1 Shaping the Network Society: Opportunities and Challenges

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Global civil society is best expressed in the global non-governmental movement. As a group, non-governmental organizations (NGOs) are diverse and multifaceted. Their perspectives and operations may be local, national, regional or global. Some are issue-oriented or task oriented; others are driven by ideology. Some have a broad public-interest perspective; others have a more private, narrow focus. They range from small, poorly funded, grassroots entities to large, well-supported, professionally staffed bodies. Some operate individually; others have formed networks to share information and tasks and to enhance their impact.
—"Our Global Neighborhood," the Report of The Commission on Global Governance

That an explosion of information and communication technology (ICT) is helping to restructure the world's economic, political, and cultural systems is not news. What is news, however, is the strong role—largely unacknowledged—that global civil society is playing in shaping the "network society" (Castells 1996). Too often people regard the current work in technology development as an arena in which millions of dollars of venture capital are required in order to participate. Yet, on every continent, through countless experiments and projects, teachers, social activists, researchers, community organizers, and concerned technologists are writing their own rules. These people are working to establish an information and communication infrastructure that is in marked contrast to that desired by the dot-coms and the technolibertarians—an infrastructure that truly meets the disparate and critical needs of the world's citizenry.

The directions taken by practitioners of civil-society ICT are too numerous to be explained exhaustively in this chapter, or even in this book. These projects have yet to be cataloged in their entirety. They may be changing and growing too fast for analysis and may be too far-ranging for a single book. The sociotechnical environment of those systems is also complex and

dynamic. Yet in a very real sense, these projects need to be considered as elements of a broader "movement," however unorchestrated that movement may be. It is our modest hope that this book will help weave these related, though largely disparate, strands together into a more coherent, cohesive, and useful fabric for researchers, practitioners, policymakers, and citizens.

The purpose of the book is to lay some of the initial groundwork for understanding the actuality and potentiality of new, generally Internet-based, forms of information and communication for social amelioration and social change. Because these forms are, after all, "media" (albeit new, nontraditional, less established and supported, and dedicated to different ends), and because their competition is also "media" and because our society is increasingly mediated, this book also considers other types of media, especially new global-media empires. John Thompson, writing in *The Media and Modernity*: *A Social Theory of the Media* (1995), underscores the critical importance of media systems, including both the vast global leviathans and the grassroots upstarts we consider in this book:

We can understand the social impact of the development of new networks of communication and information flow only if we put aside the intuitively plausible idea that communication media serve to transmit information and symbolic content to individuals whose relations to others remain unchanged. *We must see, instead, that the use of communication media involves the creation of new forms of action and interaction in the social world, new kinds of social relationships and new ways of relating to others and to oneself.* (p. 4; our emphasis)

Although the systems and projects in our book are not *grafted* onto the existing world, instead being *integrated* into existing systems and projects, their effects—consolidating existing power and/or empowering a plethora of socially ameliorative and decentralized forces, for example—may be profound.

Local Skirmishes/Global Forces

On the first night of the Seattle ministerial meeting of the World Trade Organization in November 1999, with the steady howl of police sirens in the background, a civic encounter had been convened at the nonprofit "Town Hall" to look into root causes of the disagreements and, hence, of the chaos outside. Three proponents of the WTO were squared off in a

debate against three opponents. The themes of the meeting were intensified by the noise from outside; the somewhat abstract themes of world trade were made concrete and urgent because of the struggles outside the enclave. The "Battle in Seattle" and subsequent clashes in Genoa and other places highlight a rift, a growing fault line. So does the September 11, 2001, attack on New York and Washington, D.C. In the WTO debate in Seattle, a curious point of agreement emerged from those on both sides of the issue: over the past twenty or so years the rich had indeed gotten richer, the poor poorer. Several such rifts are strongly apparent and widening further: rural and urban, secular and fundamentalist, global and local. The gap between rich and poor is perhaps the most obvious and the most grievous, for not only does it lead to misery and hardship for the poor, but to war, disease, and environmental degradation for everybody.

