). This describes the actions that the internal component consciously and unconsciously undertakes to preserve the viability of its core model.

*Planning and plan execution.* This basically describes how tasks and plans are initiated, carried out, and monitored.

*Modification of core model.* This is basically a reflective exercise where the core itself is examined by participants in the organization and modified.

Note that the eight types of interaction described take place simultaneously, often in relation to each other and apply a variety of approaches within a single type.

### 2.3 Using the Models

One of the most important by-products of a civic intelligence exploration will be a set of techniques for using the civic intelligence models to obtain useful information. This information could be key in evaluating actions or developing future plans. Some of the uses of the knowledge that have been previously discussed include creating strategic plans, inventorying civic intelligence initiatives of geographical regions and/or thematic activist areas, designing curricula, planning campaigns, evaluating effectiveness of initiatives or, even, developing new organizations that would develop public resources to enhance and encourage civic intelligence collaboration.

## 3. Community Networks and Civic Intelligence

In this section, the descriptive model of civic intelligence is used in a preliminary analysis of the community networking movement. It is intended less as an empirically comprehensive analysis and more as an early attempt to apply concepts from the emerging civic intelligence framework. Hopefully it will also be useful in exploring the overall utility of the civic intelligence orientation.

As a response to particular needs and a new niche that was opening up, namely the burgeoning of the Internet, community networks were a strong expression of civic intelligence. At the same time, community networks promoted the growth of civic intelligence. There are at least two types of organizations that should be included within this model study: (1) local community networking organizations such as Seattle Community Network, and (2) organizations whose objective is to help promote the entire community movement (like the National Public Telecomputing Network (NPTN), the Association For Community Networking and the Global Partnerships for Community Networks). As discussed earlier in this article, although self-identified community networks share a “family resemblance,” they were, by no means, identical. Here I focus on the Seattle Community Network at this time after it had made a successful transition to a web-based system, as a “typical” community network upon which to perform this analysis. The six facets of the civic intelligence model are examined below in relation to the Seattle Community Network.

### 3.1 Seattle Community Networks

**Orientation.** The orientation of SCN is best described by the principles (Fig. 6) that the development team created early in SCN's development. This document has helped to provide some “philosophical inertia” to the project. Candidates running for the SCN board of directors often, for example, would use ideas from the principles in their candidate statements. As with other community networks, a strong commitment was made to the local community, primarily through a focus on neighborhoods. Also present were strong commitments to universal access, privacy and freedom of speech for all.

## Seattle Community Network Principles

The Seattle Community Network (SCN) is a free public-access computer network for exchanging and accessing information. Beyond that, however, it is a service conceived for community empowerment. Our principles are a series of commitments to help guide the ongoing development and management of the system for both the organizers and participating individuals and organizations.

### **Commitment to Access**

*Access to the SCN will be free to all*

- We will provide access to all groups of people particularly those without ready access to information technology.
- We will provide access to people with diverse needs. This may include special-purpose interfaces.
- We will make the SCN accessible from public places.

### **Commitment to Service**

*The SCN will offer reliable and responsive service*

- We will provide information that is timely and useful to the community.
- We will provide access to databases and other services.

### **Commitment to Democracy**

*The SCN will promote participation in government and public dialogue*

- The community will be actively involved in the ongoing development of the SCN.
- We will place high value in freedom of speech and expression and in the free exchange of ideas.
- We will make every effort to ensure privacy of the system users.
- We will support democratic use of electronic technology.

### **Commitment to the World Community**

*In addition to serving the local community, we will become part of the regional, national and international community*

- We will build a system that can serve as a model for other communities.

### **Commitment to the Future**

*We will continue to evolve and improve the SCN*

- We will explore the use of innovative applications such as electronic town halls for community governance, or electronic encyclopedias for enhanced access to information.
- We will work with information providers and with groups involved in similar projects using other media.
- We will solicit feedback on the technology as it is used, and make it as accessible and humane as possible.

Figure 6.

The projects that SCN helped support and the organizations that worked with SCN also helped to shape SCN's orientation. For that reason, activist, public library orientation, community education and training, and social capital were all promoted. One of SCN's success stories provided an excellent example of how a community network could exert influence outside of their local communities. Community activists in Penang, Malaysia came across the Sustainable Seattle web pages that featured broad "sustainability indicators" that were intended to demonstrate progress (or lack of progress) towards sustainability in Seattle. The activists were so impressed with the ideas that they launched a similar "Sustainable Penang" project.

