Chapter Seven: Outcomes and Conclusions

Introduction

In May 2008, while completing the final version of this thesis, I was again driving through America, this time returning from the CWN Summit with Dharma Dailey. We were talking about activist research, strategic alliances, and the way that Ethos Wireless had assembled associates with a broad range of expertise, making the consultancy the main point of contact for research and knowledge about the social impacts of local network building. On this drive I reflected on how CWN had come of age, and how the visions of local geeks had bridged and transformed into realities that produced some functioning networks, but also a large amount of expertise that has since been channeled into modifying policy or developing research protocols for studying local networks. The drive also allowed me to reflect on how the Summit had remained young, fresh, and fun despite its trappings of conventionality.

The 2008 Summit was held at the elegant offices of the American Association for the Advancement of Science, in downtown Washington DC[i]. The keynote speakers included the Executive Director of the United Nations Office for Partnerships, and the director of Article XIX, a human rights organization. The focus of the Summit was to connect local WiFi networking with human rights causes, framing CWNs as means to establish the right to communicate. Attracting many of the same participants as in years past, the Summit re-established the importance of community-based networking projects as means of creating networks broadly in the public interest. With a budget identical to previous Summits, the increasingly influential connections of CWN leaders made it possible to

leverage space and high-profile keynote speakers. In 2008 the connection between open technical standards, social justice goals, and policy change was even more clearly articulated through keynote speeches that focused on social aspects of networking. Furthermore, the 2008 Summit marked a moment of shifting balance in CWN expertise. A group of geeks finally succeeded in refining a mesh networking solution that could function immediately "out of box" with very little input from its users; Ethos Wireless repositioned itself as a site of social research expertise, and instead of for-profit companies seeking to build municipal wireless networks, the best-funded visitors to the Summit were representatives of non-profits engaged in community development. The 2008 Summit suggested that the visions of democratic communications infrastructure development put forth by CWN geeks have not necessarily produced the realities that they may have expected, but they have created realities in which communications technology might yet be democratized to serve communities and publics, partly by bridging expertise between geeks and other actors in the CWN "movement."

This thesis has concentrated on three aspects of the North American CWN phenomenon as a co-production of technology, policy and culture by exploring first how local CWN projects leverage progressive visions of technology to create interventions in the communications landscapes of particular cities, then how these efforts contribute to the democratization of communications technology, and finally, how discourses, practices, ideas, and knowledge shift between different actors, especially geeks, social justice advocates, and policy hackers. It has used a theoretical and methodological approach situated at the intersection of STS and constructivist communication studies, pursuing a

participatory, inductive approach to the transformations in material forms, discourses and practices of community WiFi networking. By considering how CWNs act as a contemporary form of computerization movements, the first part of the thesis describes how progressive visions of computer technology have appeared in different social contexts over the past forty years. Computerization movements promise progressive alternatives to existing computing technologies, but paradoxically, these alternatives sometimes end up justifying or even contributing to a capitalist, technocratic society. Computerization movements are therefore a type of new social movement: their products are not necessarily changes in state apparatus nor changes in technology, but changes in the way access to and knowledge about computers and ICTs is symbolically represented. CWNs transform both the structure of communications and the way that ICTs are integrated into local cultures.

The case studies of Île Sans Fil and the Fred-eZone demonstrate how local CWN projects produce different types of networks with social benefits that flow towards different communities and publics, and also how the symbolic association between WiFi and innovation branded Montreal and Fredericton as "smart" and "innovative." The case studies also indicate some of the limits of CWN projects as democratic rationalizations of technology: in Montreal, Île Sans Fil mobilized a geek-public of experts who created partnerships, built software and hardware, and attempted to establish an infrastructure for community media that might mobilize a community-public of other local residents. However, the reality of use of the ISF network suggests that the community-public rarely uses the hotspot network as a form of community media. Despite this, the city of

Montreal works to leverage the symbolic connection between geeks, innovation, and civic participation, proposing a partnership whereby the network will be supported by the municipal government. This potentially creates a new type of institution in which the progressive civic participation of geek-publics can be leveraged to brand Montreal as innovative. Fredericton also leverages the idea of WiFi as innovative by adding a free WiFi network on to its existing fibre-optic network. Once again, the vision of the Fred-eZone as defining Fredericton as a "smart community" contrasts with the reality of a network that is rarely used more than a few times by any individual. Although the public ownership of the Fred-eZone creates the possibility for the network to be considered a public service, the network's design limits the ways in which it can be productively applied in the public interest. Therefore, although public ownership of networks creates an institutional framework for alternatives to corporate ownership, the potential to mobilize communities or publics can be limited by choices made during the design process. Ultimately, the Fred-eZone serves primarily as an example of the power of the symbolic associations between progressive politics, new technologies, and innovation.