The scope of these concerns is becoming increasingly global; our social (political, cultural, economic) systems are linked in an interdependent web that is complex and largely incomprehensible. At the same time the environmental cocoon on which we all depend for life is increasingly being marred and abused by humankind's misdeeds. Collective and basically unchecked use of fossil fuels can eat away at our atmospheric mantle, changing climatic factors unpredictably and sending environmental—and thus social—shock waves throughout the world, unmooring habitual behavior and provoking a cascading imbalance that may yet undo us. Homer-Dixon, Boutwell, and Rathjens (1993), for example, demonstrate the clear link between the loss of renewable resources and deadly conflicts worldwide.

Solutions may come about through dialogue, discussion, deliberation, and debate. These forms of communication—and democracy in general—presuppose the existence of a public sphere.

What Is a Public Sphere and Why Is It Needed?

In 1962 the philosopher Jürgen Habermas, of the renowned Frankfurt School in Germany, used the term *Öffentlichkeit* ("public sphere"), where information exists and communication occurs in a public way, where public discussion and deliberation take place, a "space," in other words, within which public matters are settled, on which democratic systems must rely. Although his influential book on this subject was not translated into

English—as *The Structural Transformation of the Public Sphere*: *An Inquiry into a Category of Bourgeois Society*—until 1989 (Habermas 1989), the concept of a public sphere soon became one of the most important concepts in communication studies. In contrast to other concepts in communication studies (like cultural imperialism or media monopoly), the concept of public sphere is posited as a *positive* one, a mode of communication that represents a desirable state of affairs. It is an idealized communication venue (or "theater," to use Nancy Fraser's (1988) term) into which everyone can freely enter. Important civic decisions are made through the discussions in this "public sphere," rendering it a fundamental aspect of democratic systems. A public sphere is a "mediating structure," albeit an abstract one, like political parties, representative governments, the media, and so on. A mediating structure is a *linking* mechanism; it is intended to connect disparate viewpoints, to give voice to all, to prevent the escalation of grievances into desperation or lethal conflict.

A public sphere seems to be characterized by three main features. First, it presents communication opportunities in a broad sense. Thus coffee shops, public hearings, town meetings, and other venues where people interact with one another face to face fit under its conceptual umbrella. Forms such as newspapers, broadcast media, and the Internet can also fit—under some circumstances. Second, public spheres are "public" in two ways: people can enter the "spaces" without undue hindrances, regardless of their ethnicity, religion, sexual preference, gender, or economic status, and the spaces themselves are visible; the discussions and decisions do not take place behind closed doors, gated neighborhoods, or private intranets. Third and finally, a public sphere mediates between people and institutions, between those that may be powerless and those that may be extremely powerful. Without this linkage or engagement, conversations would take place in walled-off zones and be ineffectual; the conversations may be full of "sound and fury" but if they are unheard and unheeded, they ultimately signify nothing.

As it turns out, Habermas's concept was flawed in many respects, as he himself has acknowledged. For one thing, the one instance of a public sphere (namely, liberal European bourgeois society during the 1800s) that Habermas brought to light was not really a *public* sphere at all. The poor were excluded, as were migrants, workers, and women. The public sphere that Habermas identified was more of a "gentlemen's club," according to one observer.

The concept of the public sphere, moreover, is imprecise; people do not agree on its meaning. Habermas himself did not explain exactly what he thought one was, nor did he offer a theory of how to build one. Is there a single, central public sphere that everybody in the world would or could use? Maybe there are dozens, hundreds, or millions of spheres, as some have suggested. And are there needs for *alternative* public spheres whose raison d'être is to *challenge* the assumptions and specifics of the more orthodox public spheres? What are the consequences of these limitations? Do they render the concept useless, or can it be salvaged in some way? And—more important for us—how can we use the concept effectively to help steer technology to make it better serve human needs? How, for example, does it help us think about the Internet and its ongoing evolution? Can it be used to spur activism on a large scale? A global scale?

A public sphere must be inclusive in several respects. First, everyone should be able to participate on an equal basis; those with more money than others should not be able to purchase more influence with their money, either directly or indirectly. For example, weapons makers should not determine foreign policy; prison-guard unions should not develop "three strikes you're out" laws, computer and media conglomerates should not define proper use of public airwaves, and software billionaires should not determine whether a city needs a new football stadium. This means that society needs to closely examine the ways people participate in public decision making (at community meetings, for instance) and help ensure that those mechanisms do not favor the privileged.