**Organization.** As an organization SCN shared many — but not all — characteristics with other community networks. SCN was established in 1995 as a non-profit membership-based organization. Having non-profit status in the US means that people can donate money to the organization and take a deduction in their taxes (which, obviously, is less than the original donation). It also means that the organizers are eligible to write grant proposals to receive money from foundations. Being an SCNA member was not a prerequisite for using SCN; the only benefit from membership was being eligible to vote for board members and being able to run for board positions. As with other non-profit organizations, people would want to become an SCN member if they supported SCN's objectives and believed that their financial support would help SCN meet their objectives. A membership-based organization in principle is quite different from an organization whose actions are determined by its

directors. In a membership-based organization members are expected to play a role in the organization. In this way the *potential* for influence of the organization is multiplied through a (potentially large) membership. In SCNA's case the membership structure was adopted in order to reflect the SCN's community focus. There were other potential benefits as well. A membership organization of some magnitude can have more legitimacy and more political clout than other types. A membership organization of some magnitude could also help provide revenue through membership fees. Members, of course, could help provide time, energy and expertise to maintain and expand on SCN's mission and influence. These assumptions, however plausible they may have been, were never tested in practice. In spite of having a large (1000+) initial membership base (due to offering free memberships), little effort was extended in communicating with and maintaining the membership. Minimally this requires keeping the membership informed about the organization's activities including issues and challenges and volunteer opportunities. Efforts in this direction were sporadic and in recent years consisted almost entirely of yearly funding appeals. Membership data is hard to come by, although it was reported recently (August 4, 2004) that the membership was "around 750." Whatever the membership numbers actually are, volunteering has declined over the year. It seems likely that the "mental model" of SCN's leadership was largely one of a technological — rather than social — project, a common "occupational hazard" of projects involving technology (Schuler, 1996b).

SCN has benefited from volunteer labor for many years. In fact, since its inception, SCN has been run entirely by volunteers. One of the side-effects of being a non-profit organization means that nobody in practice ever gets "fired." On the contrary, volunteers can often come and go at their pleasure. With this type of organization, assigning tasks is often difficult, people can squabble over the "right" to assume responsibility in some given area, and then never follow through with its duties. On the other hand, many tasks never get taken up at all. A shared sense of urgency, a common purpose and a high degree of trust could, in theory, help circumvent these obstacles. Therefore rebuilding these traits should be a high priority. Finally it should be noted that many attempts at partitioning work "rationally" through creating committee structures has been relatively unsuccessful: no structure can compensate for a lack of leadership or individual initiative.

**Engagement.** SCN's engagement with the public and with other organizations and initiatives were sporadic and low-key. An opinion piece in the local newspaper helped to launch the project and a rally against Internet censorship was convened early in SCN's career. Occasionally SCN volunteers were invited to give presentations in public events. (I was an exception to the rule. As SCN's "ambassador at large" and author of *New Community Networks* (1996a) I made numerous — 75 or so — presentations around the world. Unfortunately this was not integrated into the rest of the SCN's outreach or engagement efforts.) SCNA produced a brochure that was made available at all Seattle Public Library branches. Finally, SCNA convened monthly meetings at the public library for several years. Although these were well-attended for several years, the attendance gradually declined and the meetings are now helped occasionally with small attendance. Certainly at this point it was clear that the engagement patterns were not sufficient for maintaining, let alone expanding, the SCN enterprise.

**Intelligence.** Seattle responded early to the opportunities for citizen involvement that cyberspace provided. The original SCN developers involved the community in the project and established a set of principles that explicitly endorsed an orientation that included adaptation and innovation based on the recognition that the environment, including citizen needs, technology, and competing services would change over time.

