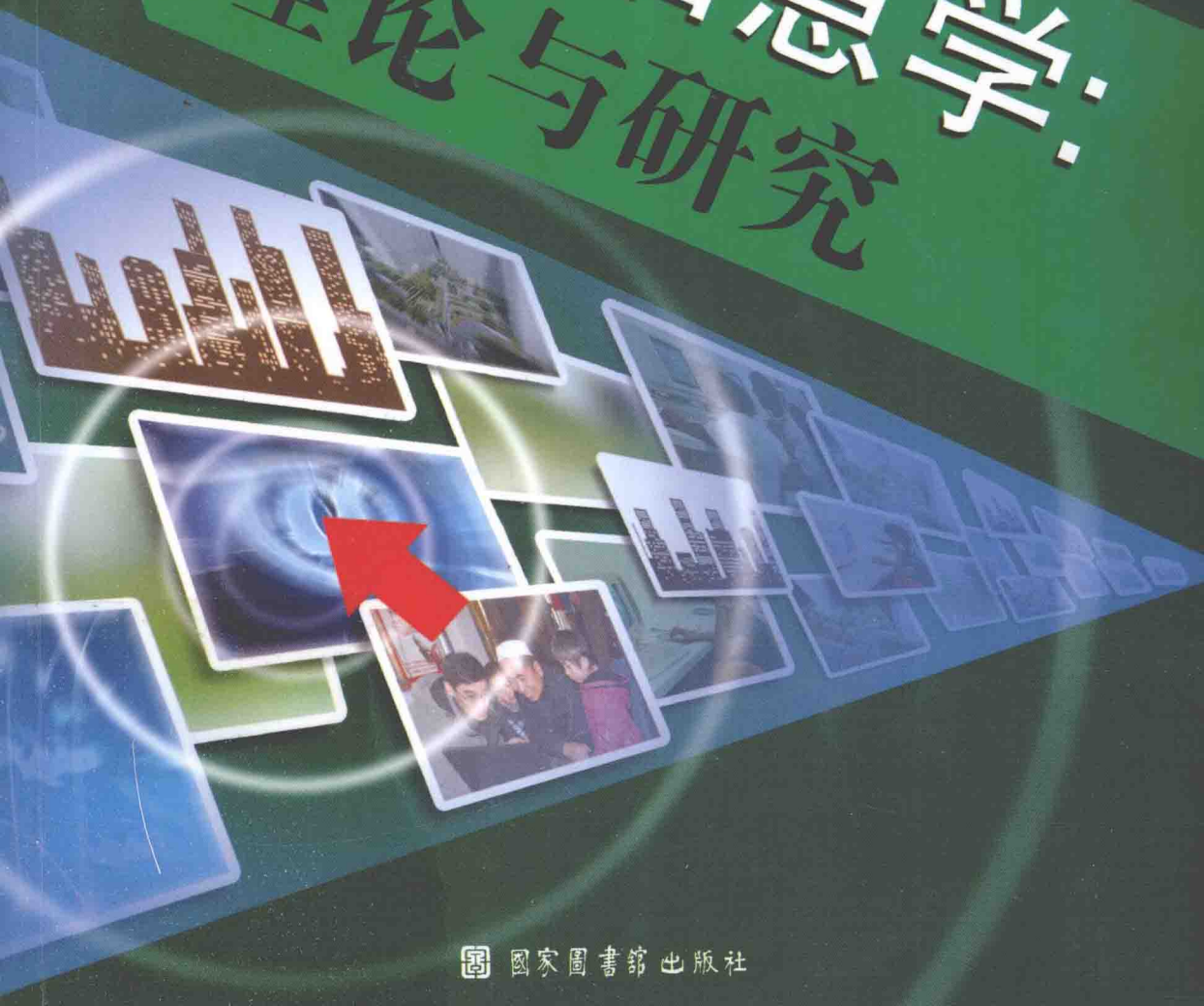Kate Williams, Han Shenglong, Yan Hui, Abdul Alkalimat

Community Informatics in China and the US: Theory and Research

社群信息学：理论与研究

Community Informatics in China and the US: Theory and Research

社群信息学：理论与研究

Edited by Kate Williams, Han Shenglong （韩圣龙）
Yan Hui （闫慧） and Abdul Alkalimat

国家图书馆出版社

Permissions

New Role of Civil Society in Cyberspace, "edited by Douglas Schuler and Peter Day. © 2004 Massachusetts Institute of Technology, by permission of The MIT Press.