These local case studies are part of a much broader shift in the communications landscape in North America. The CWN phenomenon unfolds at what McChesney claims is a critical juncture in media and communications, where social justice issues become increasingly aligned with issues of fair access to media. In particular, community ICT infrastructure including community WiFi are perceived as means of expanding access to high-quality, unbiased and representative local media. This interpretation of the importance of CWN, connecting it with the media reform movement, suggests that WiFi

technology can serve the public interest by making internet and network access more ubiquitous. While this is one way of articulating WiFi technology and politics, other articulations politicize the disruptive nature of WiFi. At CWN Summits, geeks and social justice advocates politicize WiFi in different ways, helping to define the parameters of a CWN "movement" that resembles a type of new social movement as defined by Touraine (1972; 1992) and Lievrouw (2007). Besides attracting social justice advocates who focus on ubiquity as a logical connection between technology and politics, North American CWN Summits also inspire geeks – like the ones who developed a geek-public in Montreal – to develop a progressive political argument for WiFi's disruptive nature. This argument suggests that the structures of communication networks can themselves have political impact – as the Fredericton case study indicates as well. The inherent contradictions between these two ways of politicizing WiFi – one by focusing on ubiquity and another by focusing on disruptiveness – limit the effectiveness of CWN as a "movement" and draw into focus the dialectic inherent in computerization movements.

Still, the current critical juncture for media and communications may have made this nascent "movement" more significant. Between 2004 and 2008 the CWN Summits not only established different ways of connecting technology and politics, they also acted as places where these political divides could be bridged. In particular, the discourses and practices of "policy hacking" attached technical language and legitimacy to a broad set of practices that included communications policy advocacy and links between community media and community WiFi. The final chapter of the thesis examines how a non-profit consultancy created by people who had gained knowledge and expertise by working with

CWN geeks established public interest arguments for policies including open source, open spectrum, and open access technologies. I argue that such "policy hacking," while limited in its scope, represents one of many ways of bridging discourse, knowledge and practice among CWN participants. As a participant in CWN, I too have learned about WiFi technology from practitioners, and have created and shared research and policy knowledge. As a methodological strategy, this inductive view of CWN has permitted me to explore the symbolic and material transformations of WiFi as they have occurred in local case studies and in broader policy contexts. The rest of this concluding chapter discusses the outcomes of the CWN phenomenon, paying particular attention to shifts in knowledge production and the development of new institutions that develop, regulate, and govern local communications systems including WiFi.

Shifting Knowledge Production

The CWN phenomenon illustrates how non-institutional actors like community organizations and municipal governments not only build technical systems, but how they transform expectations about the role new technologies should play in the development of communities and publics. Such shifts in the symbolic order result from shifts in knowledge such as the politicization of technical structures through Net Neutrality, to cite only one example. Broadly speaking, the bridges created between technicians, social justice advocates and policy advocates demonstrate how knowledge can be shared horizontally. From the geeks at ISF and the municipal decision-makers in Fredericton to the "policy hackers," the CWN phenomenon indicates how communities whose interests are less heavily vested in maintaining the structures of capitalism and technocracy might make decisions about communication infrastructure more democratically. However,

these cases also indicate the limits of this democratization, as WiFi networks become part of cities' branding strategies instead of community services.

Still, the community WiFi phenomenon suggests a shift in the way that knowledge is produced and disseminated, away from purely institutional structures and towards more open, networked forums. Perhaps this is mirrored by the development of small, flexible technologies by non-institutional actors. As these small innovations begin to influence larger institutions, both are transformed. The expertise gained from being part of a group of practitioners becomes valuable for all kinds of people involved in CWN because it is seen as an example of authentic, legitimate knowledge. Community wireless networking is now becoming framed as an example of practice-based, open forums where knowledge sharing reconfigures institutional hierarchies of who knows what. In spite of the way that CWN developments have tended to reinforce the expertise of geeks and the social imaginary of a geek-public, they have also created ways of bridging discourses and practices so that "policy hacking" to promote distributed, non-hierarchical, community-owned communication infrastructure draws from knowledge about the technical possibilities of WiFi and their political implications.

