# Wireless Networking for Communities, Citizens, and the Public Interest: Global Perspectives

**Alison Powell & Sascha D. Meinrath, Guest editors**

New wireless networking breakthroughs have inspired communities to build their own communications infrastructures and have spurred the development of innovative applications and services. Wireless networking for communities, citizens and the public interest has leveraged inexpensive and flexible technologies and provided broadband access as well as community media applications. Community wireless networks have mobilized groups of citizens, local governments, non-profit organizations, and development agencies to collaborate in creating locally-appropriate communications tools.

Throughout the history of community media, moments have arisen where the confluence of technological development, economic efficiencies, and social necessity have realigned our fundamental notions of what it means to live in a civil society. The current critical juncture, where geospatial communications like wired telephones are being replaced with individual communications like mobile devices demonstrates the powerful roles for community wireless networks in this transformation. Around the world, new initiatives have developed, appropriated, and integrated emerging wireless technologies to provide access to local media, promote digital inclusion, solve communication problems, and promote civic engagement.

This special issue documents the state of the art in research on community wireless applications, and presents assessments of community wireless projects in a variety of local contexts: from large urban centers in North America to rural locations in Asia and Latin America. Together, the papers and field notes in this special issue reflect on a community-centric approach to communications infrastructure development. These works describe the challenges – both practical and theoretical – that face community wireless networking, as well as the implications many of these projects have to support social and economic justice around the globe.

The papers in this special issue demonstrate that community-based approaches to Wifi development are part of a broader integration of technology, organizational capacity, and local culture. Social goals are part of most community Wifi projects, and integrating these goals and the technical structures of Wifi networks is part of what makes many community Wifi projects successful. Both full papers and field notes explore this integration and focus on various facets of the community wireless networking movement.

The papers included in this issue explore different theoretical approaches that help situate community wireless networking as social and technical phenomena. Adria provides a meta-theoretical discussion of how Wifi networks reconfigure space and time -- using the medium theory of McLuhan and Virilio to suggest that Wifi networks have the potential to integrate local geographical and temporal experiences.

The other papers use empirical approaches to assess the social aspects of community wireless networking. Tapia and Ortiz explore the claims made by operators of municipal-community networks that these projects are addressing the digital divide. Using a textual analysis of claims made in documents including “press releases, requests for proposals, letters of intent, and other official policy documents,” as well as interviews with key informants in US municipal-community projects, they interrogate the extent to which networks facilitate meaningful digital inclusion.

Both Cho and Forlano explore the social aspects of community wireless networking in more detail: Cho focusing on the development of networks and Forlano on their use. Cho reveals how the development of community wireless networks (CWNs) builds social capital for the participants. She develops the concept of “place-peer community” to explain how Wifi

projects define “community.” Cho also describes how contributions to community wireless networks help to develop ‘civic bandwidth’ among their contributors. Like Tapia and Oritz, she identifies CWNs as developing a discourse that connects the development of digital information and communication technologies with efforts to improve communities.

Forlano explores the new social relationships created through the everyday use of community-based Wifi networks, examining the gap between media representations of Wifi as an “anytime, anywhere” solution and the socio-cultural practices of people using free Wifi hotspots in New York City. As she discovers, freelance workers use Wifi hotspots to create temporary working environments that eliminate some of the isolation of working without a fixed office, while providing a basic infrastructure including network connectivity and electrical power. These Wifi hotspots support communities of mobile, flexible workers who establish relationships with a particular place and its people. Together with Cho’s insights about the social capital mobilized through the process of developing community Wifi networks, this suggests that Wifi hotspots may have a unique role to play in redefining the experiences of community in urban areas.

The field notes in this issue offer a window into the realities of local experiments with Wifi technology. The impacts of the projects they document depend on the local political context (Clement), the community’s capacity (Dara, Dimanche, and O Siochru; Bhagat), the potential for community and industry partnerships to create new ways for community members to gather data and to aggregate it (Samanta), and how changing our assumptions about the role of wireless infrastructure can open up new opportunities for affordable broadband (Pietrosemoli).

These notes highlight how local contexts influence what is considered the “public interest” and how community wireless projects can best serve the general public. For example, Clement criticizes the Toronto Hydro Wireless project, considered a technical success, because its governance structure forces the network to be operated for-profit rather than as a public service. Samanta provides an outline of some potential social uses for an experimental wireless network that could aggregate data from numerous wireless devices. Some suggested uses of this network include collecting ambient audio data that, when mapped, could provide quality of life indicators.

In the global South, the public interest is served by the communication and applications made possible by wireless networks established in previously un-served areas. In these contexts as well, important challenges also emerge. Bhagat assesses the results of a mesh network built in Mahavilachchiya village where a local entrepreneur developed a wireless network as an extension of a computer school where local children learned ICT skills. This Wifi connectivity project extended internet access to homes, and encouraged more local residents to use the internet. However, Bhagat also notes that connecting the village to the internet may have negative impacts as well: introducing new forms of media and new social expectations to the village and disrupting historical cultural norms.

Dara, Dimanche and O Siochru explore how local political and social contexts impact the design and deployment phase of one local wireless network. From the challenging context of Cambodia, they report on the first phase of the I-REACH project, a distributed mesh network providing internet connectivity and local media using solar-powered devices. The project’s challenges in obtaining permission from local government, sourcing material, and recruiting qualified local staff and contractors underscores the notion that community-based infrastructure implementation is a social (and an institutional) as well as a technical endeavor.

Ermanno Pietrosemoli and his international team of Wifi researchers have deployed wireless links spanning hundreds of kilometers. By proofing out a methodology for creating low-cost, long-distance Wifi, Pietrosemoli forces us to question the notion that Wifi is just for local networking. As a potential backhaul solution, Wifi may offer an exceptional value for communities and constituencies that would not otherwise be able to afford broadband connectivity.

Across these paper and notes, a common thread linking the articles is the importance of establishing local strategies for leveraging wireless technologies in the public interest. As many of these papers point out, the rhetoric of public interest accompanies the development of community wireless projects; however, delivering on this rhetoric requires integrating wireless networks with existing cultural and social capital resources. “Success” requires thinking of wireless networks not just as resources for connectivity, but as elements in the development of community. By describing some of the possibilities and challenges of this approach, we hope that this special issue provides inspiration from around the globe.