Chapter 12 was originally published in *The Library Quarterly* Volume 82, Number 1, January 2012. © 2012 by the University of Chicago. All rights reserved.

Chapter 14 originally appeared in the October 2009 issue (volume 14, number 10) of *First Monday* at http://firstmonday.org.

Sage Publications Inc. for chapter 19, which originally appeared in the December 2011 issue of *Journal of Information Science* (Volume 37, number 6).

序

赖茂生 （北京大学信息管理系）

　　本书是中美两国信息界专家合作的产物。它得益于 2011 年夏天北京大学首届"社群信息学"暑期学校的成功举办和推动。本书的编者请我为本书作序，我既感到十分荣幸，又觉得责任很重。

　　"Community Informatics"是一个新的领域，在国外已经有十多年的研究历史。据查，Jones Steven 1995 年就主编出版了论文集"Cybersociety: Computer-mediated Communication and Community"（Thousand Oaks. SAGE Publications）。Brian D. Loader 和 Leigh Keeble 2004 年发表的一篇文献综述"A literature review of community informatics initiatives"就收录了 49 项相关研究工作的成果。文中还提到早期阶段产生的相关文献数量要超过 1600 种。

　　在中国内地，与"Community Informatics"相对应的词是"社群信息学"或"社区信息学"。利用维普资讯数据库检索，发现"社群信息学"0 篇，"社区信息学"1 篇（2011 年发表）；而利用"社区信息化"及相关术语进行检索，却可以查出很多文章，其中，"社区信息化"198 篇（最早的一篇是报道，1998 年发表），"数字社区"232 篇（最早的一篇也是报道，2000 年发表），"网络化社区"2 篇（说明：实际情况可能并不完全是这样，因为存在着数据库收录范围和分类标引方面的误差）。从中不难发现国内外此领域的研究工作不仅存在着时间上的差距，使用的术语也有很大差异。

　　术语上的差异可能反映出国内外的文化和认知上的差异。"信息化"和"数字化"这样的概念，在中国学界和公众的文化和认知上可以说很流行和深入人心，而国外却不是如此。相应地，对于"Community Informatics"这样一个在国际上比较流行的术语，如果翻译为"社群信息学"或者"社区信息学"，在中国就显得非常"阳春白雪"，和者盖寡。这就给中国的研究者提出

了一个严重的挑战：如何使我们的话语和思想既要被国人理解和接受又要与国际接轨？

据本人的考察和体验，在西方，"Informatics"这个词的实践色彩很强，"Community Informatics"这个术语的实践性更强（在本书中也有充分体现，如行动研究、案例调查以及二者的结合）。联想到美国文献中不难看到"Law Informatics"、"Museum Informatics"、"Medical Informatics"、"History Informatics"等术语，可以认为，"Community Informatics"与"社区信息化"或"数字社区"在含义上是很接近的。因此，在国内的交流中，我们需要灵活理解、翻译和使用"Community Informatics"这个术语。中国的社区信息化和数字社区的实践和研究工作不仅很有自己的特色，而且内容上也很丰富，涉及面和应用面比较广泛，并有一定深度。这些成果和信息对国外的同行有参考价值，需要我们很好地传播。

当然，我们也要努力地吸收和借鉴国外同行的研究成果，包括他们的研究视野、思路、模式、方法等。本书收录的文章中有相当一部分出自外国专家之手。他（她）们分别贡献了有关社区研究的网络分析法、社会资本、社会资本与"网络力量"（Cyberpower）、信息城市、与地理空间对应的"流空间"（space of flows）、集体智能（collective intelligence）、社群信息学（Community Informatics）、非裔美国人社区的社会"网络力量"和社会资本、公共计算设施（网站）的人口调查、"信息学时刻"（Informatics Moments）等方面的研究成果。其中许多成果在研究视角、研究方法和结论上都很有特色或创新。例如，以"社会资本"为切入点就很有新颖性，社会资本（包括集体智能）确实是建设数字化社区和解决数字鸿沟问题时需要充分重视的一种资源。又如，有关"Social Cyberpower"的研究，阿布杜（Abdul Alkalimat）教授和凯特（Kate Williams）教授认为存在三种"网络力量"：个人的、社会的和意识形态上的，他们把学校、图书馆、社区技术中心等"公共计算"设施视为社会化的"网络力量"，认为把这些力量组织起来，去应对当今社会的数字鸿沟等问题的挑战，是一个新涌现的研究和教学领域。凯特教授提出的"信息学时刻"概念，认为"信息学时刻"就是某个人在使用新的数字技术时寻求帮助的时刻，就是他克服数字鸿沟的时刻。社会资本也与许多这种信息时刻相关联：从那些拥有技术的人和家庭成员寻求帮助，并和其他人在他们的网络上一起这样做。理解这种信息学时刻就可能加快人（和社会）所渴望的转变，即过渡到包容性的数字时代。

