The Pennsylvania State University

The Graduate School

College of Information Science and Technology

Nonprofit Participation In A Web 2.0 Community Portal

A Thesis in

Information Sciences and Technology

by

Harold R. Robinson Jr.

Submitted in Partial Fulfillment
of the Requirements
for the Degree of

Master of Science

August 2010

The thesis of Harold R. Robinson was reviewed and approved* by the following:

John M. Carroll
Professor of Information Sciences and Technology
Thesis Advisor

Andrea Tapia
Associate Professor of Information Sciences and Technology

Lynette Kavasny
Associate Professor of Information Sciences and Technology

Michael McNeese
Professor-In-Charge
College of Information Sciences and Technology

*Signatures are on file in the Graduate School

ABSTRACT

Since Putnam's observations that suggested a crisis of community was linked to communications technology uses, researchers have tried to assess the civic impact of the Internet. Though opinions have varied over time, the general consensus would seem to be that there is great potential for the Internet in that it potentially provides citizens with access to information that can support goals like civic participation. This paper introduces a design intended to leverage that potential in a geographic community. Using WiFi and location-aware technology, community information can be tied to physical locations of a geographic community in a way which increases its visibility and usefulness. The design also makes use of various Web 2.0 technologies to overcome common challenges of previous community technology designs. As key players in the local community, nonprofit organizations are interviewed about their current uses of technology and their communication practices. Implications are drawn from these interviews for the specific design as well as the use of Web 2.0 technologies for civic and community purposes.

TABLE OF CONTENTS

LIST OF FIGURES

Chapter 1

Introduction

This thesis is concerned broadly with a future direction of design for community informatics and more specifically concerned with the appropriateness of a particular technology design for participation by local nonprofit organizations. It introduces the features and design rationale of a prototype which is believed to be a unique kind of local community portal that is based on an aggregation of community information through the use of Web 2.0 technologies and which is also intended to support mobile computing through the integration of location-based services and geo-tagged information. It presents a qualitative study of 14 local nonprofit organizations which focuses on the themes of current practices and technological capacity to assess the appropriateness of the community portal design, as well as begin to address a broader research question about the potential for community technology designs which focus on integration of existing Web 2.0 tools to address community informatics goals.

Technology and Community

As information technology has advanced, community networks have appropriated technology in ways appropriate to community needs and the affordances of various technologies. In fact, community informatics can be understood as the response of tradition, in the form of communities to change, in the form of information technology

(Williams & Durrance, 2008). Community networks such as the Blacksburg Electronic Village came at a time when access to the Internet was emerging as reality for large numbers of households and thus such efforts were appropriately focused on getting community members connected to the Internet. The focus of such efforts was on the use of basic tools such as email and websites, with a focus was on locally relevant content and connections. As the Internet use has grown, such tools are still in use, but a wide variety of web content and services have overtaken the volume of content of local origin and focus.

From the perspective of those interested in strong democracy, one of the greatest strengths of the Internet is its ability to make information available regardless of geographic boundaries (Sunstein,). Rather than being limited to local sources of knowledge, social norms, or political perspectives are that are geographically available, citizens of any given community can now find a diversity of potential alternatives. For example, a isolated individual in a socially conservative (or perhaps an overly progressive) geographic community can find hope in an alternative perspective from elsewhere in the world. Those in a given minority in their local community can find social connections and support that may help to relieve feelings of isolation, strengthen their self-esteem and perhaps find a voice which can speak out about local intolerances or injustices. And those with uncommon perspectives or interests can communicate, coordinate and take action together across geographic distances that would otherwise be prohibitive. This is both a great promise of the Internet and a potential challenge, depending perhaps on the nature and intention of the minority opinion.

The Internet itself can largely be considered as location agnostic. By design, geographic distance is largely irrelevant as is the location of servers fulfilling an http request. It is this fact which has allowed information technology to fuel globalization. Information intensive business services can now be provided as easily from almost any part of the world as they would be nearby. But at the level of geographic communities, this feature of the Internet has potential consequences. One consequence could be the impact that globalization has had on many communities: as the sources of production have been relocated across the globe, there have been profound economic and social impacts on many communities. For community networks, this means that many more non-local sources of information are readily available to web users. Rather than a community portal of local origin, often one of the key pieces of many community networks, the starting point of many users is more frequently a search engine. Without such a common Internet landmark, there is little to connect Internet users within the same geographic community when they are online. In short, the continued growth and ubiquity of the Internet seems to have produced highly networked communities while undermining one of the key pieces of early community networks (Carroll & Rosson, 2003).

Web 2.0

The current Internet landscape, or at least its coverage in the media, is dominated by what has been fuzzily defined as Web 2.0. Often used as more of a buzzword than an applicable formal definition, the Web 2.0 term has been applied to a range of web-based

tools, technologies and services that move beyond the limitations of earlier web standards. And while the hype may overshadow reality in some cases of Web 2.0, there are some important defining features which may ultimately be relevant to community networks. These are 1), sophisticated web-based interactions that can rival the functions of desktop applications, 2) the distributed nature of such web-based services that makes content and features available across platforms as well as independent of specific hardware, 3) the leveraging of protocols for the sharing and distribution of information across the Internet, 4) a focus on user-created content which has lead to more sophisticated, user friendly tools that are increasingly using WYSIWYG interfaces and require much less formal programming expertise, and, 5) a focus on the social and interconnected nature of the web, epitomized perhaps by social networking services such as Facebook.

Though still reliant on basic features of the earliest Internet such as the client-server model and hypertext transfer protocol (http), many Web 2.0 tools and services have added layers of more sophisticated technology such a Asynchronous Javascript and XML (AJAX) to create much more dynamic web pages. Rather than just loading or refreshing static predefined pages, the use of these kinds of technologies allows for the creation of web-based services which can essentially provide more sophisticated client-server interactions and provide browser-based applications such as spreadsheets and word processing which can rival the functionality of common locally installed applications such as Microsoft Office.

One advantage of such web-based tools can, of course, be in their cost. Compared to Microsoft Office, which is near ubiquitous in many professional contests, many of the most common document-oriented tasks can be handled using the free web-based applications provide by Google and others. Another advantage is in their availability from almost any Internet connected machine, reducing the requirement for a specific computer or even network to be accessed in order to accomplish such tasks. A needed document need no longer be on a "work-only" machine but can be available anywhere Internet access exists.

Such web-based applications are not only able to replicate the functions of locally installed applications but can also add a new dimension of sharing and collaboration not available with locally installed desktop tools such as Office. Services such as Google Docs allow for the sharing of documents with other users on the Internet, allowing for either synchronous or asynchronous review, composition and editing. Additionally, a variety of permissions support anything from one on one document sharing to group collaborations to the public posting of a document using a URL unique to that document, which can then be embedded in a variety of ways in almost any web page. For example, by linking a text document and a spreadsheet in Google Docs, the public URL of that document can be embedded in a web page to create a survey or registration form that provides updating graphs of responses in near real time. Beyond this example, content can be shared across the web through a variety of protocols such as RSS and iCal which provide the means for creating feeds for web content and calendar information that can be shared across a variety of web contexts and desktop applications.

User-Generated Content and Syndication

A range of web services have built a business model entirely around providing a framework for their users to submit their own creations. Sites such as Youtube (www.youtube.com) and Flickr (www.flickr.com) focus almost exclusively on providing a framework for users to submit their own digital content. This content can then be displayed, organized, tagged, shared and embedded in a variety of web contexts. For example, a user's photos can be posted to Flickr then made available on that user's personal website in a way that provides more sophisticated functions than would be available to the user on her own. As with Google's services, many of these applications are free to users, as their content is sold against advertising for the hosting service while the site provide application programming interfaces (API) that allow the repurposing of hosted content on terms that support the original hosting site, usually through simple branding and links that lead back to the hosting service. User generated content is also used by many sites not as a main service but as a way to enhance existing services, such as shopping site Amazon's (www.amazon.com) features for support of user reviews, content (such as a user's own product images or video) and product forums and user groups organized around product categories.

Social Networking and Social Media

Several Internet-based services have evolved to both articulate and expand one's social network. Facebook, the largest, essentially allows for the public display of an individual's basic profile information, photos, and links or simply current thoughts. In

addition to individual profiles/pages, the site allows for the creation of pages for groups, events, and organizations. Users content can be shared through Facebook and an increasing number of websites integrate links to Facebook such that nearly all of someone's online life can be shared, syndicated and observed.

Twitter has also emerged as an immensely popular social media tool that allows people to broadcast short text messages which are organized by user created tags, in a format referred to as micro-blogging. Twitter has been used in a variety of interesting ways, with its simplicity and real time impact leading to innovative uses. It is commonly used for basic communication but has also been shown to reveal emerging trends such as breaking news and has been used as part of disaster responses.

Impact of Web 2.0

Taken together, this heterogeneous set of technologies and tools have contributed to a large amount of innovation on the Internet and provide a whole new set of affordance for web-based system design. Content and services can be syndicated, shared and embedded in many ways leading to a high degree of flexibility at with its use requiring a lower degree of programming exactness of detail as well as integrated with desktop applications. This powerful set of tools has been applied to a wide variety of applications, but how could it be applied to the goals of local community?