**Products and Projects.** SCN's most important product (and project) was a community network. This included web hosting, email accounts, distribution lists, and access to the web via lynx. Other products not directly for user consumption included documents such as principles and policy which were used by SCN and, occasionally, by community networks in other cities. SCN volunteers worked with community members to help them post their information on the web and provided training on system use. While there are over 200 hosted community groups on SCN, virtually effort is now being expended to add more. Over the years SCN was involved with — or initiated — other projects such as "Ask the Governor," "Teen-Talk" and a monthly community front page. For several years SCN has sponsored a "Computer Giveaway" project since 1994. SCN's main "product" (beyond the services it offered) was an increased presence and awareness of the Seattle community in

cyberspace. Although SCN ultimately hosted only a miniscule portion of Seattle's community groups on its system, it did provide an aggregating function, partially at least supported through the SCN "brand."

**Resources.** SCN's present mode of operation requires very little in the way of resources. Its technological infrastructure includes computers, disk drives, monitors, modems, etc. SCN relies on an Internet connection provided without charge by the Seattle Public Library for email and lynx (text-only) web browsing. SCNA's arrangements with the library does not allow SCN to provide full Internet access, thus it can't be considered a true Internet Service Provider (ISP). Finally, as mentioned earlier, volunteers are a critical resource, as they perform all of SCN's functions except membership administration.

### 3.2 Community Networking Associations

In this section we will consider the "umbrella" organizations which provided services to community networks to complement their work providing services to geographically-based communities. The principal organizations within the US with this function are NPTN and AFCN. AFCN was formed to fill the gaps caused by NPTN's bankruptcy and demise. AFCN, thus far, has not assumed NPTN's level of influence. Both organizations are briefly described below using the civic intelligence descriptive model.

**Orientation.** The orientation for NPTN and AFCN were similar at a general level; they both promoted community communication and information. NPTN was more oriented towards a type of broadcasting model, whose *affiliates* would contribute to — and benefit from — a focus on specific products like "Academy One" and "Tele-Olympics."

**Organization.** NPTN was organized in a typical non-profit way with an executive director and paid staff. AFCN, on the other hand, is more like SCN. AFCN is open to all and all tasks are undertaken by volunteers. Although both organizations were non-profit, AFCN is a membership organization,

**Engagement.** AFCN is involved in very little direct engagement with people outside the organization. However, since nearly all of AFCN's members are involved with other relevant efforts in a variety of venues, the discussion on AFCN lists, could indirectly promote engagement. Although the relatively low level of engagement seems to suggest a lower degree of civic intelligence according to the basic model, it may be true that the direct engagement spawned through the use of the lists is equal in magnitude to what could have been accomplished directly. An investigation of AFCN's actual and potential "audience" (the part of its "environment" that includes organizations and individual people) would suggest a variety of engagement patterns. Currently AFCN is not actively soliciting new members.

**Intelligence.** The primary vehicle for AFCN is currently its discussion list. This list consists of relevant news, reports, conference information and well as general discussion of issues and problems posed by members. There is no explicit approach to intelligence per se, learning takes place on an individual basis.

**Products and Projects.** NPTN provided much of the "raw material" that one would need to build a "Free-Net" (their specific flavor of community network). This included the "Blue Book" a handy manual for establishing a community network, as well as the FreePort software itself that ran on Unix machines. AFCN offers similar advice through its "Running a CN" section on their web site. AFCN employs "content management" software and thus this section contains individual postings, four on "Starting a CN" for example.

**Resources.** NPTN, as a more-or-less typical non-profit organization employed the usual office with paid staff, etc. and, hence, required financial support. AFCN on the other hand uses volunteers, working at home or office, to accomplish AFCN's tasks.

### 3.3 Using Civic Intelligence to Strengthen Community Networks

The civic intelligence models can most obviously be used to characterize *existing* efforts. Less obviously, but ultimately perhaps more usefully, the models can serve in an analysis of an *ideal* organization or a hypothesized future of an organization. In this section we will explore how community networks could engender more civic intelligence and what types of activities

could help make it happen. It may be possible to reinvigorate the community networking movement by adjusting tactics and other approaches while keeping the basic community networking orientation intact.

The theory of civic intelligence postulates two major patterns of interaction: (1) interaction between the particular manifestation of civic intelligence (an organization, for example) and the environment; and (2) interaction within the civic intelligence entity and the core, the entity's "mental model." People and committees, informed with policy documents, etc. that the organization has developed interact in order to share information, formulate and act upon plans, and evaluate activities. Thus an analysis of civic intelligence and its relationship to the community networking movement should involve an examination of how the environment changed and its effect on the broader community networking movement. It would also examine how the community network organizations interacted with each other as well as the internal interactions taking place *within* their own organizations over time. Broadly we will need to examine the environment, mental models, resources, information exchange, tools and patterns, orientation, shared values, and shared technology.