Community Informatics in China and the US:
Theory and Research

还有 Manuel Castells 先生的文章中提出的 "The Informational City is a Dual City" 的观点也很有趣。他所说的"信息城市"是信息技术革命催生的一种新的"双城记",不同于狄更斯笔下的"双城记",实际上是由新的信息技术和社会重构运动结合所造就的一种"复式城市"。Castells 先生认为"信息城市"是技术、经济、战略、社会利益、文化价值观和权力斗争等多种要素交互作用过程的产物,是城市的多层面转型,需要通过密集利用 ICT 才能管理好这样的城市。然而,这种新的城市系统会产生或者加强两极分化现象,即一方是高价值社群,另一方则是贬值社群。这种极化现象导致城市系统的社会和空间核心功能的日益集聚,同时分裂出贬值的空间和社群,并使后者面临被边缘化的危险。使信息化与社会空间排斥现象相关联的原因不是新的信息技术,而是自 20 世纪 80 年代以来流行的资本重组政策,信息技术只不过是加剧和加深这一趋势。作者想探讨利用信息技术来使城市更仁慈、更智能和更公正的可能性。

本书还收录了中国作者撰写的文章,分别探讨了数字公平、老少边穷地区的社区信息化、数字鸿沟、中美两国社群的数字不平等现象、城市中的网吧、中国互联网的历史、作为公共计算设施的商业网站等方面的问题,在一定程度上可以代表中国内地的"社群信息学"研究水平和主要研究兴趣。另外,还有中美两国学者合作撰写的 2 篇文章,题目分别是:"Toward Building the Information Society with Chinese Characteristics"(创建有中国特色的信息社会)和 "Toward Global Measurement of the Information Society: A US—China Comparison of National Government Surveys"(全球信息社会测度:美中两国政府调查比较),主题和内容都很有意义,使中美两国学者在此领域的合作研究有了一个良好的开端。

最后,特别值得一提的是,在本书的策划、组稿、审稿、出版和举办"社群信息学"暑期学校方面,阿布杜教授、凯特教授、韩圣龙副教授和闫慧博士都做出了宝贵的贡献。他们的奉献精神、良好的合作风范和认真负责的工作态度都令我敬佩值得我学习。衷心希望这样的合作和这一有意义的事业能永续和不断发展壮大。

2012 年 3 月于燕园

3

Preface

Lai Maosheng

This book is a product of collaboration between Chinese and American information professionals. It benefits from and is promoted by the first community informatics summer school held at Peking University in 2011, which proved a success. It is my great honor to be invited by the editors to write the preface. And it is also a great responsibility for me to accomplish it.

Community Informatics is a new field, but it has been studied for more than 10 years outside of China. Steven Jones edited the book *Cybersociety : Computer-mediated Communication and Community* (Thousand Oaks. SAGE Publications) in 1995. A literature review of community informatics initiatives by Brian D. Loader and Leigh Keeble published in 2004 includes 49 related studies, and mentions 1600 relevant publications from the early years.

In mainland China, one translation for "Community Informatics" is "She Qun Xin Xi Xue" (社群信息学) and another is "She Qu Xin Xi Xue" (社区信息学). When these terms are searched in the WeiPu database, the results are none for "She Qun Xin Xi Xue" and one paper published in 2011 for "She Qu Xin Xi Xue".But many articles can be retrieved using the search term "community informationization" and related terms. There are 198 articles on "community informationization" (the earliest is a news report published in 1998), 232 articles on "digital community" (the earliest is also a news report published in 2000), and two articles on "networked community" .The actual publications may not be exactly as retrieved, because there are database errors in terms of range, classification and indexing. But there is clearly a gap in this field between research in China and elsewhere, not only in the dates of publications, but also in the terms used.

Differences in terms may reflect cultural and cognitive differences between China and elsewhere. The terms informationization and digitalization are very popular and deeply rooted in the Chinese academy and among the public as aspects of culture and cognition, but that is not the case outside of China. Correspondingly, the overseas term community informatics, if translated as "She Qun Xin

Xi Xue" or "She Qu Xin Xi Xue", would scarcely meet the same welcome in China. So it is a serious challenge to Chinese scholars: how can our academic discourse and ideas be understood by the Chinese public, and how can we be on the same page as the global academy?