Civicinity Community Portal

The idea for Civicinity emerged as part of the process of designing of web-based civic applications for using mobile technology in a local community setting. Previous efforts had focused on the iterative design of a mobile event calendar for large-scale community events. The basic design goals of the work were to both replicate the basic information available from paper event schedules and to expand on the basic functions through the available technology, for example by adding location-based features to the system and by adding mechanisms for social awareness among event attendees.

Nearing the end of that design's potential for additional useful iteration, attention turned to the theme of the potential value of applying what had been learned through the mobile event calendar to a year-round community calendar. Based on the current implementations of the community calendars concept locally, we saw several areas that we though we're problematic from the standpoint of the community. First was the fact that at least six separate community calendars existed in the local (small) community. From the perspective of nonprofit organizations, we reasoned that posting an event for which you wanted to create public awareness to all six calendars would be both inconvenient and unlikely. The result for local community members would be decreased awareness of community events unless they themselves went to all six community calendars. The existence of a web-based standard for sharing calendar data made a technological solution rather obvious: design of a community calendar around the iCal standard which community organizations could populate through the creation and maintenance of their own public event calendar using a free service such a Google calendar. The benefits of this basic design were that individual organizations could be solely responsible for their own calendar information and would not have to go to any outside site to post their events while the aggregation of all the individual organization's feeds would result in a single comprehensive

community calendar. The basic approach of calendar feeds further suggested the use of RSS feeds to aggregate syndicated community news such feeds already provided by local news outlets also suggested an additional means for community organizations to raise awareness of their events or activities.

With the basic design rationale of aggregating syndicated community content, we added an additional element to the planned system in consultation with local community partners: increasing awareness of the portal and its contents through its presence on downtown WiFi hotspots. In consultation with the local business improvement district and borough government, we are in the process of coordinating additional partners to implement all the proposed features of this design. To summarize key design points, this system will provide a location-aware community portal that is accessible both online and at WiFi locations within the borough that will aggregate community information using RSS and ICal feeds.

Figure 1: Screenshot of the Civicinity Prototype

The following scenario illustrates basic features of the site:

Mike goes to Webster's for coffee and while he is there he decides to check his email. As he clicks past the terms-of-use screen, he sees the State College Community Portal and sees an advertisement for a sale the clothing store just up the street. He has some time to shop before he meets his wife for dinner, so as he finishes his coffee he heads to the store. While he is there he sees some really good deals that he knows a friend might like so he opens the community portal page again on his iPhone and sends a message to his friend through the embedded local chat client. After doing that he also sees that a show he would like to see is opening the next night at the State Theatre. He decides to go there for tickets before he heads home.

While the scenario is primarily economic, similar scenarios are focused on both the social and civic potential of the portal once implanted downtown. From the perspective of downtown merchants, our system is desirable as something that might get people to stay downtown longer or come downtown more often as they are more aware of opportunities downtown. By prioritizing nonprofit information, we believe the downtown presence of the portal will raise overall awareness of nonprofits and their activities in the community.

Since nonprofits organizations are central to this plan, not only as potential beneficiaries of increased levels of local awareness but as important sources of community information for this system, their ability and interest in participation was assessed at two separate points during this design process. The remainder of the work provides a brief overview of previous work related to the goals and design of the community portal, followed by the methods, findings and implications of this study.

Chapter 2

Literature Review

The Internet and Local Community

Putnam's (1995, 2000) conception of social capital was "social networks and the norms of reciprocity and trustworthiness that arise from them" which support social and civic action. While not well operationalized by Putnam, this notion of social capital does have a certain intuitive appeal and has been cited by research related to civic goals. Based on sociological survey data that showed membership in civic organizations such as bowling leagues and parent-teacher association was declining, families were spending less time together, and neighbors were socializing less with each other, Putnam saw these changes as signs of decreasing social cohesion at the community level which necessitated a call for civic renewal. His work seems to have had wide impact but also has many critics who have continued to reformulate and refine the conception of social capital and its meaning for local community.

This paper work shares that general concern with civic themes such as social capital and civic participation. Some of the earliest work to assess the potential impact of the Internet on the themes of social capital and civic engagement painted a somewhat bleak picture. Kraut et al. (1998) examined the impact of personal computing at a time when the Internet was still a relatively young phenomenon. They point out that the current enthusiasm for the Internet to overcome geographic or time-based limitations as a source of optimism is misplaced. Their findings suggest rather that greater use of Internet

results in a small but significant decrease in social involvement and an increase in feelings of loneliness, explaining their findings similarly in a way similar to Putnam; Internet use displaces social activity in a similar manner to television.

More recently, Shah et al. (2001) have addressed the issue of social capital and Internet use by pointing out that both optimistic and pessimistic assessments of the medium's potential are grounded in a mistaken conceptualization of Internet use when compared to traditional media use. Based on a survey where civic engagement was operationalized in terms of local activities such as volunteering and association membership, he found that Internet use was meaningfully associated with civic engagement, dependent on the motives of the individual user. He identifies the use of the Internet for information exchange as the key motive for its positive association with civic engagement, as opposed to recreational or purchasing uses.

Consistent with these findings, still later research by Xenos and Moy (2007) suggest that the information potential of the Internet makes it a strong potential force for democracy that strengthens civic participation among those already likely to engage in activities such as volunteering and that the greater cause for concern may be the impacts for those not yet online.

One area of research directly concerned with themes such as social captial and civic engagement is Community Informatics (CI), which is concerned with the design and implementation of information and communications technologies at the level of community and municipal organizations. In contrast to the work cited above, this area of research takes a technology-centric approach to the themes such as civic engagement and

civic uses of the Internet which presumes the positive potential of technology and instead focuses on technological affordances which support civic goals.

According to Gurstein (2007), Community Informatics (CI) is "the application of information and communication technologies (ICTs) to enable and empower community processes and the achievement of community objectives." For Pigg (2001), CI "provides new ways of approaching old problems of community development and enhancing civic society".

Community can be a source of shared norms and meanings, which can be seen as both a source of an individual's social and material support as well of social constraint. Local community is the appropriate level to undertake efforts at an increased democratization of society and effective social activism against a range of current social ills (Gurstein, 2007).

Geographic community is also an increasingly important counter-force in an increasingly networked world, where ICTs are enabling profound social and economic transformations (Gurstein, 2007). Local community is being dissolved by the decontextualizing influence of ICTs, which support the growth of capitalism and global markets while they undermine the 'local' both as source of production and connection (Barney, 2005). While many geographic communities are increasingly networked together through the common Internet, this is importantly different from community networks which explicitly support existing local relationships (Carroll and Rosson, 2003). This study is consistent with these views in that it is focused on the need for the design of community technologies which address local concerns through IT and in that it recognizes that simple connection to the Internet not sufficient to produce positive

community outcomes through technology. In contrast to these perspectives, this work explores the potential of a relatively limited community technology project which is conceived primarily as a portal rather than a comprehensive network.

The Role of Weak Ties

Granovetter's (1983) conception of the strength of weak ties suggested that weak personal ties were more important for access to information than strong personal ties. In simplest terms, our strongest relationships such as family and friends are considered strong ties while our acquaintances would be considered weak ties. Given any individual in a network, his strong ties can be seen to function as his core social group while his weak ties give him access to much wider range of information or resources than only within the core group. This is because each of his weak ties has their own distinct core group members, each with their own weak ties which provide greater access to resources across the network.

Kavanaugh et al. (2003) applied Granoveter's conception of weak ties to relationships within the Blackburg ElectronicVillage as they related to measures of community involvement and collective efficacy. The findings suggest that increased weak ties were associated with greater community involvement.

Hampton (2003) argues that the debate over the impact of the Internet on geographic community is based on an incorrect focus on strong ties, which are few in number for North Americans. Based on survey data from the Netville project, this work suggests that large numbers of weak ties are in fact related to effective collective action.

Taken together, these suggest an important role for weak ties. The current work is consistent with them in that it takes the importance of weak ties in a community context and uses that as a design rationale for the current portal design. It differs strongly in from this work in terms of actual context in which these assumptions operate.

Applying Web 2.0 To Design

Given the relatively recent emergence of Web 2.0, little current work exists with regard to the design of Web 2.0 technologies of which this author is aware.

Chang, Su and Wang (2008) describe the design and deployment of a Web 2.0 map-based mash-up for a Taipai, Taiwan nonprofit organization with a rationale of free cost and improved interactivity. They report highly positive responses from a survey of the systems users.

Petrik (2009) articulates a theoretical argument for the use of Web 2.0 to support direct democracy and describes the creation of a prototype application.

Ahuja, Perez-Quinones & Kavanaugh (2009) describe the design rationale ofColloki, a Web 2.0 application aimed at the improving local deliberation of small groups group with a focus on features such a syndication and tagging.

The portal project described here differs from these in its context and its basic design rationale.

Chapter 3

Research Method

Research Design

The goal of this research is to both assess the fit of a prototype community technology design for nonprofit organization's goals and capacities, generally assess the current state of local nonprofit technology adoption relative to past local research, and , more broadly, to assess the potential for designs which prioritize integration of Web 2.0 technologies to advance community informatics goals. Local nonprofit organizations are assumed to be both key community stakeholders and important sources of locally relevant information for any community technology system and so are the main focus of this study.