Second, there must be ways citizens can place their concerns on the public agenda. If the public agenda is monopolized and manipulated by corporations, politicians, or the media, the public sphere is seriously imperiled.

Third, the public sphere requires a deliberative public process in which all voices are equal—at least at decision points. This point entails the following critical ideas:

▪ *Deliberative*. Adequate time must be allotted for hearing and considering multiple points of view.

▪ *Public*. The discussion should take place openly, where it can be observed by all.

▪ *Process*. The procedures through which concerns are brought up, discussed, and acted on should be clear and widely known.

Since the concept of public sphere is abstract and imprecise, its best use may be as an indicator for direction and as a metric for criticism and action. The idea of a public sphere helps us to critique existing systems and imagine better ones. The preceding observations will serve as a useful backdrop for all the forthcoming chapters.

Structure of the Book

The major themes of the book are reflected in its structure. The broad context for ICT and civil society is discussed in part I, "Civilizing the Network Society." A variety of case studies from around the world offer rich and textured exemplars of local cyberspace-based civic projects in part II, "Global Tales of the Civil Network Society." Part III, "Building a New Public Sphere in Cyberspace," provides theoretical underpinnings, empirical findings, and other intellectual support for the development of the next generation of civic applications of ICT.

Civilizing the Network Society

Part I provides useful context for the chapters that come after. It introduces the critical elements of the opportunities and challenges offered by new ICT capabilities. This part also provides theoretical frameworks that are employed later. The chapters in this first section present most of the key conceptual elements related to communication technology deployment and social forces that are then woven together throughout the book.

Oliver Boyd-Barrett's contribution, "U.S. Global Cyberspace" (chapter 2), is grounded in the sociology of cyberspace. The goal of the chapter is to provide critical contextual information for understanding the evolving character of cyberspace and the prospects for an accessible and effective public sphere. Boyd-Barrett's work does not invalidate grassroots efforts— all great social movements have started as small, quixotic, uncertain impulses. It does, however, provide valuable educational grounding for the utopian among us while pointing to the vast challenges ahead.

The portrait he paints of cyberspace is one of exclusivity. Corporate and state bullies of immense proportions take advantage of—and promulgate— ideological forces that allow them to control an interconnected and powerful web of ICT assets in all spheres of broadcast and digital communications. We should thus be suspicious, Boyd-Barrett cautions us, of any

attempts by these corporate and state entities to get on the bandwagon of grassroots democracy.

Gary Chapman, in "Shaping Technology for the 'Good Life': The Technological Imperative versus the Social Imperative" (chapter 3), explores the idea of technological imperative in the current context of a rising "technoglobalist tide" and various countermovements, predominantly the "slow food" cultural movement that originated in Italy in 1986. Chapman places "Moore's law," an intellectual cornerstone of today's global technologists, under particular scrutiny. In 1965 Intel cofounder Gordon Moore predicted with uncanny accuracy that microprocessor power would double approximately every eighteen months until 1975. Remarkably, this trend persisted well beyond 1975 and is still holding true, some twenty-five years later. To some people, this suggests that Moore's observation/forecast is, in fact, a physical "law" manifested independently in nature, rather than describing a set of technological opportunities that could be fruitfully exploited with the proper (immense) investment of time, money, and human resources. Accepting Moore's law *as a law*, consciously or unconsciously, can lead one to believe that the future is preordained and that technological innovations themselves (with no social intervention) are the motor behind an inexorable unfolding of tomorrow.

Enter the slow food movement, which Chapman proffers as an alternative paradigm (among many others) that challenges the global-technological imperative. Far from being simply a glib rejoinder to the American fast food orientation, the slow food ideology offers a middle ground, mediating between antitechnology anarchists and technoglobalist true believers. Instead of focusing on technology or on corporate capitalism—either for or against—the slow fooders (and advocates of other new paradigms) turn back instead to more basic questions: What is the good life ("il buon vivere"), for example, and how do we get there? Beyond this, there is a conscious attempt to do the hard work of organizing and building new institutions that can help propel the new work forward.