Outcomes

This knowledge transfer is perhaps the most powerful theoretical consequence of the CWN phenomenon, and it is encouraging to observe it at the current critical juncture. The transfer of knowledge from grassroots experts to policy advocates does suggest that more democratic or responsive institutions may develop to govern and regulate

communications. However, other outcomes of CWN are perhaps slightly disappointing when compared to the original visions that motivated WiFi projects. Île Sans Fil, for example, never managed to introduce a new community media form using WiFi, although the project forced the development of a new economic model by reducing people's willingness to pay for WiFi in public places. Similarly, the Fred-eZone provided WiFi for free in some public places, symbolically establishing its community as innovative, but did not provide comprehensive challenges to the existing models for broadband delivery in Fredericton. These outcomes suggest that community WiFi projects may not present commanding alternatives to current structures of communications ownership. Nonetheless, the development of locally-scaled partnerships may provide more opportunities to institutionalize the kinds of knowledge produced by local CWN projects. In turn these partnerships suggest the potential for broader symbolic transformations.

Municipal-community Partnerships

In both the U.S. and Canada, community WiFi projects have demonstrated that internet connectivity and community media can be developed and managed by local organizations without a profit motive. The ISF and Fred-eZone case studies indicate that small scale and integration into local culture characterize successful community WiFi projects.

Currently, a new set of local WiFi networking projects are establishing institutional frameworks that integrate local—and sometimes community — ownership and management with local culture. These models provide the ability to support local community organizations, providing alternatives to the franchise models used in

municipal networking. Failed municipal partnerships in the United States have provoked discussions of municipal-community partnerships: For example, the collapse of the municipal WiFi market led ISP MetroFi to announce that it was planning to dismantle and sell the components of the Portland network. In response, the City Controller's chief of staff reported that "future investments by the City in wireless provisions will be more project based partnering with local non-profits such as PersonalTelco, One Economy, and Free Geek [all volunteer-based CWNs]"(Churchill 2007). This kind of partnership, like the ISF partnership with the Montreal government, could help Portland recover from MetroFi's failure to complete its network.

In Canada and especially in Quebec, the new institutional form of the public-community partnership has been successfully adopted as a means of easily and inexpensively developing local communications infrastructure. Between 2006 and 2008, Quebec City, Sherbrooke, Drummondville and the Montéregie region of Quebec all began WiFi projects, adopting the ISF model of hotspots sponsored by businesses and community organizations. Quebec City's geeks branded their hotspot project "Zone d'accès publique" or ZAP, and participated with ISF in the Terminus 1525 arts distribution project. In Sherbrooke, the Pôle Universitaire, a strategic alliance between the area's post-secondary institutions, applied for funding from Innovation et Exportation du Québec, and received $70,000 to build a network of 150 hotspots which was completed in January 2008[ii]. Plans are for a further expansion: the project began with hotspots at universities and then expanded to commercial properties through a partnership with the Chamber of Commerce, and the final pillar of development aims to connect more

hotspots within the community sector. The project adopted ISF's hardware and developed the ZAP brand in the local context. Although ZAP Sherbrooke has no employees, it does not use volunteers to install or maintain the network, instead contracting out to local companies. Volunteers participate in cold calling businesses and distributing promotional materials. The ZAP projects leverage business and government participation in building WiFi hotspots, but they leave behind the artistic collaborations and grassroots experimentation that made ISF so exciting in its first few years.

Defining public space with WiFi also became a feature of the ZAP projects. Over one third of ZAP sites are in universities, libraries, or community centres where connectivity is supported by the City of Sherbrooke. Bruno Lacasse, one of the members of the Pôle Universitaire in Sherbrooke, remarks that the ZAP model for providing "secondary" internet access is "the best of both worlds" because it provides inexpensive WiFi to universities and community organizations, and establishes a non-profit model that could become the basis for a future co-operative telecommunications operator managed by the municipal government and the Pôle Universitaire. ZAP Sherbrooke brings together the organizational model of ISF with some of the frameworks for public ownership developed in Fredericton. Its success suggests that CWN might yet have an impact on the diachronic or state-based level in addition to establishing the symbolic importance of WiFi at what Touraine (1973) argues is the synchronic level.

Political Discourse

The success of individual community WiFi projects depends on them developing organizational forms and symbolic representations that fit within specific local contexts.

The outcomes of the CWN "movement" are more wide-ranging, as they begin to include new types of network forums like the CWN Summits where expertise can be shared. As media reform becomes more closely linked with other social justice projects, and as CWN advocates who have learned from geeks begin to shift policy discourses, technical elements become politicized.