This research is exploratory in nature, aimed primarily at confirming the assumptions and affordances of the specific design and implementation of the planned community system. Further, it is intended to provide guidance for the development of any additional features for the system, as well as indentify any additional interventions that may be required (such as workshops or tutorials) for the successful adoption of the system by local nonprofit organizations. It is assumed that this research design has high internal validity for the organizations studied and reasonable external validity with regard to nonprofit organizations in similar social and economic contexts as those organizations studied here, with the caveat that there may be additional dimensions for assessing nonprofit organizations that were not considered in the process of selecting exemplars on each dimension. As an exploratory study concerned primarily with design of a socio-technical system, reliability is not a key concern of this work. It is also worth noting that this research only

addresses one group of stakeholders for the community system. Additional, ongoing work is aimed at addressing the design and implementation relative to other groups of stakeholders such as the business community, local government entities, and end users of the system.

Research Procedure

The names of local nonprofit organizations were gathered from an IRS list of local 501(c)(3) organizations and this list was sorted by existence of an organizations' website and some of the basic features of interest on those sites, such as the presence of Web 2.0 technologies. Organizations from that list without an Internet presence were not considered further for this research. Organizations were then assessed based on variety of dimensions, such as organization size (from exclusively volunteer to more than one hundred paid employees), type of mission (single-issue advocacy, human services, conservation, or as umbrella organizations that represent the goals and interests of multiple individual organizations), and past participation in local technology workshops. Organizations then were selected based on a plan to have representative organizations across those dimensions. The selected organizations were then contacted by telephone and asked to schedule a time to be interviewed about their current technology practices and to learn about a current project under development in which local nonprofits might be interested. The phone calls did not mention the Web 2.0 theme of the research nor were details about the project shared beyond the general description of something that was thought of as potentially of interest to local nonprofits. Interviews were then scheduled at the offices of those organizations, with the exception of the one organization without a local office which was conducted at a local coffee shop. Interviews were conducted with the executive director of each organization, except in two cases where a staff member dedicated to a technology role was part of the organization and available to be interviewed. Three of the interviews involved an additional

staff member from the organization, two included a staff member in a communications role and one included the organization's operations manager. One of those interviewed was previously known to the researcher from an earlier study.

Semi-structured interviews were used to address four themes: self-assessment of their organization's current utilization and competence with technology, current practices with regard to communication and coordination within the organization as part of daily activities, current practices with regard to increasing public awareness of the organization's mission and activities, the use of any Web 2.0 technologies by the organization, and, after a brief description of the Civicinity project, their responses to that project's planned implementation and goals. Participants were encouraged to discuss any issues of concern for them about the project plan or goals and any ways that it might not be appropriate for their organization's participation. The interviews only introduced the project after questions about other topics were answered. Each interview was concluded with information about an upcoming local workshop intended to both to demonstrate the project prototype and explain additional details about its implementation and goals, as well as introduce the potential uses of a small set of Web 2.0 tools for local nonprofits. All interviews were audio-recorded and then transcribed. The transcriptions were then open coded using a grounded theory approach (Strauss & Corbin, 1998).

Interview Guide

Each interview was organized by the following open ended questions:

In general, how well do you think your organization is doing in terms of technology? Do you think your organization is effective with technology? Do you feel you like your organization has a handle on technology?

How do you feel about your current website? How do you use your website?

How does your organization handle internal communication and coordination? Do you use shared calendars?

How do you publicize your organization's public events? Mission? Need for volunteers? Do you use any of the local online community calendars? Do you use any traditional media?

Do you use online tools as part of your organization's activities?

Do you use social networking services as part of your organization?

Overview of the Civicinity community portal plan, with focus on the use of web-based formats such as iCal and RSS to allow nonprofits to place their information on the portal. Plan for working with downtown merchants to raise exposure of the portal through its presence on downtown WiFi network.

We are interested in whether or not this idea will work for nonprofit organizations. What are your thoughts about using something like this?

Invitation to attend upcoming workshop about the portal and use of Web 2.0 tools.

Chapter 4

Results

This section presents the results of the fifteen interviews which are structured by the main themes used in the interviews: their sense of the organization's current technology status relative to previous three to five years, their current practices within the organization that may or may not directly involve technology and including current use of any Web 2.0 technologies, and closing with their responses to an brief overview of the Civicinity community portal plan. The section is further divided by the major themes that emerged from the interviews.

Current State of Local NPO Technology

The majority of interviewees saw the open ended question about 'where they felt they were at with their technology' first as a question about the status of their hardware and software on hand. Though very aware of being a bit behind the latest available hardware and processor speeds, most felt that their current PCs were adequate for their needs and were focused more on relatively inexpensive upgrades such as memory rather than considerations of brand new hardware. Given the nature of their computing tasks, some organizations did not place a priority on acquiring newer, more powerful hardware despite some having hardware more than five years old. One organization was in the middle of updating all the PCs in their organization based on a problem that emerged with one, upgrading from "Pentium 4s to Quad-Core Windows 7". Another had a plan in place to cycle through replacements of each PC every three years to keep current with technology. Those organizations that did prioritize replacing older equipment did prioritize regular maintenance of their equipment, a lesson one organization felt they learned the hard way.

> We have probably just 5 or 6 years ago to at least maintain IT support. But we winged it like that, this is my 12th years, we winged it like that the whole time that we've had computers and it took a big stumble for us to realize we couldn't function like that. (A state software program) crashed our network. So we had 4 people and it wasn't just a day, it was a month . . . we literally took turns, you get 2 hours a day, I get 2 hours a day. And we've just got to make all the paperwork somehow come out. And we really after that kind of looked, we stopped and said this cannot happen again. The amount of money that cost, because if you just figure out the lost time of people sitting there waiting to have their 2 hours, doing everything by hand and then putting it, it was a nightmare and so we said we've just got to find the money . . . we have become too reliant.

The majority of organizations interviews seemed satisfied with their current hardware even while noting it could be better and mentioned a service provider by name that they felt satisfies with working with, who they felt addressed their current needs and who they could call upon in case of a hardware issue.

The context of such technology decisions was usually an issue of available funding for technology. The organization with the plan to cycle through PC replacements had managed to add a technology line item to their budget for this plan, but other technology purchases such as a replacement photocopier or even additional phone lines required explicit board approval. In the case of the organization with the oldest PCs, the existence of a budget for ongoing technology maintenance was a step forward but a budget for replacements did not exist. Such expenditures were seen as directly impacting their ability to serve clients, an attitude that was largely common across the human service organizations interviewed, making for tough choices about technology spending. The situation of such organizations is complicated by the common policy of excluding technology-related costs from grants for such services. For example, a basic PC was seen as required to track even the most basic client information in providing a given service but grant funding for such a service would exclude such a PC as an asset. Though this is still the norm, one of the interviewed organizations did have state-provided PCs on hand as part of their service grant but they came with multiple restrictions on their use. They provide a secure link to state

databases and services but can only be used for those services, requiring the organization to have a separate network and PCs for any not directly related to that state program. Lack of technology funding also creates an additional issue for this organization in that there are no resources to provide staff training for software or technology.

Software was seen as less of an issue for most organizations interviewed. Most rely on common commercial software such as Microsoft Office or Quicken as part of their daily task, and many mentioned using the nonprofit software provider TechSoup which provides such software and even the Windows operating system to registered nonprofits at a significant discount. The one organization that did mention software issues requires specialized software as part of providing funding for childcare services as off-the-shelf accounting packages do not address their needs. This leads to further complications for the organization because this software is not supported by any of local business which provides technology support services.

Databases were another topic which arose frequently in response to the open ended question about current technology status. Those interviewed largely felt that their database was adequate for their needs, with one organization noting a challenge with two separate databases that they wanted to be able to merge for more effective tracking of donors who were also volunteers. A technology consultation with technology students from a nearby college suggested to them that addressing the issue would take more than the semester the students could offer. Given the cost of creating a new database using a commercial provider or of acquiring a specialty donor database that would address their current situation, the organization has chosen to leave the situation as is for the foreseeable future. As was commonly found with attitudes about hardware, the database situation could be better but remains functional for this organization: “It’s serving our needs but not totally serving our needs”.

Technology Skills of Local NPOs

All but one of the organizations interviewed expressed having a challenge with a lack of technological skills or knowledge somewhere in their organization, not as programmers or technologists but simply as knowledgeable end users. For one organization, it was at the level of their executive board, where both a lack of vision for technology and an apparent discomfort with using technology created challenges to fully embracing the potential of technologies that are available to the organization.

> I went online and did a search for a free office sharing type thing. And I found one, officezilla.com, and you can post documents to it and different things. It has a calendar capability for board members. We don't use the calendar a whole lot on there and some of the board members are resistant to go in and use it. . . . Each director has their own secure login, and this is what confuses a lot of people. They don't know where to find the thing. So you go into files and then this is how we have it set up. So board of directors, we'll just use April which is the last meeting we had. So that was everything that was used by the directors is that meeting. So then can go in, print it. Some of the directors say I can't open anything off of it, I can't print anything. And some just refuse to go to it.