### **The External Component — A Changing Environment**

As previously discussed, it is clear that the environment that had provided fertile soil for community network development in the early 1990s changed suddenly in the mid to late 1990s. New policies that removed the "monopoly" on public access that community networks had enjoyed left the community networking community (in the US at least) seemingly without a viable product, message or mission. One of the consequences of the environmental change was the atomization of the network of practitioners. Moreover, because of diverging hardware and software platforms, operational models and objectives, the (perceived) need for communication between community network practitioners in other locations was diminished. This was certainly reflected in the Seattle experience. This in turn would have an impact on organizations who helped promote and sustain these discussions. These groups became less central to the movement. Membership became more optional and the main activity of the umbrella organization became discussion support.

### **The Internal Component — Diminishing Resources and Challenges to the Core Component**

With a diminishing role in providing essential services, SCN became less certain as to its objectives. Email and web page hosting services were still provided but it became difficult to maintain high quality technological support while relying solely on volunteers. The onslaught of spam presented multiple challenges to SCN, both technologically and philosophically: Is spam protected by SCN's commitment to free speech? Or, more to the point would users claim that their rights were violated and threaten a lawsuit, if SCNA installed software to delete spam or otherwise interfere with its delivery? SCN did have to face this type of problem when a disgruntled volunteer initiated a lawsuit against the SCN board of directors. Although the suit was ultimately deemed to have no merit, the action profoundly debilitated SCN's ability to act by forcing the board to squander countless hours at a crucial time in SCN's development.

At roughly the same time that the original environment for community networks was undergoing fundamental transformation, volunteer energy at SCN (and other community networks around the US) began to dissipate. Volunteer energy is a resource that can be omitted if paid staff were substituted, but, barring that, the volunteer pool must be reconstituted periodically with fresh recruits. The lack of a coherent shared vision and the inability of SCN to keep current with new technological developments probably aided this decline. (Interestingly enough, the lack of paid staff and the technological base at the time were viewed by some SCN volunteers as project "givens" not as factors that could change.) All of this suggests that it is easier to develop bad habits to break them later. The forces maintaining the status quo are currently larger than the desire and ability to grow. Resources (such as time) are being spent in other ways.

### **Keeping the Faith while Changing the Focus**

In this section we will begin to consider some of the options faced by individual community networks and by organizations who are working to integrate individual efforts and to strengthen the entire effort. It may be possible to identify courses of action that the community networking movement could adopt to help place community networking more prominently on the public agenda. We will briefly examine some of the original functions of SCN (below) and discuss how they could be modified



or approached differently for more effectiveness now and in the future. It is possible that some of SCNA's objectives could be eliminated — perhaps because other organizations in the community are addressing them adequately. It may even be the case that new objectives should be introduced.

- Provide information and communication services such as email and web hosting
- Develop online community resources
- Draw attention to local needs
- Provide public access
- Provide easy to use software
- Promote certain norms and values (via SCN's principles, for example)
- Promote public discussion on information policy issues
- Provide training

The broad goal of individual community networks was building local community by promoting Internet use. This, of course, involves a variety of allied activities like training and policy advocacy. Presuming that the goal is still valid, that communities do have crucial needs that are not being appropriately met, the task is to make recommendations that could assist SCN and other organizations with similar goals. One approach would be to select one or more functions from the list above and delete the others. Another approach would be to continue to acknowledge the original goals while not working in areas in which there was insufficient energy and interest. This approach keeps the *possibility* of a future holistic effort alive while not diminishing other efforts. Although SCN still exists, its prominence as a beacon of digital network-based community networking in Seattle has been much diminished. It can be shown, however, that many, if not all, of the services that SCN provides are readily available in Seattle. The city of Seattle, for example, provides web hosting for community organizations (on the city site). While public access terminals are available in all Seattle Public Library branches.