Through my own investigation and experience, I think the word informatics is closely related to practice in western countries, while the term community informatics is even more so as incarnated in this book, for example action research, case study or a combination of both. In American literature, terms such as law informatics, museum informatics, medical informatics and history informatics are commonly used, so the meaning of community informatics can be regarded as close to community informationization and digital community. Therefore, in communications within China, it is necessary to understand, translate and use the term community Informatics flexibly. Practice and research in community informationization and digital community in China has its own special features and is rich, broad and deep. Our existing research and information is valuable to our global peers, and need to be widely disseminated.

Of course, we need to learn from and refer to research from our global peers, including their research perspectives, frameworks, models and methods. Ten of the 19 articles in this book come from foreign professionals. They have contributed research including network analysis methods, social capital, social capital and cyberpower, informational city, space of flows, collective intelligence, community informatics, cyberpower and social capital in African American communities, census of public computing facilities (sites), informatics moments, and so on. This research is innovative as to perspectives, methods and conclusions. For example, the perspective of social capital is novel, as social capital (including collective intelligence) is indeed a resource we must pay fully attention to when building digital community and solving problems of digital divide. Another example is the research on social cyberpower. Abdul Alkalimat and Kate Williams propose three types of cyberpower: individual, social and ideological cyberpower. They consider public computing sites such as schools, libraries, and community technology centers as enabling social cyberpower. They think that organizing cyberpower from those institutions to meet the challenge of the digital divide and related issues in current society is an emerging research and teaching field. Kate Williams has proposed the notion of informatics moments, which represent the moment when someone asks for help in using new digital technology, or in other words the moment when someone overcomes the digital divide. Social capital has a relationship with

these informatics moments. People do not only seek help from those who have knowledge of technology and family members, but also share their experience together with others through their network. Understanding the informatics moment may help accelerate the changes desired by individuals (and society) which means the transition to the inclusive digital age.

Manuel Castells advances an interesting idea in his article "The Informational City is a Dual City". His notion is that the informational city represents a new kind of *A Tale of Two Cities* impelled by the information technology revolution, which is different from Charles Dickens' *A Tale of Two Cities*. This dual city is constructed by means of new information technology and social reconstruction movements. Castells takes the informational city as a product of interactive processes of various factors such as technology, economy, strategy, social benefit, cultural value and power struggle. The informational city is a multi-level city transformation. Managing an informational city requires intensive use of ICT. However, such a new city system may lead to or exacerbate social disparity, which means there are high valued communities on one side and devalued communities on the other side. Social disparity will cause increasingly aggregation of the core functions of society and space in the city system, from which devalued space and community diverges, facing the danger of being marginalized. It is not new information technology but prevalent capital restructuring policy since 1980s that associates informationalization with social space exclusion. Information technology has just intensified and deepened that trend. Castells tried to explore the possibility of a better, more intelligent and fair city with information technology.

This book also includes seven chapters by Chinese scholars, which discuss the issues of digital equity, community informationization in old and poor cities as well as minority and border areas, digital divide, digital inequality in Chinese and US communities, the history of Internet in China, commercial sites as public computing sites, and digital and information inequality. Those articles to some extent represent the development and main interests of community informatics research in Mainland China. Additionally, there are two articles based on the collaboration between Chinese and US scholars: "Toward Building the Information Society with Chinese Characteristics" and "Toward Global Measurement of the Information Society: A US—China Comparison of National Government Surveys". Their subjects and contents are very meaningful and make a good start at collaboration between Chinese and US scholars in this field.

6 Community Informatics in China and the US: Theory and Research

Finally, it must be mentioned that professors Abdul Alkalimat, Kate Williams, Han Shenglong and Yan Hui have made valuable contributions in planning, compiling, reviewing, and publishing this book as well as organizing the community informatics summer school. Their dedication, good collaboration, responsible attitude deserve admiration and study. I sincerely hope that the collaboration and this significant enterprise will be sustainable and become even stronger.