Chapman then applies his analysis to the realm of a network society. He believes that global-technological forces are acting to shape the Internet into the media equivalent of fast food. He believes that "fast media" are not preordained and that human values and human aspirations must reassert themselves over a putative global-technological imperative.

The prominent Dutch communications researcher and activist Cees J. Hamelink has contributed "Human Rights in the Global Billboard Society" (chapter 4), which contrasts the onslaught of global marketing and merchandising with universal values. He discusses the latter largely through the lens of the United Nations' "Universal Declaration of Human Rights" and the U.N.'s plans for the first "World Summit on the Information Society."

Hamelink discusses how four rights from the U.N. Universal Declaration—the right to free speech, the right to a democratic order, the right to equal participation in social life, and the right to cultural identity—are specifically threatened by the "billboardization" of society. He contrasts the political preferences of the "global billboard society" with those of the International Human Rights Regime (IHRR), which he believes to be on a collision course. As a longtime U.N. watcher, contributor, and gadfly, Hamelink fears that the U.N. is likely to side with the forces of the global billboard society to the detriment of the IHRR and other socially ameliorative communities worldwide. Although the development of collaborative civil-society networks raises complex questions, Hamelink believes that the mobilization of civil society is necessary to strongly remind the U.N. of its mission and the people worldwide for whom it claims to act.

Global Tales of the Civil Network Society

The case studies in part II provide a sampling of actual projects from all over the world that have developed in response to, and in the context of, powerful social and technological forces. These case studies are intended to be interdependent with the writings in the rest of the book. Their evolving and experimental nature will be stressed: What do they accomplish for their users? What are their objectives? How do they relate to other similar efforts and to the orienting ideas from part I of this book? Where are these projects going and what obstacles—of both an internal and an external nature—do they face? Additionally, setting the stage for the ideas in the rest of the book, these chapters discuss best practices as well as new social and technological directions.

In "A Census of Public Computing in Toledo, Ohio" (chapter 5), Kate Williams and Abdul Alkalimat attempt to identify every public computing facility in Toledo, Ohio, a medium-sized American "Rust-Belt" city. They explore three main settings in which citizens have access to networked computing—three possible "bridges across the digital divide": the home

where *personal computing* occurs, the workplace where *private computing* occurs, and other places, where access is more open-ended and inclusive, especially in but not solely confined to libraries, schools, community centers, churches, and storefronts, which the authors call *public computing*. They are concerned with what will happen to democracy in the transition to an information society, and they scrutinize Toledo as a possibly typical "dual city" (Castells and Hall 1994) with this in mind. From the observations of Toledo's ninety-nine public computing sites, Williams and Alkalimat show that government sites are more or less randomly located around the city, community sites are generally located in economically rich or poor (but not middle-stratum) neighborhoods, while commercial and university sites correspond most closely to market forces and are located in close proximity to upper-income and student populations. If these findings are generally valid, the implications for democracy—particularly in relation to poor and working people—are profound.

In "A Polder Model in Cyberspace: The Contemporary Amsterdam Public Digital Culture" (chapter 6), two Amsterdam Internet developers and critics, Geert Lovink and Patrice Riemens, discuss developments in Amsterdam's new-media culture since its beginnings in the early 1990s. They especially focus on Amsterdam's community network, the Digital City (De Digitale Stad). Roughly paralleling the Seattle Community Network and Blacksburg Electronic Village (both Silver, chapter 14, this volume) and Rete Civica di Milano (De Cindio, chapter 10, this volume), the Digital City project as a product of Amsterdam's new-media culture was a vibrant and utopian digital project offering free services to tens of thousands of people. But in retrospect, it was on a collision course due to its own internal contradictions (conflicting management and user objectives and strategies) and the all-consuming ideological Zeitgeist of the "new economy's" get-rich-now mentality. Analogous to David Silver's "historical archaeologies," Lovink and Riemens depict a rich and volatile sociotechnico-historical landscape in which idealism bloomed and was, to a large degree, frustrated. Lovink and Riemens point to what they consider the particular "Dutchness" of the project, including its exclusive use of the Dutch language (the only policy decision along these lines made by management), the radical-squatter and "new-media-culture" movements, and the "Polder model" of social/political interaction characterized by "endless rounds of meetings." Some of the issues they raise are more universal: the lukewarm (at

best) and indifferent or hostile (more commonly) attitudes shown by municipalities and other government units toward utopian public-sphere projects in cyberspace, like the Digital City. They also underscore the inability of those harboring more idealistic visions, to successfully organize, to articulate compelling visions, and to garner support and effectively work toward common goals.

