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Using data to build community:

Exploring one model of geographically-specific data use in the nonprofit sector

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Abstract

Nonprofit organizations strive to identify and build community in a variety of ways. A new development to assist nonprofits with this critical task is the use of Geographic Information Systems (GIS) that incorporate data assembled from area nonprofit organizations. In this article we investigate the reasons why nonprofits adopt these systems, their inclusion of various stakeholders in site launch, and the challenges for sustaining GIS use. Based on in-depth interviews conducted with sites that have adopted a prominent GIS application -- the Urban Institute's Community Platform -- we find that although nonprofits may implement GIS with the expressed purpose of fostering collaboration and building community, realizing and sustaining these goals remain challenges. We discuss the implications of these findings and conclude with recommendations for nonprofit and community leaders to assist nonprofits in making better use of GIS tools to involve and build their communities.

Keywords: community data, GIS, nonprofits

Using data to build community:

Exploring one model of geographically-specific data use in the nonprofit sector

A central priority for many nonprofit organizations is to understand and build their community's strengths and capacities. Nonprofit organizations not only serve the communities in which they exist and operate but also answer to them. To act effectively on behalf of their constituencies, nonprofit organizations must first meet the challenge of selecting their target community and being seen as a valued and trusted partner by community members.

Nonprofits use a variety of methods to identify their community, such as surveys, focus groups, outreach activities, and board of directors' guidance. A recent departure to assist nonprofits in identifying and serving their community is the development of Geographic Information Systems (GIS) that incorporate data assembled from area nonprofit organizations, accompanied by information taken from the IRS Form 990, including their NTEE classification, personnel, budget, and other descriptors (Roudebush, Fischer, & Brudney, 2013). These GIS applications take advantage of available electronic information to describe and locate nonprofit organizations geospatially in a community.

Despite the promise of GIS applications to help nonprofit leaders identify and visualize the communities they serve, their potential has been evaluated in only selected contexts (e.g., Martin, Peters, & Corbett, 2012). In this article we examine how and why nonprofits implement GIS-based applications, their willingness and capability to involve various stakeholders in the process, and to sustain the technology. To address these research questions we rely on interview data collected from 18 organizations that have adopted Community Platform, a GIS application developed and made available through the Urban Institute's National Center for Charitable

Statistics. Our semi-structured interviews with site representatives from all operational Community Platform sites show how nonprofits have utilized a particular GIS application to help define and build community; they also illustrate the challenges involved in implementing, using, and sustaining GIS tools in the nonprofit sector. Although this specific case stems from the U.S. context, examinations of GIS use among nonprofits have potential applicability to any country context where electronic data are available for integration in a web-based interface.

Building Community

At their core, nonprofit organizations strive to build their communities. Drucker (1990) emphasizes that the nonprofit mission statement originates from the identification of a need or opportunity within the community and should guide actions taken by leadership. Although nonprofits possess significant latitude in determining their missions and constituencies, ultimately they must rely on interactions with community members to provide direction. To develop and pursue their service missions, nonprofit leaders must recognize and implement a conception of their community to provide the framework for their mission.

According to Salamon (2003), nonprofits fulfill the critical role of building community in part by positioning themselves to create and sustain connections with various community members. These interrelationships build social capital, i.e. “bonds of trust and reciprocity” (13) among individuals and organizations in the community. This function yields legitimacy to the nonprofit organization in the eyes of the public and encourages a mutually beneficial exchange. Pynes (2011) explains that the community-building function involves conscious choices that forge bonds among various individuals with shared goals or interests, sometimes spanning large geographic areas. This flexibility is a powerful asset for nonprofits - through their missions

nonprofits have the potential to bring together stakeholders from diverse backgrounds. However, as nonprofits strive to identify their constituencies and create the connections that produce social capital, they must open themselves up to input from the outside and balance external needs with internal goals.