One interviewee expressed the skill issue in terms of a generational divide, although she noted that age also wasn't the only factor. She feels that technology adoption is a slow process in her organization because of the contrast in levels of understanding with new technology: some just get it and some just do not. So while her organization has board members that push for the adoption of new technologies within the organization, that split creates a nontrivial challenge in implementing something new because not everyone is drawing on the necessary skills. For another of the organizations, the skill issue was presented in terms of the career paths in the human services field. Some of her staff have been doing their jobs in the way they were trained for twenty years or more and computing skills were simply not a part of their education or work practices until relatively recently. While technology skills have become essential for such organizations, they have no desire to replace those who otherwise have valuable experience.

> the learning curve was tough for people who have done a human service type business for ever because it isn't historically how it worked

The skill level of volunteers is also an issue for some organizations, particularly those that are primarily volunteer-driven. One organization mentioned one of their biggest challenges as having volunteer staff who are inconsistent in the use of a key piece of software, possibly because of its learning curve and possibly the fact that volunteers are much more motivated by the organization's mission and key tasks than by dealing with a piece of software.

> it's definitely the use of the software and I think a lot of that has to do with being volunteers based. If everyone worked here and they were trained on the software, there would probably be no problems with having everyone on the software. For me that would be really wonderful if everyone updated the software and we used the software to its potential but I know that's not realistic right now.

State of Local NPO Websites

All of the interviewed organizations have relatively active websites and seemed to approach their websites as a central piece of what they do as an organization. They see their websites as a place to put all the relevant information about their missions and programs in the hope of reaching clients, potential donors and the general public. Several organizations noted that they were pleased they had added the capability to accept donations through their website and they saw that as an important step with their site. But overall, almost all the organizations expressed some dissatisfaction with their site, either in terms of feeling it looked dated, that it was not interactive enough, or it having navigation issues. Continuing a familiar theme, most felt their site could be better but accepted what they had as adequate for their purposes.

Two of the organizations reported dissatisfaction with their website that they related directly to their hosting service. In one case, the interviewee stated that requests for additions to their site were ignored at times and that multiple requests for an online shopping cart that would

allow them to accept online donations were repeatedly ignored. In this case, a sort of unspoken compromise was reached through the organization adding links to the Paypal payment service to certain pages of the site, made possible by the fact that they have full access to the site's text and picture content. In the other case, the interviewee stated she had invested heavily in a much more dynamic site at one point but the part-time developers she paid to do the work could not keep up with the (unnamed) open source system's security vulnerabilities, resulting in the site being defaced by hackers. After that experience she has returned to her previous website provider, accepting the compromise of less up-to-date technologies on her site for greater stability and security.

Beyond those two organizations, other kinds of website challenges were noted by interviewees. One organization noted that their website was originally coded in HTML by a high school volunteer which meant for them that updates only happened about once every six months. They chose to pay a local commercial provider to design and build their current site and they now have a site that one of the organization's staff members can update weekly. Another organization noted that their site was built by volunteers 8 years ago for very specific functions and as their vision for how they could make use of their site has expanded they have been "cobbling" more pieces onto it, ultimately making hard to navigate. Yet another was currently planning out a major overhaul to their site to feel more up to date and integrate more up-to-date web technology to get away from tier current site feeling too much like an archive of past projects. One organization chose to create and maintain their own website, without any previous experience simply out of financial necessity.

General Attitudes About Technology

One key piece that came out of in several of the interviews is that while these organizations see technology as indispensible to what they do, it is also always secondary to what they actually do as NPOs. None of the organizations interviewed has full time IT staff and only 2 of the larger organizations have formal IT positions at all. Several interviewees, most in the role of executive director at their organizations, stated that any technology-related tasks exited as yet "one more thing" for them to do, so that even routine IT-related tasks like maintaining data backups are a challenge, much less training staff on technology or managing an office network. And in a multitasking context, technology often goes to the bottom of the priority list.

Current Practices

While an overview of the current state of NPOs' technology provides an important baseline to understand who they are and what their capacities might be, it is really the kinds of organizational practices (with or without technology) related to central themes such as communication, coordination and public awareness seem more central to understanding what they do and how a technological design at the level of community might support their activities.

Internal Communication and Coordination

Calendars are an important artifact for several NPOs, whether at the individual or organizational level. One interviewee used a DayPlanner as a central to her personal organization and other organizations listed various large wall calendars that served to help coordinate vacation

time and resource use. One organization uses Doodle to schedule meetings. Four organizations use Google shared calendars internally currently and one organization has tried to use shared calendars only to return to paper because of lack of adoption by staff. In the largest organization, actual use of shared calendars by staff seemed to be conditioned by the attitude of the immediate supervisor of a particular person. And one organization uses Google calendar internally to organize the pickup of donated goods. Unsurprisingly, email was reported to play a central role in communication and coordination by almost all of these organizations. Only one organization mentioned using instant messaging.

External Communications

These organizations use a variety of methods to communicate with donors, volunteers and the public at large. The most frequently mentioned tool was an organization's newsletter. Still printed and mailed by some, most organizations are somewhere in the transition between paper newsletters and digital-only versions which they email to donors and volunteers, depending on their perception of the audience. Along with newsletters, one organization mentioned paper mailings for events such as trainings or workshops that are available to the local human services community. There was concern at the time of the interview that the choice to use email only rather than a paper mailer was going to result in a diminished turnout for an upcoming training. Two organizations use a service called Constant Contact to manage their email list and create more professional emails that also allow for tracking of web-based activity from those emails. Three organizations specifically mention the use of Facebook to publicize events, though eight organizations in total mentioned having a Facebook presence.

For some organizations, traditional media such as newspaper, television and radio played a role in their publicizing of events but it was here that a large disparity arose between larger and

smaller organizations. The second largest organization mentioned regularly gaining access to the press for their activities.

> We give away a few scholarships so our scholarship winners are printed in the newspapers in their localities. Radio, we do have radio and television commercials, not always as just a result of a press release but as a result of personal contact with people like our development people calling the radio station and saying we're having this event and would like it on your station. And also sometimes we have sponsorships, media sponsors for different events. So we hold a golf event here in June and we have different radio stations that will come and broadcast it and it's always in the local paper. So our events have almost 100% coverage, at least through one form of media. Television is not as much but we usually have 3 or 4 television pieces done on us a year in different parts of the state. Newspapers print stuff about us in their community stuff and radio stations as well for their events.

In contrast, one interview seemed to be representative of many of the smaller organizations in saying that she felt like writing up and sending out press releases for their activities was "an exercise in futility". Another organization suggested that the newspaper didn't ever seem to have any free space and that responses from other media outlets required a high level of effort.

> a lot of media outlets, they don't have a general email that you can send to, you have to send it to a specific person in the organization . . . we don't have a very comprehensive list of those. Some just have fax numbers, TV stations' reporters change every so often so a reporter you had contact with 3 years ago may no longer be there. So there's no easy way to keep all that up unless you have a marketing department designed specifically for that. So small organizations like us, we don't have the manpower to do that.

At the same time, this same organization noted their own personal contact at a local radio station that did allow them to air public service announcements (PSAs) for their organization and suggested that other organizations might have the same kind of contacts that we (as researchers and designers) could draw upon. This kind of personal relationship also extended to print for one organization who managed to regularly get placement in a local magazine for their events.

One organization did note buying advertising in the newspaper and on radio for their largest fundraising event but also noted that they no longer did regular advertising with the

newspaper as their website now filled many of the functions for which they would have previously purchased ad space. They did still occasionally take advantage of a community calendar hosted on that newspaper's site as a free service.

With regard to other local community calendars as a means of communicating with the local public, only two other organizations noted using them and each mentioned a different calendar as their first preference. One organization noted that there was actually another such calendar not one not known to the interviewer but that it still was too much of an effort to go to each of the sites to list an event's details. Perhaps relatedly, two separate interviewees noted a sort of password fatigue, both generally and as it relates to the use of similar local sites.

Two organizations mentioned purchasing advertising in other print forms such as student directories for item donations as that is a key part of how they fund their operations. In both cases it was not clear to them how successful those advertising dollars were at producing desired results. Both of these organizations seemed to express some degree of frustration at not knowing how to reach a wider audience through local media. Interestingly, the advocacy organization did not see a place for the actual advocacy work (which largely consists of speaking to interested public audiences) in locations such as community calendars as he perceived that to be a place for large fundraising events which were not part of his organization.

Outside of publicizing specific activities or their mission in general, none of the interviewed organizations had a clear strategy for finding needed volunteers. Three organizations mentioned word of mouth as what they felt was most important for reaching new volunteers and one organization stated quite simply that she didn't think that NPOs particularly knew how to accomplish finding volunteers.

> I don't know that any of us are very good at trying to recruit people, I mean we get them and you work really hard but the volunteers themselves recruit other volunteers. Like 'hey, I'm doing 2 days a week over at the food bank', and the friend days 'oh really' and they say 'do you want to come with me?'. Volunteers usually get their own volunteers or family people.