The main goal of Susana Finquelievich's "Community Networks Go Virtual: Tracing the Evolution of ICT in Buenos Aires and Montevideo" (chapter 7) is to evaluate the social impact of ICT uses in local contexts, on both sides of the River Plate in South America. She focuses on local governments and their communication with citizens, as well as on the practices of civic networks trying to increase their impact on public issues. ICT uses and effective reach were studied in the local government's internal management practices, as well as in their attempts to assimilate the population to the information society. Finquelievich traces how some of the region's historical factors as well as the sociotechnical infrastructure have had a powerful influence on ICT development. Although the main focus of the chapter is on earlier data, Finquelievich discusses how the current crises in Argentina are shaping and are being addressed by existing citizen networks and ICT infrastructure.

Veran Matic's chapter "Civil Networking in a Hostile Environment: Experiences in the Former Yugoslavia" (chapter 8) is a chronicle of steadfast media resistance in a hostile environment over a period of five or so years in the former Yugoslavia. As such it highlights the critical—and dangerous—role of journalists and media institutions in securing human rights and democratic reform while fostering a critical and informed citizenry in the face of fascism and totalitarianism.

Matic's chapter performs the valuable service of highlighting particular issues and ideas that may be applicable in a variety of other situations, not only in fascist states and systems, but also in the West, as a corrective response to current methods of media operations. Experiences in the former Yugoslavia remind us that media can be used creatively and energetically in pursuit of higher goals, a principle unfortunately ignored or forgotten to a large degree by media producers (and consumers) all over the world.

Scott S. Robinson, in his chapter "Rethinking Telecenters: Microbanks and Remittance Flows—Reflections from Mexico" (chapter 9) focuses on

a different geographic region. Robinson casts a critical yet hopeful eye on the nascent telecenter movement in Mexico and the other countries of the global South and on the particular set of historical forces in which these telecenters are spawned. He calls telecenters "cybercafés with a social conscience," and he sees them as an institution for the new "Second World" of refugees and migrants that could serve as the nucleus of a wide range of potential socially ameliorative functions. Robinson views them first as possible centers for microbanking in villages (which currently lack any formal financial institution), and secondarily as centers for training and for the use of (and production of) new electronic extension services.

Robinson is particularly interested in the new Second World of migrant populations who, of necessity, routinely traverse the First and Third Worlds. Since migrants often lose a substantial percentage of the money they send home, he proposes to combine community telecenters with microfinance institutions and offer cost-plus communication and basic financial services to migrants and their families at home. The savings could not only pay for the telecenters on both ends, but once the human and technical infrastructure is in place, other services could be provided and scaled to networked migrant communities, North and South.

Fiorella de Cindio's chapter, "The Role of Community Networks in Shaping the Network Society: Enabling People to Develop Their Own Projects" (chapter 10), is in large part the oral history of the Milan Community Network (Rete Civica di Milano or RCM in Italian), one of the world's most prominent community networks. By using the words of people who developed purposeful social venues within RCM's sociotechnical framework, De Cindio tells a meaningful story of social engagement in the hands of ordinary citizens, deftly illustrating the main tenet of this book—that civil society should be allowed and encouraged to play a role in shaping the network society.

De Cindio performs two additional services for us. First, she discusses four "genes" (academia, computer-supported cooperative work, participatory design, and civil engagement) or philosophical and methodological orientations that provided foundations that helped steer RCM into a useful platform for Milan's citizenry. Second, she relates how social actions nominally confined to a single community can have repercussions beyond the local context.