Nonprofit boards of directors hold ultimate responsibility for ensuring that an organization attends to its mission, including any relevant community-building aspirations. To achieve the balance between internal and external interests, the board simultaneously “coordinates” with the nonprofit executive and pursues “linkages” with critical community stakeholders (Brown 2014, 85). Consequently, board members are asked to act as stewards on behalf of the community and to be its voice in organizational affairs (Drucker 1990). As Renz (2010) states, “To succeed, nonprofits...must continuously renew the link between what they do and the needs and interests of the community they serve” (127). The link is further reinforced by the work of the nonprofit executive, who ultimately acts as the catalyst for translating the organization’s vision into action.

To meet this charge requires an awareness of the community’s membership and geographic boundaries. Shropshire & Hillman (2007) argue that for-profit firms earn their legitimacy over time through effective stakeholder management and involvement, a lesson that can be carried over to the nonprofit sector. Wolf (2012) asserts that nonprofit CEOs carry out this mission by connecting with community members, forging “relationships characterized by mutuality of purpose,” and encouraging and enacting positive exchanges (352). As such, nonprofit CEOs represent the organization’s mission and are responsible for adapting the organization’s approach to address community concerns.

The Promise and Challenges of GIS for the Nonprofit Sector

A principal challenge for nonprofit organizations is to define, and act on behalf of, its target community. A recent development in community tools and approaches that may assist them is the advent of geographic information systems (GIS). Chrisman (1999) defines GIS as “organized activity by which people measure and represent geographic phenomena then transform these representations into other forms while interacting within social structures” (175). Gold (2006) emphasizes the data-driven nature of GIS tools, which enable users to model and manipulate a variety of geospatial elements using sophisticated software. Although GIS is not a new technology, it has yet to gain widespread use across nonprofit organizations. Consequently, scholars have not systematically examined its potential in the context of the nonprofit sector (Al-Kodmany, 2012). As a data-driven undertaking, GIS applications rely principally on quantifiable dimensions of community and organizational status (e.g., counts, locations, percentages). This reality may serve to shape views of community based only on selected dimensions that can be represented in a GIS framework, and may not adequately reflect the authentic “lived” experience of communities that could be understood through a more mixed-methods approach.

The scant literature available suggests that nonprofit organizations can use GIS tools to explore environmental, economic, and social problems relating to the organization’s mission or service area. In the case of GIS tools intended primarily for use by nonprofit organizations, applications often take advantage of IRS Form 990 tax returns and other data sources to locate nonprofit organizations geospatially in a community (Roudebush, Fischer, & Brudney, 2013). In the U.S. the Urban Institute has developed GIS-based applications specifically for use by nonprofits and communities, launching the National Neighborhood Indicators Partnership (NNIP) in 1995 and the Community Platform in 2010 (NNIP 2015; Urban Institute 2012).

GIS provides a unique way of examining community characteristics that can inform and guide understanding and decision-making in a specific geographical area (e.g., city, neighborhood). Nonprofit organizations and their partners can use GIS to assess both needs and assets within the community of interest, combining “needs assessments and asset mapping” functions in a single tool (Schlossberg 1998, 2). Following Kretzmann & McKnight (1993), GIS can assist in the development of a community-driven approach to problem solving in which grassroots organizations and community members guide the direction of policy (Sieber, 2000). In such efforts GIS would be just one of several tools needed to adequately achieve a community-driven agenda.

GIS applications allow organizations to identify their target communities for mapping and related purposes. As nonprofit organizations pursue such approaches, they must make several decisions that ultimately dictate the features of their GIS system. Partners must first determine the boundaries of the geographic area to be included, the type of community characteristics and organizations to be presented in the mapping, and the characteristics to be displayed when users perform queries. Community indicators that pertain to specific organizational strategies can be included as “layers” in the mapping, such as the location of elderly care centers, single parent households, or USDA-designated food deserts. Francois (2014) draws attention to the use of GIS to enhance “the capability of such an organization to capture needs, desires, and expectations that reflect the neighborhood trends where the target population resides. The GIS can organize information in layers, and create a more customized or targeted view from that” (315).