U.S.-based activists have had more success in creating broad mobilizations around political-technical ideas like network neutrality, as well as more success in "hacking" WiFi in the political and policy world than Canadian activists. One reason for this may be the very success of the locally focused community WiFi projects in Canada. While in the United States municipal WiFi was framed by some advocates as a way of providing broadband in more areas and bridging the digital divide, the 1990s focus in Canada on expanding connectivity (developed through the National Broadband Strategy) led to ISF exploring the community media potential of WiFi and the Fredericton local government leveraging its symbolic influence to brand its community as innovative. Both of these projects position WiFi as a disruptive technology that can be employed innovatively and not necessarily institutionalized within existing ownership forms like franchise models. It is possible that this focus on local innovation as opposed to universal connectivity has prevented the development of the momentum that has moved U.S.-based CWN actors to participate in policy changes.

The bridges created through technology mobilizations like CWN also include bridges between scholars and activists. Large multi-partner research projects like CRACIN and

CWIRP introduced graduate students to participatory methodologies and their application in policy-relevant research. These projects have encouraged situated research that communicates the experiences of participants and advocates to policy makers. For example, U.S. media reform conferences have begun to consciously integrate academic researchers into the relationships between geeks, social justice advocates, and researchers.

In my own work, following community WiFi actors has sharpened my understanding of the political consequences of shifts in media and communication. It has also opened up new cultures of collaboration and advocacy. Learning about WiFi by participating in WiFi organizations, attending conferences, and spending time learning how to manipulate the technology that is the focus of such intense debate has, I argue, produced a new generation of policy advocates and researchers whose theorizations of socio-technical phenomena are based in practices learned through participation in open, non-hierarchical organizations. This creates situated perspectives and situated knowledge for research practitioners. There are important tensions and challenges inherent in conducting this type of research: it is time consuming and does not always produce the quantitative or outcomes-based research that policy-makers often expect. A situated perspective can be influenced (and limited) by the culture in which it is located, as the gendered nature of ISF indicated to me. However, I consider that the change in research cultures can create spaces for situated knowledge and distributed learning. For example, the Ethos Wireless consultancy has begun promoting qualitative research as rigorous means of assessing the social impact of networks. The consultancy also bridges the gaps between academic

research and policy research by providing opportunities for junior academics to contribute to research projects that also include community and policy stakeholders. Thus, some of the outcomes of CWN suggest that the critical aspect of computerization movements can have positive outcomes.

Ways of Knowing: Technological Culture and Social Change

Ursula Franklin (1990) argues that technology produces its own world, and only through understanding this world and its consequences can we create healthy communities and more just human relationships. She also argues that we might benefit from thinking about technologies holistically rather than prescriptively. A prescriptive view of technology situates technologies as solutions to problems, while a holistic view considers technology as one part of an entire unfolding system. My thesis has examined how the CWN phenomenon, as a type of computerization movement, has produced not only material forms but also cultures and policies that may contribute to a more holistic understanding of communications infrastructure. While Franklin might criticize geeks for their fascination with technology for its own sake and their potential ambivalence towards its political consequences, she would appreciate how the CWN "movement" considers both the structure and the consequences of different forms of networked ICTs. She would also likely applaud the way that knowledge about WiFi has bridged into new groups and been applied to social justice goals, although she might continue to question why technical expertise, even in CWN, continues to be gendered as masculine. She might even be cautiously optimistic about community ownership and horizontal expertise as broader consequences of CWN.

Thinking about how Franklin might respond to the CWN phenomenon helps to re-frame it as a form of technological culture. Like the technological culture of the Futurists, whose creative responses to early modernity produced new ways of visualizing technological change, CWN's technical culture may potentially produce new ways of thinking about knowledge and software production, collaboration, and local communication infrastructure. By participating in CWN as well as observing its growth and transformation, I have tried to contribute to creating positive social change within technological culture. As Bijker (2002) writes,

> It is only one step to observe that we live in a technological culture. I will argue that STS needs to make a further step, and actively contribute to politicizing this technological culture: to show to a broad array of audiences—politicians, engineers, scientists, the general public—that science and technology are value-laden, that all aspects of modern culture are infused with science and technology, that science and technology play key roles in keeping society together, and that they are equally central in all events that threaten its stability" (p. 2).

This thesis has responded to Bijker's challenge by analyzing and describing how progressive visions for ICTs like WiFi transform into realities that hold the potential to improve society by linking technological design with social justice, and by advocating for policies that take into account this link. The CWN phenomenon may be merely a contemporary form of computerization movements, but at the current critical juncture, the new institutions and knowledge bridging that it illustrates may have broader consequences for communications, media, and democracy.

Bibliography

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Notes

[i] See http://www.aaas.org/

[ii] More details about ZAP Quebec are available at http://www.zapquebec.org, and more details about ZAP Sherbrooke at http://wwww.zapsherbrooke.org.