Building a New Public Sphere in Cyberspace

Part III, "Building a New Public Sphere in Cyberspace," focuses on the future: What do the case studies suggest? In what ways do they constitute new opportunities for civil society? How might a more democratic, community-centered information and communication infrastructure help steer humankind in directions that may be at odds with those suggested by the ubiquitous neoliberal, corporate media? What should be done?

Craig Calhoun's contribution, "Information Technology and the International Public Sphere" (chapter 11), is a wide-ranging explication of issues and prospects related to the development of information technology and the emerging network society. Calhoun's focus is on Habermas's idea of a public sphere and its possible relevance in today's world of "culture, capitalism, and inequalities" in a new mass-mediated, globalizing environment.

Calhoun is emphatic in his belief that a global public sphere is essential to the democratization of the global order. He is realistic, however, about the actual prospects. He argues that global public sphere in which critical public discourse trumps propaganda, commercialism, threats, and violence may indeed be possible—but that its future is by no means certain.

In "What Do We Need to Know about the Future We're Creating? Technobiographical Reflections" (chapter 12), Howard Rheingold embarks on a personal odyssey of his expectations and experiences with emerging computer technology. Using his own personal story, Rheingold starts with his grade school lectures on "Howard and the Atom" and progresses to his present-day work on "smart mobs" as a parable. To some degree Rheingold's own somewhat-diminishing infatuation with technology echoes the view that he expects the rest of humankind to now be adopting: that technology—and the Enlightenment worldview that engendered it—while being extremely powerful intellectually as well as materially, is not up to the task of solving the problems the world is currently faced with. (Although many of the problems we are faced with now are not new, it was generally easier to dismiss them as transparent or superficial—not deep, systemic, and persistent—in previous generations.)

Rheingold's continuing fascination with, and everyday use of, online communication naturally leads him where other people looking for ideas for new paradigms and technologies have also been led: to questions related to the "public sphere" in traditional Habermasian terms and to new possibilities as well. Without forswearing technological opportunities in general,

but through a consideration of possibilities opened up by new sociotechnical systems, Rheingold believes that new information and communications systems can play an important role. If they are thought about—and *shaped*—with this in mind, they can help our species to better prepare for— and shape—the future and to help develop a more enlightened stance toward world stewardship.

Nancy Kranich's chapter, "Libraries: The Information Commons of Civil Society" (chapter 13), explores the role of the public library in the current era, in which print-based, broadcast, and new digital media all coexist. She builds a compelling case for libraries as a cornerstone of democratic society. She describes libraries as an abiding public institutionalized force for equitable and readily available information. Lost in the dot-com hysteria is the intriguing story about increasing library usage and the increase in the number of titles published each year.

At the same time, libraries have not let the online, digital boom—and its likely long-term effects on future information and communication spheres— escape them. Libraries have been busily providing access to the Net and to digital information while engaging in political and legal battles to maintain—and possibly strengthen—these rights in the future. For democracy to flourish in the digital age, the public will need a commons to exchange ideas and interact with fellow citizens. Libraries promise to provide such a public space, but citizens need to pick up the gauntlet and fight to ensure equitable access to information in their local communities.

David Silver's chapter, "The Soil of Cyberspace: Historical Archaeologies of the Blacksburg Electronic Village and the Seattle Community Network" (chapter 14), compares two influential community networks in the United States. The first, the Blacksburg Electronic Village (BEV), was amply endowed with millions of dollars (thanks to Bell-Atlantic, the Virginia State Legislature, the U.S. Department of Commerce, and others) and received many commendations, at least in its early days. The second, the Seattle Community Network (SCN), the product of progressive computer scientists, software developers, librarians, and homebrew computer nerds, relied on volunteer labor and virtually no funding. Silver performs the gritty genealogical detective work of analyzing the *soil*—the sociotechnical milieu—that shaped and nurtured the development of the two community networks.