Given the centrality of community building to nonprofit organizations, a key interest is in how their leadership approaches these decisions. Based on the literature on community building

and the adoption of GIS by nonprofits, we identify three challenges that impact these organizations' experience with GIS.

Political Pressures. Although implementation of GIS can empower nonprofits by giving them the opportunity to create an explicit vision of the relevant community, scholars have also noted pressures from higher-level authorities including state governments that can drive the adoption of GIS tools. These forces typically support the prevailing public policy agenda under the auspices of increased citizen and/or nonprofit involvement in decision-making (Sieber, 2006; Elwood, 2002). Governmental funding and reporting requirements have shifted to include greater use of data-based indicators to demonstrate need, exhibit outcomes, and promote efficiency. As such, nonprofit organizations seeking financial resources have increasingly turned to GIS as a tool to enhance grant applications and other requests for support (Hackler & Saxton, 2007; Saidel & Cour 2003).

Resource Restrictions. The expectation that organizations will make use of GIS has not been accompanied by a sufficient increase in funding to support such activities (Elwood 2002), or by guidance about how best to utilize these sophisticated electronic tools (Bishop 2010). Insufficient resources may prevent many community organizations from implementing GIS, resulting in an increasing disparity between organizations based on their size, focus and location (Lin & Ghose, 2008). According to Bishop (2010), "(a) central concern by both scholars and practitioners alike is that GIS technology can function as a democratizing force for one group and, at the same time, serve to disenfranchise others" (993). The author notes that "smaller and less technologically savvy nonprofits" (Bishop 2010, 992) face significant resource constraints that prevent them from realizing the full potential of GIS tools.

System Sustainability. O’Sullivan (2006) notes that discussions of the “social or theoretical aspects of the technology” (175) often are left aside in favor of more technical discussions of GIS. Technical discussions can provide some direction for nonprofits considering an investment in GIS technology, but they ignore many of the long-term challenges of effectively using and sustaining these tools. As Sieber (2000) notes, “In the past, many systems have failed because management focuses on technical installation and does not realize the scope of change and additional expenses for implementation” (16). In an examination of the use of GIS by eight nonprofit organizations in Chicago, Al-Kodmany (2012) found that the organizations frequently misjudged the cost and difficulty associated with developing, utilizing, and maintaining GIS for community planning projects. These findings suggest that not much has changed since Nedovic-Budic (1999) observed, “The expectations and potential of GIS technology perhaps do not fully coincide with the experiences of those who use it or at least do not coincide at this point in time” (285). This persistent incongruity between expectations and experience remains a challenge for nonprofit organizations seeking to implement GIS tools.

One reason for this gap arises from inadequate funding to sustain GIS systems long-term, but another stems from a lack of training among employees in organizations attempting to make use of GIS tools (Gocmen & Ventura’s, 2010; Schlossberg, 1998). Van Loenen (2007) points out, “Unlike many other types of information, the collection, maintenance, and publication of geographical information require qualified human expertise and equipment to process, manage, and use it” (196). In the case of nonprofits already facing significant staffing shortages and fiscal stringency, employing even one additional full-time staff member to oversee the GIS tool may not be feasible. Indeed, the 2015 Digital Outlook Report found both staff shortages and

lack of training on new digital strategies to be the challenges most frequently reported by nonprofits looking to expand their IT capacity (HJC, Care2, and NTEN 2015).

Community Platform

To examine the implementation of GIS we focus on a leading GIS tool created for use by nonprofit organizations: the Community Platform (CP). The CP is a proprietary web-based application that is customizable to an individual community's need. The application offers eight modules: (1) mapping community resources, (2) shared resources, (3) community needs, (4) financial analysis, (5) community statistics, (6) schools, (7) program outcomes, and (8) knowledgebase (Urban Institute, 2012). The system integrates data from two national data sources at the level of the identified community: nonprofit financial data filed in the IRS Form 990 and community need data collected by the U.S. Census (Urban Institute 2012).