Overall, the clearest message from organizations was that they are always looking for ways to raise public awareness of their existence, issues and activities. Even for an organization with no apparent need for attendance, donations or volunteers, there was still a desire for people to just be aware of what they do in the community.

> The one part where we could do better is the sense that if you were to walk up to 10 people over the next couple days, ask them what can you tell me about the [us]? My guess would be that you would get 2 out of 10 maybe [who would know who we are]. If you were to say 'Who is the local conservancy group that does a lot with preserving the land etc., I think you'd get 8 out 10 who would say [another organization]. That's my take on it. Long term for the organization I think we'd like to be at 8 out of 10 rather than two out of ten.

Web-based Tools and Services

Though none of the interviewed organizations identified there practices in terms of 'Web 2.0', many already use or were just starting to use a range of online tools and services which are consistent with the general model of Web 2.0 to directly support public awareness or provide a service which they could not run locally. As already mentioned briefly, several use Google Calendar as well as other Google applications. And several use specialty online services that are uniquely targeted toward nonprofits or specific kinds of nonprofits.

Facebook and Twitter were by far the most common services mentioned by organizations, as nearly all organizations are aware of it as a potential tool for increasing public awareness and several organization are anxious to reach younger and more affluent potential donors which they associate with those services. But two organizations felt they were not actually clear on its real value to their organization.

> We have a Facebook page and we've got 150 plus people on that page. We only direct the invitations to our alumni and we have about 535 alumni so we got

> close to a third of our base as friends. I had a marketing intern create a Twitter account for me but I don't get Twitter so I probably need to do some training. I would need to learn more about how to use it and an effective way to market or communicate what's going on because what I see on Facebook is a lot of banality. And I don't have time for it so, unless it's really impactful or I can really see some results from it spending my time chatting on Facebook, I'm probably not going to fully adopt it. But I'm not discounting the fact that it couldn't do some good.

> One of the things that's sticking out in my mind with technology is the increased social media presence . . . So we've been trying to pick around the edges of that and we have a page on Facebook and we just started Twitter. The social networking stuff, I think - I'm guessing that a lot of nonprofits are jumping in a little bit but aren't really, don't really know what the payoff is necessarily going to be, but everybody is trying to find out and see what happens. I was all into Facebook for the first month or two and then I kind of dropped off so I'm thinking at least under the old group, we had maybe 300 people. But that's because I was really diligent in that every time that I got new people I would invite them to that, but then I lost interest.

Along with skepticism about the ultimate value of such services, there was some concern about the ability to control the content such as inappropriate or unfavorable comments left by those with ill feelings or simply malicious intent from two interviewees even though their peer organizations were already successfully using and recommended the use of Facebook.

> The current recommendation now has been to get the agency and programs to have a social networking presence. We're trying to sell it. I didn't think that was true, why would anybody follow us on Facebook? It made no sense to me. . . . We just haven't figured out who would kind of make sure content was appropriate because of our little people and we work with a population of families that we're well aware could be inappropriate for lack of judgment so we haven' figured out how if we open that box, we would want make sure that someone takes the time to do that, and that was our only limitation.

> [We] have talked about looking at Facebook and Twitter. The issue . . . is the ability of someone other than someone is this organization to go in and post something negative about the organization. . . . and then having someone dedicated to just maintaining that, keeping the updates on it, I do know there are affiliates out there that have Facebook pages and they just post different things that are going on. But with such a small staff, having that dedicated person or people even to go on and do that on a daily or even every other day basis, just isn't feasible for us here. But I think we could work through that, I'm sure there is somebody out there who would be willing to maintain a page for us. But my

> concern is somebody going on that we may have made mad because they weren't selected as a partner family or whatever and they post a negative comment about us. How do you handle that? And I don't know enough about it.

Both quotes also raise the issue of finding another volunteer or staff person who can take on the additional task of manage the organizational social media. As with websites and technology generally, several of the organizations already using Facebook and Twitter have essentially outsourced the management of them to interns or volunteers who already have some familiarity with the technologies.

> our website had grown a whole lot, we have an Americore person out front who is pretty familiar with it. So he's grown it and expanded into Facebook. I don't really, I don't even know how to get into Facebook.

> At the moment we have a PR group on campus that is helping us market [our stuff] and they have set up a Twitter account and they have a Facebook thing going. And there are updating it pretty regularly and they're going to create a bunch of posts for us that we can continue to post after they are done working with us. So we've got that going on. But we're really reliant on student volunteers or some volunteer to come in and make it work for us, we don't have any dedicated staff. . . . then we are hoping that in the Fall we've recruited another group that will be on top of it. And this group's doing a pretty good job on the Twitter stuff. But once they're gone, they're gone, I can't continue that. I just don't have the time to do it.

Apart from the issue of time required to maintain an active social media presence, several organizations expressed doubts about knowing what, in the absence of volunteers, they would actually have to post to social media services – "OK, so what can I say today? One organization is trying various strategies to fill that content gap by assigning different staff members different days of the week to post Twitter content. But with technology generally for NPOs, social media feels like yet another "one more thing".

Apart from social media services, several organizations were actively using one or more Google applications. Organizational or personal shared calendars were the most common use as mentioned briefly above but the degree of sophistication varied. For example, one organization used a single organizational meeting calendar shared by all but when talking about shared

calendars much earlier in the interview, they stated that they no longer had shared calendars because they had to make server changes recently that disabled that function for their organization. Another organization stated they used Outlook for their shared calendars but they ran Google in place of Microsoft Exchange Server because they didn't think they were large enough to warrant setting up an exchange server. The most advanced organization ran their calendar using Google Apps under their own domain, an enterprise-level intranet service offered for no charge to nonprofits by Google. In addition to the applications available to any holder of a Google account, the system allows additional features such as the automatic sharing of all calendars under a given domain and the ability to create calendars for resources such as meeting rooms as well as creation of various intranet content. One organization had just discovered the use of Google calendars and was in the process of adapting it for us to schedule one set of their volunteers. The previous method had required responding to a scheduling email which was then updated and re-mailed by a central coordinator as each timeslot was taken up by various people included in the email. The one organization that had failed with implementing shared Google calendars within their organization quickly returned to multiple organizational wall calendars for items like common meeting times and vacations, but they were the only organization that seemed to not have success with that tool.

Other Google tools such as Docs had more mixed responses among those interviewed. One organization uses them successfully for creating inexpensive web-based surveys, though that same organization (as well as others) noted the limitations of Docs when compared to Word and usually seemed to prefer the refinement of Word. But one organization with multiple volunteers and multiple points of data to track found it to fit their need to have multiple users accessing common pages and often working from home. One organization in particular could imagine its use to create forms which would simplify some of their more mundane data tasks, and in fact had

a second handle example of the creation of a set of forms to simplify various volunteer processes. But they perceived that they could not create similarly useful content themselves with the tools.

Other Web-based Tools

One organization demonstrated an online intranet service that offers features such a common calendar and shared documents and folders which was used for sharing minutes and other relevant documents with board members. For that organization, it eliminated the need for large amounts of email attachments while also providing an archive of the records of past meetings for all board members, though it did raise an issue for some members who did not want to or could not use it. This same organization also uses calendars.net, a service which provided an i-Cal web-based calendar and was available before Google's service and which allows them to embed their volunteer calendar into their website. Another organization uses Doodle.com a web based polling tool which simplifies the process of finding common meeting times among group members and which is used by that organization for meeting planning.

NPO-specific Services

Several unexpected web-based tools were introduced during the interviews, two of which had were designed specifically for volunteer-based organizations. The first was Volunteerspot.com, a service recently discovered by one organization looking to further refine is volunteer scheduling process. Though they had not yet implemented the service, they hoped to eliminate some of the improvised methods of scheduling that they were currently using. Another organization introduced VolunteerMatch .org through which they had received a couple

volunteers interested in their organization. Using listing themselves not unlike a classified ads, those interested in volunteering can search by location and area of interest.

Responses to Civicinity Plan

Overall responses to the concept and goals of the Civicinity project were very positive from all but one of the fifteen organizations, who expressed little interest in the plan or the potential of technology as it related to her organization. The majority of responses were focused on how they thought the project fit with their primary goal being increased public awareness of their organization. Both Google Calendar and RSS were introduced as examples and the majority of questions were about the specific of setting up RSS as the use of Google calendar was relatively clear to most interviewees. The responses noted here were those responses which did not fit that profile.

One the earliest interviews revealed that a community calendar project with some similar goals was initiated here approximately ten years prior to this project. At that time, a group of interested technology leaders got together with a goal of creating a calendar aimed primarily at addressing the needs of those who live here full time, as opposed to the more transient college population. The approach was to hand code a calendar specific for this application but the project never got too far because of the complexity of the project and time constraints on everyone involved. A later interviewee confirmed that previous calendar project was something she had been aware of although it's actual ending was not so clear and her sense was that someone might been working at it in some form for a while. It was not clear to her why the project had ended.

The first major issue raised to the critique was focused on the un-moderated (by design) nature of the project and the issue of concern for organizations' reputations if somehow inappropriate content associated were to be with to them.