March 2012, Peking University

Introduction

Kate Williams, Han Shenglong, Yan Hui, and Abdul Alkalimat

This book is the result of research collaboration between US and Chinese scholars. Our mission is to advance the field of community informatics by coordinating a research program in China and the US. This program includes an annual summer school, a conference, coordinated research and publications that contain the emerging scholarship. This volume is the foundational volume in this research program as it contains chapters on theory as well as empirical chapters that demonstrate research methods and findings. Chapters are from North America, that is to say, Canada and the US, and China. Most were used in the 2011 Peking University Community Informatics Summer School. They are assembled to serve as a text for introductory courses in community informatics in both China and the US.

The four of us represent the University of Illinois at Urbana-Champaign, Peking University and Nankai University. Encouraged by Chen Jianlong, Yan Hui came to Illinois as a visiting doctoral student during 2008–2009 and we began a productive partnership. Supervised by Lai Maosheng, Yan Hui completed what we think of as the first community informatics dissertation in China. (although, please, we want to hear of any earlier one!) Once on the faculty at Nankai, he invited us to bring a group of researchers to China where Peking University faculty led by Lai Maosheng organized a community informatics conference and other leading information management departments also welcomed us. Han Shenglong at Peking University, familiar with the United States and informatics from his 2008–2009 year in Champaign-Urbana, and with informatization from his own experiences and teaching, stepped forward to organize a summer school. Our research collaboration continues as Yan Hui and a fifth partner, Wang Sufang of Zhejiang University, carry out research closely linked with ours in rural and urban China, respectively.

What is community informatics?

A number of reflection pieces and review essays, most cited in this volume, have attempted to explain what is community informatics. For us, this question is best answered by careful theoretical framing. Technology is created by society and in turn impacts the nature of society and social change. Critical technological

innovations have made a great impact, such as the railroad, the automobile, jet air planes, telephone, radio, and TV. Community informatics focuses on how communities interact with digital technology, both how they create technology and how using it impacts their social and individual lives.

In the grand sweep of world history, after the hunter gatherer communities, there have been three kinds of socioeconomic communities combining social organization and class with technologies (tools and techniques): agricultural, industrial, and informational. Agricultural communities were relatively small, relying on the domestication of plants and animals to develop economies and culture. The power driving this system was human and animal effort, the power of organic muscle. People did not travel far, and most politics were feudal with hereditary systems of rule.

The industrial period of history led to a total transformation of society. The farm was joined by the factory as the center of material production. Animal power was replaced by machine generated power being fueled by water, wood, and coal. This new environment meant that new forms of socialization and education were needed because change was happening too fast for the apprenticeship system to keep up with what was needed.

The US was the first anti-colonial war of independence in the 18th century, breaking free from the feudal rule of England and its King. However the US economy was held captive by the slave system so it took about 90 years later and a civil war to end the backward system of slavery and unleash the full industrialization of the US economy. The industrial system meant rapidly changing civil society and raising standards on education and vocational skills. China, in the words of Mao Tse-tung, faced the three mountains of feudalism, bureaucratic capitalism, and imperialism. So it was the revolutionary victory in 1949 that unleashed the industrial revolution in China. There have been these two roads to industrialization, the US and the capitalist road and China and the socialist road.

Now there is another systemic change taking place that has shaken the foundation of industrialization in all political forms, the information revolution. The early adopters of the digital technologies, especially computers and the Internet, have been the military and government, the corporations, and education especially higher education. This has spread to the masses of people all over the world in the form of digital telephones (cell phones) that are smart meaning Internet enabled. Our focus is not on the individual but on the community. And we translate

community in community informatics as She Qun (社群), not She Qu (社区) as some others have done.

People live in social groups and it is these groups that make up the historical form of social life, how we eat, sleep, work, play and practice our culture. Out of the agricultural and industrial period we have a narrative of spatial (physical location) , organic (family and bonding social capital), and historical (trans-generational) experience. People lived in social groups that interacted daily on a face to face basis, shared trust and common culture, and linked their fate to the quality of life of the group/ community. All of this is now in turmoil.

In any basic social transformation there is both destruction and construction, the old gets replaced while the new emerges. This relationship between construction and destruction is a central feature of the sustainability of social progress, especially whether they are in sync and continue to provide the necessary environment for socialization and education for everyone. While this applies to all aspects of society, the distinguishing feature of the information society is the inequality referred to as the digital divide, differential access and use of digital technology. Community informatics defines the digital divide not in terms of individuals but in terms of social groups and the community in general. The CI questions focus on social groups and institutions that impact the collective experience in a community.

The three universal institutions in most societies that provide good empirical focus for community informatics are the family, the school, and the library.