Now the environment for both systems has changed dramatically; access to the Net (at least in Blacksburg, Seattle, and much of the United States)

is ubiquitous, and the collapse of the dot-coms has taught sobering lessons. The community and civic potential for systems such as BEV and SCN has not gone away (nor has their need), although their proponents may have been chastened by the way things have turned out. Can BEV and SCN developers free themselves to some degree from the bonds of the history that they have helped write (and that Silver elucidates)? The environment in which they emerged has changed. Can the form they have created evolve accordingly, while they continue to strive toward the ambitious community and civic goals they have espoused?

Douglas Morris's chapter on "Globalization and Media Democracy: The Case of Indymedia" (chapter 15) explores one way the sociotechnical milieu that the Internet offers has been quickly and creatively embraced by people with a radical critique of contemporary neoliberalism. The Independent Media ("Indymedia") Center (IMC) movement is being propelled by a growing but widely distributed, loose-knit group of antiglobalist activists worldwide. These activists have stitched together a remarkable communications network using a common technological infrastructure, a more or less shared philosophy and strategic orientation, and few economic resources. Launched in anticipation of the major protests surrounding the World Trade Organization's meeting in Seattle in 1999, the network has grown to over 130 nodes worldwide.

The case of the IMC is critical to our present inquiry for two main reasons. We are concerned with the issues that the IMC has helped put on the public agenda. Is a corporate, top-down, rationalized, homogeneous philosophical orientation going to be the single ideology that guides our thoughts and actions, or will there be space for alternative viewpoints and ideological diversity? Who makes the rules and (more important?) the news?

We wonder, particularly, about the alternative and independent use of cyberspace. Can sustainable models of civic, noncommercial enterprises, including those that rely substantially on volunteer labor, be found? Can they gain legitimacy and influence in a sea of well-funded commercial enterprises? Finally, can the social, political, and economic functions that the IMCs strive to provide, coalesce with other efforts, including less confrontational efforts, like, for example, those of the public library? How do the arguably more traditional civil-society institutions support or detract from the militant calls for social change that the IMC and other, more radical groups demand?

The concluding chapter, "Propects for a New Public Sphere" (chapter 16), by Peter Day and Douglas Schuler, has two major objectives. The first is to take stock of today's sociotechnical milieu and the issues raised by the book's contributors. Currently there is urgent and widespread interest in developing new models, services, organizations, and ways of thinking around the world. It is possible that this work may blaze brightly for a time and burn out just as quickly as the novelty fades or the obstacles become insurmountable. On the other hand, this work may signal the beginning of new social forces that could significantly alter the paths humankind takes in the future.

The second objective is to propose and evaluate efforts for a new public sphere that effectively employs the medium of cyberspace for social and environmental progress. The protean nature of the medium and its potential for inexpensive and ubiquitous access to information and communication suggest a rich potential for civic uses, but will these aspirations be realized? Do Basalla's (1988) conditions for technological innovation exist? Part of the reason for including views from around the world, of course, has been to demonstrate the commonality (as well as the diversity) of the efforts to create new systems.

Day and Schuler discuss a number of the challenges these systems are likely to face. They come in two basic varieties: internal and external. Internal challenges result from the necessity of responding flexibly and effectively to changing and possibly inhospitable conditions. Externally policies can change, as can institutions, the general Zeitgeist of the era, and the technological foundation on which we create these systems. Will the systems be able to adapt to change?

Advancing "utopian" schemes is always risky, yet it may be that new historical circumstances are setting the groundwork for rapid change. Once the technological pieces were in place the World Wide Web grew (and continues to grow) at an unprecedented rate. Do these new developments signal something profound historically, or will they be known ultimately merely as historical footnotes?

The final chapter concludes with a number of suggestions—both practical and somewhat speculative—on how an effective, equitable, and durable public sphere can be advanced in the years ahead. We have attempted to weave relevant strands of critique, analysis, case studies, and policy considerations into a coherent story of a powerful yet diffuse movement. Although

many of the authors are academics (who are burdened with at least some of the deficiencies that the label implies), most, if not all, of them infuse their work with human values and hope for positive social change.

The world offers a nearly infinite number of opportunities, challenges—and *surprises*. While some of these circumstances may change from moment to moment, others may stubbornly persist. How we interpret and act in response to the circumstances we encounter constitutes the business of living. Although we must play with the cards we are dealt, we may decide to change the rules of the game from time to time.