> I think when it becomes overwhelming is when too many people become part of the project and everyone's ideas about what it should be or shouldn't be there, so it seems like there is going to have to be some supervisory body that says, no this isn't really appropriate for this calendar and they're going to have t deal on a person to person level rather than leaving it wide open to electronic things.. . . . There's a lot of reputations on the line too. That's the thing they we are concerned about all the time, that something is associated with us that shouldn't be, those kinds of things. It's very important, we've come and gone from public events in the community for that reason, because of one thing or another or what has happened.

In particular, a major issue of concern for this interviewee is the nature of a college town where alcohol sales are a large part of downtown business. For human service organizations that might be addressing an issue like alcohol abuse or its impact, simply having an NPOs community content appear on the same page as an ad for a bar or alcohol could negatively impact its reputation in the community. Also the raised is the issue of being clear who is responsible for the "final click" within an organization; a poor choice by someone at a 'trusted organization could potentially be embarrassing for everyone involved with the portal.

This same interviewee also raised the issue of more than two kinds of potential calendars for organizations, public and private. For example, he raised the issue calendars meant only for certain volunteers or other human service organizations, or example for nonpublic events that volunteers are invited to or trainings open to other organizations but not to the general public. For his own organization, he is able to maintain "security through obscurity" by using publicly shared Google calendars that are not linked to the organizations site. They can be accessed using emailed links and could potentially be found through a random Google search but none the less are obscured enough unintended guest don't show up at volunteer events.

One interviewee recalled a past situation where there was a perceived conflict of interests between a nonprofit organization and a downtown organization over the terms cooperation at a downtown event and that left some lingering bad feelings. Though the current plan did not

present any obvious basis for expecting such conflicts, it remained a possibility worth being aware of as the portal plan unfolds.

The final response noted here is in regard to a somewhat parallel community technology project which was being undertaken by one of the interviewed NPOs, the local implementation of the national 2-1-1 service plan. As explained by this interviewee, the 2-1-1 service is planned to provide one number access for the full range of human services provided by a full range of NPO and state agencies. The local effort will build an online portal of organizations and providers throughout a seven county area and also provide a call center for phone access to that same information. One reason for her interest in meeting was to clarify whether there was any duplication in the community portal plan of the 2-1-1 effort and to identify any areas where there could be potential collaborations on aggregated community information and specific technological approaches. For example, depending on the final software selected at the state level, their local 2-1-1 implementation could share some of the same feed-based content as the Civicinity portal.

Chapter 5

Discussion

"Good Enough" Technology

Compared to previous work looking at local-level NPOs use of technology, this study suggests that NPOs have, in broad terms, made some advancements in their relationship with information technology. Though they generally still lag behind for-profit organizations and generally lack sufficient resources for IT, they can be seen as more aware of gaps in their practices and more likely to have adopted basic good practices with regard to hardware and software. For example, the recognition of the need for scheduled maintenance by some organizations was a significant change from previous practices that were service requests were only in response to hardware or software failures. This can be seen as a consequence of an increased number of organizations recognizing the indispensible role of technology as part of their daily activities. This has resulted in an increased number of organizations including technology funding as part of their budgeting practice, increasing contracting for regular computer service and maintenance rather than reliance exclusively on irregular volunteers, and more regularly scheduled replacement of hardware. Maintaining daily backups of essential data was a regular practice for nearly all organizations and most all had moved beyond simple CD backups to more sophisticated solutions like multiple external drives, mirrored drives for server data and several where planning to implement online backup solutions. Taken together, these practices suggest that nonprofits have largely moved past being either in a passive mode or crisis mode with their own computer hardware.

Access to software was also largely not an issue for these organizations. This could be seen as a consequence of the availability of severely discounted commercial software through services such as TechSoup, which are targeted at meeting the needs of the nonprofit sector. Without that resource, it seems likely that nonprofits would face much greater challenges in this area. As it is, most could be considered as up to date with regard to software except in those cases where an explicit decision had been made to keep running an earlier version, for example, such as staying with Office 2003 rather than 2010 to delay the need for staff to relearn basic software functions.

All this is not to suggest that there is not room for improvement and overall, technology funding remains an issue of concern. While some nonprofits have budgets that allow them both maintenance and regular upgrades that leave them only slightly behind the curve of technology, some of those that do budget for maintenance still do not have the budget for eventual replacement of dated hardware. For example, the organization running seven year old PCs has no funding or plan for replacements. For state grant funded organizations providing essential human services, it is likely desirable that a majority of financial resources go directly into service to clients. But at the policy level, the practice of excluding any technology costs from grants seems unsustainable. State-provided hardware for activities directly related to state programs does minimize the potential for negative impacts on the delivery of many services, but that hardware does not address the ongoing needs of the local organizations which administer such programs. Technology-specific grants, such as those provided by private foundations, remain important for the continued effective operation of these pieces of local social safety nets.

As with their technology generally, most organizations have moved past either just passive or crisis modes with regard to their websites. Though the majority of organizations expressed some degree of dissatisfaction with the state of their websites, most organizations reported being able to update content regularly and they felt their website provided the basic

information and functions they required for their organizations. The one organization that expressed the highest degree of dissatisfaction with their site was also in the process of planning out a revamped website in the coming months with the assistance of a volunteer.

The largest technology gap seems to remain in the varied skill levels of both staff and volunteers. As one interviewee framed it, this seems to be an issue that could be seen as generational differences, though this generational effect is likely compounded by the fact that much of human services delivery has not been tied to computer use to the degree that it is today. This is also directly related to the issue of the lack of technology-specific funding for technology-related training.

This variety of skill levels seemed less pronounced among those responsible for managing nonprofit's technology, primarily those is the role of executive director. Many could be seen as technology enthusiasts while the rest seemed to have a realistic grasp of their technology needs and basic appropriate practices even when they claimed they didn't understand any of technologies many acronyms. They largely reported having resources to call on in the case of a technology issue and most were on a first name basis with a service provider they seemed to trust and called on regularly. They were also able to assess their own technology situation rather than passively rely upon expert assessments. The largest issue for those in this role was one of time that could be devoted to the managing of technology. Except in the cases of the two organizations with staff partially dedicated to IT issues, the tasks of managing technology have often become just "one more thing" that needed to be handled in addition to the requirements. At one extreme, this seemed to result in an attitude that while a particular technology or tool might be helpful, there was not sufficient time to figure how to use or apply the new tool to a situation that was less than anything less than a current crisis. At the other extreme, some in this role had learned through previous experiences that time spent proactively exploring new technologies and tools

often lead to new practices which ultimately streamlined some part of daily tasks and ultimately freed up additional resources such as time.

While there are a variety of factors that likely influence such attitudes, it seems this difference in attitudes toward technology is an interesting one and bears further exploration. In many ways, articulating this difference seems as though it may be a key piece for understanding the adoption of systems such as the proposed community portal by nonprofits in a local community context. While a rational basis for being interested in participation could be seen in simple terms of a cost-benefit analysis: a small change in current practices for any individual organization could result in higher visibility in the community, the actual willingness to explore that possibility in terms of hands-on exploration of the required tools is something different. In particular, use of Google Calendar to maintain a calendar of public events which could be shared as a feed and aggregated into a community calendar was intellectually graspable by all the interviewed organizations. However, only one organization followed up our interview to share that they had investigated Google calendar following our conversation and had already started to use it with their board members. While several organizations were already familiar this calendar tool, most were not as familiar with the concept of creating RSS feeds, the other central component of the Civicinity design. It is not clear whether any of those organizations have taken steps with regard to understanding the use of RSS or not. But that one instance stands out and suggests something about what may be different for this user. As with the difference between self-described ‘power users’ and novice users, I would describe this difference as a willingness to explore and take small risks with regard to technology, perhaps best understood as technological self-efficacy. How all nonprofits could be supported to get to that same stage of being willing to take the small risks to learn and adopt the tools required for participation in the community portal remains an open question of this research.

With regard to the state of local nonprofit organization's websites, how to evaluate the findings seems less clear. The interviewee with what seemed like the least willingness (or perhaps just time) to explore new technology tools was also the only one who reported directly participating in "building" her organization's website (with the assistance of another staff member), out of financial necessity:

> something is better than nothing and that is kind of the philosophy we adopted, so while we would like to have a fancier website, the reality is that me and somebody else had to learn how to make a website because we couldn't pay an outside company to do it. We're happy with what we've got. Until someone else can do it, it's great.

The organizations that expressed dissatisfaction with their websites were usually able to articulate how they would like it to be better: poor navigation, too text-based rather than visual, not interactive enough. This would suggest that they feel at least somewhat empowered to understand and articulate their own needs, but most seemed to have resigned themselves, at least for the time being, to the current imperfect state of their site. One piece of this seems to be tied directly to the resources that are available to them: the organization in the middle of planning a website redesign had an easily accessible volunteer (the spouse of a staff member) to call upon to do the technological lifting. Another organization noted that past volunteers had created their site more than seven years ago and that over time they had simply added new pieces as needed. While they thought the current site seemed too "cobbled together", they seemed to imply that it would remain that way until a new volunteers capable of revamping it made themselves available.