The primary goal of CP is “to provide the necessary web tools for community collaboration and action” and aid nonprofits to “strengthen communities” and to help bridge the gap between community needs and assets (Urban Institute 2012, np). The focus of CP is on offering a tool “to help communities and nonprofit organizations work together more effectively” (Urban Institute, 2012). Although similarity exists with other GIS-based community planning applications (e.g., Bottom-up GIS, Community Viz), the CP focuses on better connecting nonprofits and philanthropic funders to data on community need and nonprofit service deployment (Talen, 2000; Walker & Daniels, 2011).

Methods

To explore the experiences of organizations engaged in using the Community Platform, we used a structured interview approach. The Urban Institute endorsed the study and alerted

member sites that the researchers would be contacting them about participating. It was made clear to sites that participation was entirely voluntary, and that they could identify the individual best suited to speak to the study team. Interviewees were assured that any comments made would be confidential, and no identifiable comments would be shared as part of the research. Over a two-month period in late 2013 semi-structured telephone interviews were conducted with a designated representative of each of the 18 active CP sites. The interview protocol was developed with input from the Urban Institute and consisted of six sections: respondent and site contact information, characteristics of the launch of CP, use of CP by external audiences, operation of the CP, sustainability issues, and recommendations for other nonprofit organizations contemplating or developing their own CP sites (protocol available from first author upon request). The interviews ranged from 45 to 70 minutes.

The sample of sites is diverse in its geographic location and scope. Four sites involve statewide scope, eight others are regional (i.e., multi-county); six focus on metropolitan areas or single counties; and three include geographies that cross state lines. CP sites range in population size from under 10,000 (Aspen, CO) to 3.5 million (Connecticut). In total, CP sites cover 306,000 square miles with over 22 million in population, or over 8 percent of the area of the U.S. and 7 percent of the population. A full listing of sites is available from the first author.

Findings

A first consideration was whether nonprofit organizations will emphasize the community building and collaboration aspects of GIS as their motivations for adoption of the technology. Site representatives were asked about their organization's reasons for launching a CP site. Six motivations for adopting CP were identified through respondent comments:

1. Understand community. Organizations intended to utilize CP to build community by bringing needs and assets together in one place and to provide a forum to identify and promote common goals.
2. Seek collaboration. Organizations sought to facilitate collaborative projects through resource and data sharing via the CP site.
3. Gather and present data. Organizations sought a platform to house a range of data from various nonprofit and public initiatives and to make the information available to stakeholders in an accessible format.
4. Support specific programming. Organizations adopted CP to store and present data pertaining to specific projects, such as community asset mapping of programs for the elderly.
5. Secure funding. Organizations sought to make information about local nonprofits available through the CP to agencies, donors, and other prospective funders.
6. Leverage university assets. Organizations wanted to highlight the importance of a local university and its resources to the larger community through the CP site.

Some respondents cited multiple reasons for adopting CP, which we categorized as either primary or secondary based on their responses. Table 2 shows that the most frequent primary motivation expressed by the 18 site representatives for adoption of GIS was data gathering and presentation. Only 9 site representatives identified a secondary motivation. Several nonprofits highlighted a lack of information, a need for better information, or a desire to compile information from various sources in a more accessible way as their main reason for adopting CP. For some sites, although the interest in developing and utilizing better data was not new, it had not been possible to pursue until CP became available. One organization had previously tracked all nonprofits operating within the state but lacked “current data on their capacity and quality.”

Another organization sought to use CP to help disaggregate data to the neighborhood level to satisfy grant funding eligibility requirements. Ultimately, the CP presented “an economical and simple tool” for a variety of data needs. According to one respondent, “We must work smarter by making better use of information.” In sum, CP’s inclusion of IRS Form 990 and U.S. Census data, combined with its affordability, attracted many respondents by meeting their need for basic data on local nonprofits.