SCNA's primary task is overcoming the inertia of inaction that currently exists. SCNA's lack of energy makes it unlikely to accomplish any of its goals. The civic intelligence functional model suggests two paths that should be followed to overcome this inertia. The first is diagnosing and repairing internal barriers that are inhibiting progress. This corresponds to the internal component of the functional model of civic intelligence — specifically problems of an incoherent “core” where the “mental model” of the organization is not shared by the principals of the organization. Worse, however, would be the case where the mental model of the organization acts to *maintain* the status quo. In other words, it is directing SCN to be static and irrelevant. If this is actually the case it is time to reexamine the mental model, particularly in relation to the stated principles of the organization and to its capacity to act. This highlights the point that many of the problems facing SCN and other community networks, are *people* problems. From a civic intelligence point of view these could be characterized to a large degree as problems with the “mental model.” That a shared mental model for SCN that helps spur action scarcely exists is fairly obvious given the paucity of projects within SCN, whether collaborative or individual. The declining interest in the project shows that whatever mental model does exist, its appeal is limited and, at any rate, people feel unable to make any positive influence in making the objectives more real.

The second path focuses on redesigning the orientation to more effectively interact with SCN's environment. An intelligent orientation is one which encourages new projects and intelligent types of engagement. For one thing, new projects often attract outside attention and additional resources. In SCN's case, additional resources are likely to take the form of volunteer energy. Although, there are other types of ways to infuse SCN with the resources it needs, volunteer energy is probably the easiest to procure and the easiest to put to work given SCNA's cultural patterns. Discussion and deliberation is another civic intelligence function. For that reason, opening up dialogues with volunteers, information providers, community partners (such as the Seattle Public Library) and with other community groups would also be key to an SCN renaissance. These conversations would help identify potential audience and allies for SCN's work. An important outcome of these conversations would be the initiation of projects such as community indicators, neighborhood assets mapping or pollution monitoring, that SCN could assist. They could also identify software needs such as access to blog software or other relatively newer capabilities which SCN has been unable or unwilling to produce.

Although it is more appropriate — and more realistic — for SCNA to focus on Seattle communities it seems unlikely that Seattle can (or should) do everything itself. Thus it makes sense to think of tasks that need doing that are not specific to Seattle and tasks that can best be advanced through discussions with other like-minded people, including those people who are outside the immediate geographical community. These tasks suggest working with one or more organizations whose basic missions include the ones discussed above. The principals in SCN need to reconnect with national and international organizations, especially umbrella groups to identify common goals and to develop projects such as next generation software services (discussed below) that are supportive of the community networks mission.

The civic intelligence enterprise is intended to be a collective enterprise and, hence, one of the goals of such an enterprise is presenting civic intelligence insights as a useful framework. Community networking activists could attempt to use civic intelligence models for their own benefit. After such attempts, it would be important to gather comments on the usefulness of the models. In this way the models could be adjusted to provide more benefit. One approach would be for SCNA to convene a meeting with specific goals. In this meeting, the civic intelligence models could be introduced — whether or not the entire theory was discussed. Some of the possible goals could include:

- Catalogue aspects of environment

- Identifying tangible and intangible assets

- Engage in self-reflection according to civic intelligence models. Reexamine principles — what would people like to do to advance principles?

- Re-articulate shared model, mission; develop new issue frames

The original functions of community network coordinating groups like NPTN or AFCN are listed below.

- Raise visibility of efforts

- Act as a clearinghouse for motivational, promotional organizing information

- Facilitate information transfer between community networks

- Make policy recommendations

- Provide easy to use software

Which of these original functions still deserves focus? Which have become obsolete or have been taken up by other organizations? Clearly one of the most important roles for an umbrella community networking organization is raising the visibility of its concerns. Communication with the outside environment is critical as it helps get the ideas widely known, promulgated and refined. Moreover it helps foster a community of people with shared interests that can lead to projects that are compelling and influential. Umbrella organizations can help their concerns become more well known through a variety of means. If the communication campaigns are conducted in the name of the organization, the ideas are more likely to be associated with the organization. This can help strengthen the organization and can also provide a “handle” through which additional information can be found; on the web, for example. Umbrella organizations such as AFCN that have scarce financial resources and no paid staff are unlikely to mount significant campaigns. For that reason organizations like AFCN need to get “their” message out indirectly, primarily through the participants on their listserv — who are involved in a variety of organizations and communities — in addition to the direct route via their web site.