In another case, an interviewee shared that she once tried to leave her current local web hosting company because of their "dated approach to web design" and their inability to integrate more up-to-date interactive elements into the site. After spending more than $3000 on the development of a new site which had the desired interactive features, the part-time web designers

who created it for her were unable to keep up with the numerous security issues of the (unrecalled) open-source platform used for the site, resulting in the site being defaced on more than one occasion. Finding this situation unacceptable, she ultimately returned to her original web host and accepted having a website with "dated" design in exchange for greater security. Taken together with similar reports of dissatisfaction with a current site or webhost but unwillingness to make, it seems that a stable website is seen as more important than making a change, either because of a lack of resources or due the high importance most organizations place on the role of their website. In short, a "good enough" website is sufficient for most organizations until they can do better. But better would seem to depend on factors they feel are largely out of their control. As with their own hardware, resources may be the key factor in these decisions about their websites.

A similar pattern emerges with regard to databases. One organization reported having a functional that databases that "mostly" meet their needs. This organization wished to merge two separate databases, one containing donor information and another containing volunteer information. For cases where a given individual was both a donor and a volunteer, it would be useful to be able to have both together for the purposes of donor development. But because of a detail in the implementation of one the databases, the two could not simply be merged. A consultation with a local group of college students looking for a college project suggested that the work involved in correcting and merging the databases would take more than the semester available to the students to complete the project. The perceived alternative was to purchase an expensive specialized donor database. Given the lack of available resources to address the issue, the database situation remains unresolved but with minimal impact on the organization's ability to conduct its mission.

The dependence on volunteers and interns as a resource with regard to technology needs is perhaps both to be expected and slightly troubling. In fact, on one call to a nonprofit to attempt to schedule an interview resulted in considerable confusion when I identified myself as a graduate

student at the local university. Apparently, they had been waiting for my call because their database was in need of an update and someone at the organization was currently in the process of arranging for university students that help them accomplish that task. While this event in itself was amusing, it does seem to highlight the fact that for nonprofits, many technology-related tasks (and perhaps technology-related tasks in particular) do not get accomplished without technologically skilled volunteers. While the appropriate role of volunteers in nonprofit organizations in general may seem self-evident, the effect is that much of the specialized knowledge required for fully managing their technology leaves these organizations every time such a volunteer leaves the organization. Adaptation to this cycle of volunteers and interns, particularly for organizations which draw on the highly transient student population of a nearby large university, may contribute to the over-acceptance of "good enough" technology solutions, given their other resource limitations. This again raises the issue of the need for increased technology-specific funding for nonprofit organizations at the local level.

Local Web 2.0

The wide use of a variety of online tools which are consistent with the description of Web 2.0 technologies in itself seems like a positive signal for both nonprofits generally and the likely adoption of the community portal. In many cases, these online tools provide unique solutions for problems particular to nonprofit organizations. For example, one organization reported switching their donor database to a specialized online donor management service. This choice allowed them to access additional services not available using their locally hosted database while also avoiding the complication of the local administration of VPN access for their offices located in other parts of the state. While this online service is not without cost, they were presumably able to make an appropriate choice based on the needs and resources of their organization. Consistent with this

example, which seems to suggests that the adoption of appropriate online tools reflect a degree of empowered use of technology, another organization reported that they thought there might be a better way to manage sharing documents with board than using emails with a large number of attachments. By simply using a search engine, he was able to locate an appropriate free service that met that need, though he still faces some degree of resistance from some board members to accessing the service.

Perhaps unsurprisingly, Google's online applications tools were used by several organizations though not primarily for the expected reasons related to software cost. As noted previously, software like Microsoft Office was readily available at steep discounts and this seems to make the "clunkyness" of free tools like Google Docs seem unappealing for routine document creation. One organization that used Google Docs regularly used it primarily for the creation of online surveys and for document sharing within their organization but also shared the view that Office tools were more refined and more powerful for working with documents. And another organization reported an intention to switch away from the use of Google Docs after recently discovering a online service which specialized in the scheduling and coordination of volunteers. And one organization reporting using Google Calendar but only as a "third party" solution for maintaining shared interorganizational calendars using Outlook rather which allowed them to avoid the additional expense of running an Exchange server. Several other online tools were also mentioned. Though confused about the meaning of terminology such "cloud computing", most nonprofit organizations are already taking advantage of some part of Web 2.0.

The social part of Web 2.0 is also something that several local nonprofits were already involved with despite the doubts of some about its ultimate value or the actual level of interest of social media users in their particular organization . Most use tools like Facebook in ways that might be expected, such as for event announcements and occasionally for other news about their

organization. Unlike like the commercial marketing world, some remained unclear about the tangible value of having "friends" or "fans".

What seems problematic about the adoption of Facebook and Twitter by local nonprofits is that it is largely consistent with the issues seen for other areas of their technology: Facebook and Twitter have become yet another "one more thing" for some of these organizations or something else they don't feel like they can understand or can act on by themselves. And so they outsource their organization's social media presence to the perceived experts, the young interns and volunteers. Purely from the perspective of social media as a marketing tool, this may be an effective strategy. But it remains to be seen whether this kind of approach will have similar longer term outcomes to other technology areas where "good enough" means an underutilized social media presence in the absence of available volunteers. Contrast this kind of approach with a strategy introduced at our community technology workshop, held shortly after the conclusion of these interviews: a local technology leader presenting at the workshop demonstrated how his organization streamlined their web-based efforts using a free blog service linked to a Facebook account, Twitter and a their organizational website. Through the typing of a single paragraph to the blog, a Facebook post was created, a Tweet went out, new content was added to the organization's website and an RSS feed was created. The only obvious difference between the demonstrator (also a member of a local nonprofit) and the attendees was the amount of technology experience which (at least in part) gave him the willingness to take small risks and try things out with technology. And, as similarly stated earlier, his web-based self-efficacy allowed him to find a nontrivial application for a set of readily available web-based technologies which ultimately freed up the resources that would otherwise be required to update four separate tools.

As suggested above, the lack of use of some Web 2.0 tools was itself interesting and potentially problematic for the implementation of our portal. Content creation and hosting tools such as YouTube were only used by two of the interviewed organizations, and only one

mentioned blogs tangentially (as their organization did not use them but only knew someone who did). None of the interviewed organizations used syndication technologies such as RSS and only a few understood what it was and how it was generally used. Almost none seemed cognizant of the potential to interlink various web-based services as part of their own websites, though they all seemed to understand the potential to aggregate such services at the local community level. While the understanding and use of all these technologies is certainly a skill that could reasonably be expected to increase through exposure and practice, the overall picture of nonprofit's technology use seems to suggest that further adoption of some facets of Web 2.0 may be significantly delayed.

2-1-1 as Community Technology?

Perhaps the most surprising finding of the interviews, the plans for local implementation of 2-1-1 service provide an interesting contrast to our community portal plan. While 2-1-1 is intended to provide a single point of access to the full range of available nonprofit human services and crisis resources in a way that parallels 9-1-1 as single point of access to emergency services, many of the actual details of 2-1-1 implementation can be decided at the local level once a baseline of requirements is addressed. In addition to a 24/7 call center, a web-based portal is also a requirement of the service, which could be extended to be a more broadly purposed community portal. As suggested by the interviewee, such a portal could also be used to aggregate the various feeds generated by local nonprofits and other community organizations. While such a portal would not address all the design goals of our planned system, it does potentially address at least one aspect the local digital divide issue in that we ourselves had not previously considered. Any web-based content available on the 2-1-1 site could also be made available over the phone

through call center personnel, meaning that if the same information regarding community events and newsfeeds available on the site could also be made available to those without Internet access.

The planned 2-1-1 system shares some common elements with our own design: a focus on a decentralized model for maintaining up to date content information. By making each participating organization responsible for the accuracy of its own listing with the service, the site will reduce administrative costs at the level of the aggregated community content. While this does raise similar issues to the concerns about reputations and the impact of un-moderated content on our own portal, it also addresses the issue of websites that quickly lose value as information goes out of date. The service also addresses an important community need that is not addressed by our design in that is provides a provides a stable listing of important community resources in contrast to our portal which is focused primarily on timely community information which might be considered news. Taken together, it seems that both address an important set of community information needs while some potential for overlap on the content of community feeds might present an interesting opportunity for the local community.

Chapter 6

Conclusions

Design Implications

The primary issue for the proposed design of a community portal which prioritizes community sources of information is, of course, nonprofit organizations relationship to technology in the broadest sense. Without their participation, a significant motivation for the planned design is lost. With a mixed set of indicators for their ability to make use of technology in general and for Web 2.0 technologies in particular, it not immediately clear what this means for the proposed design. While the use of Google Calendar and the iCal standard for sharing calendar information seems very likely among the organizations studied here, the use of RSS seems less clear. While this may simply be a matter of both an introduction to the concept and a tutorial outlining practical steps to creating such feeds, there is also reason to think that the kind of self-directed 'learning by doing' that seems to typify the use of Web 2.0 technologies may still elude some organizations.