Although respondents most often identified data gathering and presentation as a primary motivation for adopting GIS technology, community building and collaboration were also frequently noted. The primary motivations expressed by the sample for launching CP, community building ranked second, and collaboration third. Moreover, when primary and secondary motivations for site launch are taken into consideration, community building and collaboration surpass data gathering and presentation as a motivation for adoption of GIS. While half of the respondents cite data gathering and presentation (50%), more than three-fourths of them identify community building and collaboration (78%) as their rationale for GIS implementation.

One respondent commented, “Community Platform seemed like a great way to bring community needs and opportunities to the surface to whichever sector is concerned about these needs and opportunities. It’s a way to bring the needs and the resources of the community together.” In many cases interviewees hoped that by addressing data needs they would also be able to enhance community building and collaboration across sectors and among nonprofit organizations. One respondent stated, “[We] wanted to share the message of the [nonprofit] sector in order to get more resources for existing services and convey the reality that needs are greater than services available.” Similarly, another respondent stated that meeting data needs

would enable her nonprofit to identify ways to “facilitate collaboration and assessment of community needs” across organizations in the community. As expressed by fourteen of the eighteen GIS sites, these motivations suggest that nonprofits emphasize community building and collaboration rationales for adopting CP.

A second area of inquiry related to whether nonprofits possess the infrastructure and resources to engage varied stakeholders in the work, despite their belief in the importance of doing so. One interview question asked the site representatives if they had recommendations to offer prospective sites, including their advice about convening partners to establish and launch a site. Four recommended strategies emerged: (1) collaboration involving a diverse group; (2) collaboration specifically with other CP sites; (3) “controlled collaboration,” meaning the site expressed some interest in collaborating but only with a carefully selected group of partners; (4) no collaboration or no partners recommended; or no recommendation. Nearly half of the reporting sites urged their peers to collaborate with a diverse group of stakeholders in launching their GIS application. Stressing the importance of collaboration, one respondent suggested:

“Look at all of the relevant players that you know of that are dealing with data and the government and nonprofit sector and get the word out that you are thinking of doing this....This is very important because the more parties you have at the table, the more resources and minds you will have to help figure out the best way to move forward.”

Another respondent counseled, “Make sure it’s a diverse group. It’s important to have a wide range of stakeholders and interests represented in the formative stages of the site.” Another site recommended the creation of an advisory committee to ensure broad representation of the community.

Five more respondents endorsed collaboration but were more cautious, favoring “controlled” collaboration with carefully selected partners. These five sites seemed to value collaboration but likewise seemed apprehensive about losing control of the site and of being asked to compromise on their own vision. For example, one respondent wanted to bring in other partners to assist with the site but worried that state-level interests would overwhelm the grassroots nature of his organization’s use of CP. Another respondent remarked, “In the early phases it’s sometimes better to have fewer partners when you’re trying to develop the product initially.”

The remaining respondents expressed more tepid views concerning collaboration with potential partners in the GIS application. Two of them recommended collaborating, but only with other CP sites. These sites felt that other organizations with operating CPs would make ideal partners due to their shared experience with the GIS technology. One respondent advised, “Talk to other site directors. [We] would love to see what other sites are doing.” Finally, one respondent simply said that convening partners was “not recommended.”

In addition to ascertaining the recommendations of the site representatives in regard to collaboration, we inquired about their own collaborative activity undertaken in establishing a GIS site. CP site representatives were asked to indicate the involvement of five actors in the discussion of the launch of their CP site: funders, government, other nonprofits, universities, community members, and an “other” category to be completed as necessary. Responses could range from zero to six (including “other”) actors involved in discussions of site launch.