As in our discussion of possible directions for SCNA, an explicit discussion of the civic intelligence models could help members of organizations like AFCN consciously build upon a civic intelligence framework. Although people can use ideas from the theory without being familiar with the theory per se, appreciation of the theory as a whole with its motivation and descriptive and functional characteristics described by the models can lead to more coherent analysis, planning and evaluation sessions. Two “cataloging” projects seem important in this regard. The first is identifying the assets that the organization can draw upon. These correspond to the resources in the descriptive model and include tangible resources like money, hardware, software and office space as well as less tangible assets like reputation, expertise, skill, personal networks of members, affiliations, and knowledge. The second “cataloguing” task involves looking at the “environment” or general milieu. As we’ve discussed, this includes laws and policies, grant opportunities, organizations with similar goals (who *compete*) and those

with contrary goals (who *oppose*), as well as the general technological and social environment in which the organization exists.

AFCN is basically an information-sharing organization which does little in the way of engagement. This focus is unlikely to change in the near future so it may be more productive to explore ways that AFCN could create services or products that would be used by their members to engage with people and organizations in their own communities.

One of the previous roles of the original community network movement was developing and distributing suitable software. NPTN's distribution of FreePort is the best example of that. Since the wholesale adoption of the web and the proliferation of commercial services like Microsoft's Hotmail that supplanted the free email service that community networks often provided, this effort has been generally neglected. Can the community networking movement, underfunded and, arguably, in disarray, engage in viable software engineering projects? The open source movement suggests several options in addition to becoming a good candidate in general for long-term collaborations. Rather than abandon this stake in the design of software for communities and democratic institutions, AFCN could initiate a community networking system specification that includes all the functional elements that a twenty-first century community network should contain. Working with the open source software community, it may be possible to specify and develop next generation community systems that support deliberation, search, content management, RSS feeds, dispatches, best practices, publishing, and blogs. This exercise would provide an important focus for the community networking community that could ultimately be adopted by communities. It could also help restore the links — that have been missing for nearly 10 years — between the gingival community networks. Finally, of course, this effort could help open up important links to the NGO community worldwide.

Analyzing a community network or other organization from a civic intelligence standpoint is not likely to result in a definitive agenda for action. Ideally, however, such a product would be more realizable after such an analysis. Refining the models with this goal in mind is an important task. Developing methodologies to determine how best to apply the models to real situations is an important associated task.

#### **4. Conclusions: Planning for the Future**

Community networks are simultaneously a response to a need for civic intelligence and a source of civic intelligence. Although the influence of community networking (in the US at least) has declined in the last decade, it may be possible to reverse the trend to some degree. Community networking advocates may be able to re-establish themselves as leaders by developing shared objectives and projects and by engaging more regularly and effectively and intelligently with their perceived “environment.” If this occurs, people and organizations will seek out community networking information, contribute to the effort, and participate in solving or changing the issues. Therefore becoming leaders or contributing to the efforts of existing leaders helps aggregate ideas and efforts — and helps provide much-needed knowledge. This includes reaching out to people and organizations who are interested in aspects of community networking but haven't thought of their activities in terms of community networking. The evolving civic intelligence paradigm should help the community networking community to come to a better understanding of its situation and plan effective campaigns as a result.

While it can be shown that civic intelligence is increasing worldwide, it is not clear that it will be successful. The threats to civic intelligence and the healthy, humane world it hopes to help create are profound. Indeed, the theory of civic intelligence argues that to a significant degree the rise in civic intelligence has occurred precisely in reaction to the grave threats posed by environmental abuse, militarism and war, national and religious fundamentalism, unregulated capitalism and criminality. Civic intelligence can be used to describe existing projects. It can also be used to envision future projects. Beyond this, civic intelligence can be used as a tool for integrating and expanding ambitious collaborations and for a rallying cry worldwide. A thoughtful exploration of the interrelationship between community networking and civic intelligence should result in more effective manifestations of both.

*While what we call intelligence may be distributed in unequal amounts, it is in the democratic faith that is sufficiently general so that each individual has something to contribute, and the value of each contribution can be assessed only as it entered into the final pooled intelligence constituted by the contributions of all.*

- John Dewey, 1937

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