One possible design response to this situation could be to simplify the process of feed creation by providing a set of tools on the portal itself which simplified feed creation. The major tradeoff of such an approach is that the portal becomes just another site that an organization must visit on their list of places to post their event or announcement information. This runs counter to the one of the original motivators to create a streamlined process for organization to share their information with the community. The less obvious tradeoff of such an approach is that it supports the perception that the organizations themselves cannot implement their own feeds given adequate support and motivation. As one interviewee stated about a her own technology learning

experience, “I think that it turned a switch on for me, and that was that if they think I can do this then I probably can.” While in reality many organizations may simply get student volunteers to setup an RSS for their organization, there odds of them learning something from that experience are higher than if we alter the design to fit the assumption they are indeed incapable. In the best case, the portal could motivate a further exploration of what is possible with newer technologies, encouraging those small risks and experimentation with other new technologies and services once they have successfully learned to create feeds. In the worst case, we can provide tutorials and additional links to resources that can help scaffold their participation with the portal.

The information revealed about the planned 2-1-1 portal and the potential for a different kind of community portal using the same set of feeds as our portal raises the issue of the use of and reuse of community feeds by others such as exiting commercial community portals and traditional media outlets. And as stated in one interview, many small organizations feel challenged to successfully reach the media with their message. Our design started with the assumption that we did not want to be ‘owners’ of community feeds and that the unique value of our portal lies in the conjunction of these feeds with location-based services in a physical location. The information itself belongs to the community at large, and consistent with the practices of Web 2.0 in general, is should be sharable and redistributable. These findings suggest we should prioritize the addition of a mechanism to share a feed of our aggregated nonprofit data with other community organizations that are interested in reusing it. While tradeoff of this design choice is that it does potentially dilute some of the unique value of the portal, this could also help to further magnify the value of the portal to the community in terms of greater awareness of local nonprofit activities through its availability from many sources is the community

The concerns raised about the potential impact on reputations in the case of inappropriate content, both in terms of feed content and advertisements present on the portal highlight two separate issues. One is about what content and partners are collectively deemed appropriate as

part of the community portal. As those designing the technology, it is easy for us to say ‘no alcohol, no bars, no strip clubs and no head shops’ should be part of the portal or as advertisers but ultimately such decisions will be in the hands of the community partners to whom we will eventually hand off the final system.

The second issue lies with the design itself and the decentralized approach of each organization being responsible for its own feeds. The advantage of this design is that it minimizes the need for direct moderation of content by essentially pre-qualifying the feeds of nonprofits and other community organizations whose information will be available on the portal. In such a scenario, each organization would presumably be self-motivated to ensure that its own content was clear, correct and appropriate. However, as a failsafe mechanism, the design could be augmented with a method for temporarily hiding problem content pending review by a site moderator. The tradeoff here is that perfectly appropriate content could be hidden pending review through simple error or spirit of playful or malicious activity for which moderators are generally required. Of course, the more obvious tradeoff of such a change is the requirement for moderators at all, but this may again ultimately be a collective decision to be made at the level of the community partners in the portal.

Given the frequency of responses pertaining to the perceived high value of a presence on Facebook and Twitter, it is possible that both could in some way be integrated with the portal design. The ability to log in to the site using a Facebook ID is already part of the current design. This element simply uses Facebook’s publicly available API which allows its users to use their existing credentials on other sites. The main advantage of this choice is that it simplifies the process for Facebook users to sign in and use certain features of the portal, while large base of existing Facebook users provides a large potential audience of users. It might be possible to further increase integration with Facebook, for example by automating posting some of the

information from the portal directly to a Facebook page dedicated to the project, we might ultimately increase traffic back to the portal.

The integration of Twitter into the site has already been accomplished through the use of Twitters API and the creation of a Civicinity hashtag. Through this mechanism, any tweet with that tag appears in a separate window on the front page of the site. Twitter is also used on a separate "Social" tab of the site where any tweet related to the town, either by its location metadata or its presence in the text. The main advantage of Twitter as part of the design is that it provides a means for chat among users and also an instant way to get out a message to the community at large. The main tradeoff of using Twitter is that the quick and easy access it allows to a public space may invite potential abuse but this concern can be mitigated through use of text filters on the feed.

Additional Implications

Outside of design implications found through this work, another issues raised by this study is the issue of the need for increased technology-specific funding for nonprofit organizations. While programs like TechSoup provide meaningful software discounts that allow them to use the same Windows-based software programs that most for-profit organizations use such as Office, no parallel exist in hardware available to nonprofits. One obvious reason for this is simply that software, like all digital content, can be infinitely reproduced at no additional cost. The same cannot be said of physical hardware which has relatively fixed costs tied to its production. This being the case, on possible way to address this situation is through a greater focus at the policy level on the allocation of technology-specific funds that includes both consideration for both hardware and technology related training.

Perhaps more pragmatically, efforts at technology-related education and training should be increased in the terms of outreach by educational institutions and perhaps alo private organizations and foundations. While significant student hours go into volunteering and internships, it seems that such efforts are (perhaps appropriately) aimed at doing things for local nonprofits. Some degree of attention is also required to increasing the long term technology capacity of these organizations so that their technological capacity is not diminished by end of a semester or an academic year.

A related implication of this study is the need to better articulate the conditions of what Gurstein might call "effective use"; that is to say, how do we help key members of local communities become more empowered and creative technology users who can realize the maximum benefit of available technologies? Past efforts at increasing local technology capacity show some clear positive impacts among the organizations interviewed for this study. But it also seems clear that some organizations still have significant room for improvement in that regard. It is expected that the current portal design will have some positive impact to that end.

The final implication drawn by this study relates directly to the overall research question about the potential of designs focused on integration of Web 2.0 technologies to address community informatics goals. While the final implementation of the system is far from complete at this writing, it seems that the study outlined a number of considerations relative to this question. First, while this study does focus on reasons to be skeptical of nonprofit organizations' ability to imagine and explore the potential uses of these new tools and technologies, it is perhaps the job of technology designers, particularly those motivated by community technology concerns, to introduce motivating innovations. In the absence of field data, this study does demonstrate some of that potential for this project. Second, both the improvement in what might be considered baseline technological capacity relative to previous local studies and the significant degree of

self-directed adoption of various Web 2.0 tools suggest that there may be sufficient cause for optimism about the long term potential for such developments.

Future Work

The most obvious next step in this work is the deployment and assessment of this project in the real-world setting of the local downtown, after further consideration relative to the findings of the current work. To that end, prototype development has continued concurrent with this work while planning and assessment with local community leaders have also continued. Both individual user testing of the system and its interface are anticipated, as well as survey-based assessments of the system and its impacts for individuals on dimensions such as 'sense of community', as well as impacts on participating community organizations. Additionally, contact has been made with a community leader from a nearby town who also expressed interest in deploying this system.

An additional potential application of system is in the context of rural broadband and related issues. To that end, an initial meeting with a group of researchers already well established in that area has already taken place with a follow up meeting planned in the near future. This line of research would likely explore the potential of our current system design to be modified to address the specific social and economic issues of rural communities where degree of Internet adoption lags other areas, such as lack of economic activity and the loss of the youth to urban areas .

The current study could also serve as the basis for an action research project to more broadly assess and address the issues suggested here with regard to gaps in nonprofit organizations' technological capacity. The findings of this work may support the development of a survey instrument which could reach a larger number of local-level nonprofits than was possible

with the research design of the current work. This work could also be replicated in a different location, preferably in a geographically and economically dissimilar location that help to broaden our perspective on the technological capacities of local nonprofits. In particular, it would be of interest to better understand if factors such as organization size impact or mission type impact technology capacity.

References

Barney, Darin. 2006. “The Vanishing Table, or Community in a World that is No World.” http://pi.library.yorku.ca/ojs/index.php/topia/article/view/2673 (Accessed August 3, 2009).

Carroll, J. M. & Rosson, M. (2003). A Trajectory for Community Networks -- Special Issue: ICTs and Community Networking. *The Information Society: An International Journal*, *19*(5), 381-393.

Granovetter, Mark. 1983. “The Strength of Weak Ties: A Network Theory Revisited.” Sociological Theory 1:201-233.

Gurstein, Michael (2007). What is Community Informatics (And Why Does it Matter?). Monza, Milan: Polimetrica.

Hampton, K. N. (2003). Grieving for a Lost Network: Collective Action in a Wired Suburb -- Special Issue: ICTs and Community Networking. *The Information Society: An International Journal*, *19*(5), 417-428.

Kraut, R., Patterson, M., Lundmark, V., Kiesler, S., Mukopadhyay, T., & Scherlis, W. (1998). Internet paradox: A social technology that reduces social involvement and psychological wellbeing? *American Psychologist, 53*, 1017–1031.

Putnam, R. D. (1995a). Bowling alone: America’s declining social capital. *Journal of Democracy*, *6*, 65-78.

Moy, P., Mccluskey, M. R., McCoy, K., & Spratt, M. A. (2004). Political correlates of local news media use. *Journal of Communication*, *54*(3), 532 – 548.

Shah, D.V., Kwak, N. & Holbert, R. L. (2001) "Connecting" and "Disconnecting" with civic life: Patterns of Internet use and the production of social capital'. *Political Communication, 18*, 141–162.

Williams, K., & Durrance, J. 2008 Aug 16. Social Networks and Social Capital: Rethinking Theory in Community Informatics. The Journal of Community Informatics 4:3.