The model

Social studies of computing, what some call the field of social informatics, contributes a fundamental concept that people and organizations adopt and use computer technology when and how it suits them. This concept of *agency* means that the community, not the technology, is our starting point. We are studying transformation, so community (at a later point in time) is also our end point. Our full model can be described as a circle or spiral whereby a community C exists, adopts and uses technology T, and that leads to a measurably changed community, or C', that is,

$$C \rightarrow T \rightarrow C'$$

The earliest time-sharing machines, for instance PLATO (1961) afforded a space

for communication as well as for running programs. William Gibson 1984 novel Necromancer popularized a name for this space—cyberspace. Howard Rheingold explored and explained it in his 1993 book *The Virtual Community: Homesteading on the Electronic Frontier*. This gives us a more generalized model,

$$\text{Actuality} \rightarrow \text{Virtuality} \rightarrow \text{Actuality}'$$

which we express as A-V-A prime and which has been the focus of social informatics, internet researchers as well as community informatics.

The model needs one additional component, because all virtuality is accessed through the tools which comprise a digital information infrastructure that exists in the real world. Moreover, as several of the chapters here explain, access to and use of this infrastructure is uneven across and within our societies. It is helpful to conceptualize the digital information infrastructure in three aspects: the content, the code, and the conduit. Content is the data. Code is the software. These are virtual. But conduit is the devices, the infrastructure, and the human IT help that enables people to we manipulate the content and the code. Those exist in the physical world. In chapter 11 we conceptualize this "conduit" as personal (at home), private (at work), and public (shared in other locations). While all these are important, in light of the digital divide and scarce resources for most of the world's population, community informatics emphasizes the public. So our complete framework for community informatics research is in figure 1 below:
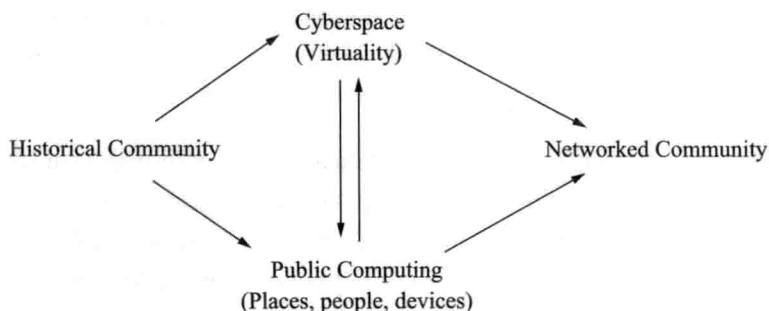
Figure 1   Research framework for community informatics

The model finishes with the community, but at a later time. What has changed? Compared to the community at an earlier time, is there an observable difference?

Community informatics in the US

Because chapter 8 of this volume provides a detailed US history of the research

field known as community informatics, it is worth reviewing here the practical activity that the research studied. The earliest evidence of community informatics, in fact, was not scholarship but practice, variously known as community networking, community computing, and community technology. But before any of these names came PLATO (1961), the first time-sharing computer system used for formal and informal education at all levels, including terminals in schools, universities, libraries and elsewhere. Teachers as well as the interested public got free accounts, used curriculum, development curriculum, and began to communicate and even play online games. PLATO was funded at least in part by the Office of Naval Research in the US Department of Defense, and invented by researchers at the University of Illinois.

In 1973 Berkeley Community Memory began as a timesharing system with terminals in two local shops and the public library where anyone could post or read messages. An early book theorizing about computers in people's everyday life was Ted Nelson's *Computer Lib: You Can and Must Understand Computers Now* (1974). By the 1980s, community networks (online resources, some providing public computing resources) and community technology centers (public computing sites) were flourishing. Libraries were involved since the so-called "card catalog" was becoming a database and public librarians moved their local information files onto the computer.

As these experiments multiplied, university researchers became involved, often as practical partners since large grants were typically not given to small organizations. Campus-community conferences fostered discussion and then publication of case studies that explained "what we did and what happened."

In the 1990s the Clinton Administration popularized the term digital divide, began to measure this divide via large household surveys, and launched a $230 million funding stream called the Technology Opportunities Program (TOP) through the Federal Department of Commerce. The "dot-coms" and the telecommunications companies brought corporate funding to this movement. The community technology movement, as it was called, was in full swing. The National Science Foundation granted $2 million to a leading community technology center, Playing to Win in New York City, to build a national network of such centers and carry out surveys on what was happening in them. Community Technology Center Network, or CTCNet, informed and galvanized community organizations and city agencies across the US. Along with CTCNet numerous state and local associations