Although many respondents expressed motivations for establishing a GIS site centering on community building and collaboration with other stakeholders that might help to confer legitimacy on their site, their responses to this item suggest that they were less committed or

successful in engaging a variety of partners in these discussions. Despite their professed motivations, two sites involved no other parties in their discussions of site launch, and another five involved just one other party. Thus, a large proportion of the eighteen sites (7 of eighteen, or 40 percent) involved at most one other party in discussions about the launch of their CP site. Two sites involved no other parties in their discussions of site launch. Only three respondents listed community members as partners in this process, yet referred to “community building” as a motivation for site launch. Just one site involved five categories of partner. Overall, the average number of parties involved in discussions of launch of the CP site was roughly two parties (mean = 2.3, standard deviation = 1.5). Given the nature of the relationship between the nonprofit and its community, these findings suggest less community involvement in site launch than may have been optimal.

Several respondents touched on the financial difficulties involved in interesting potential partners in the GIS site. According to one respondent, a primary barrier to site use was “lack of funds and different priorities, visions, and views of the different stakeholders. [CP] can't be all things for all people.” Another respondent stated that resource constraints for both the organization hosting the CP site and its potential partner organizations contributed to challenges with developing and maintaining the site. Still another highlighted the relationship between willingness to partner with the host organization and ability to provide financial support for the CP site, saying, “It represents a collaborative opportunity for different organizations and should therefore entice these organizations to put in a small amount to help keep the site going.” These comments suggest that resource constraints often contribute to a disconnection between the professed desire to involve a diverse group of stakeholders in the CP and the ability to achieve collaboration.

Another area of inquiry was how community involvement in the development of the GIS related to low levels of community buy-in and use of these tools. As pointed out above, only three sites involved community members as partners in the initial discussion of site launch, suggesting that community members were not engaged as key stakeholders in the establishment of the CP. With regard to direct community member use of the sites, respondents were asked to rate the extent to which goals included “helping individuals in need find resources in their area” and “helping individuals find volunteer opportunities/programs to donate to.” Across the eighteen sites, eleven representatives either agreed or strongly agreed with each of these objectives (61.1%). Yet, only six sites cited community members as a primary user group (33.3%). More commonly, sites reported that community member use was an important goal for the future. For instance, one respondent reported that she hoped to achieve widespread community use of the CP site at some point, although her organization was not attempting to attract community members as users at the time of the interview.

In explaining their reasons for selecting CP as their GIS application, respondents frequently complimented the Urban Institute on its flexibility in purchasing arrangements and the range of pricing options offered. Interviewees described CP as “the most cost effective,” “the most economical and accommodating,” and “exceptionally affordable” relative to other GIS options. Though the upfront costs could be readily managed, nonprofits were often unprepared for the costs of sustaining the technology over time, however. For example, when asked about strategies employed to increase awareness and use of the GIS site, one respondent replied, “[There are] none currently because of a lack of resources.” Another stated that there were “limited or no funds for a marketing plan.”

Respondents also cited staffing concerns as a challenge to site development and long-term sustainability. The literature suggests that dedicated, full-time staff expertise is an imperative for organizations looking to implement GIS applications effectively (Gocmen & Ventura, 2010; Van Loene, 2007; Schlossberg, 1998). Respondents acknowledged the need for more staff with technical expertise but remarked that they were unable to hire additional full- or part-time staff due to resource constraints. One respondent reported a need for “a passionate person...to put in 20 hours a week” to realize the organization’s objectives for the site, and that insufficient staffing was the main barrier limiting site use. Several respondents cited staff time and talent as critical components of sustainable GIS sites. One respondent recommended, “Be clear about the capacity required -- it probably requires more to keep it going than what you think.” Another respondent, whose organization had terminated its use of CP, attributed her site’s failure to a lack of “[staff] capacity or experience to meet the demands of the Platform.”

Likewise, some respondents reported that at the time of the interview their GIS/technical staff was limited to volunteer workers or to part-time, pro bono assistance of a local technical expert. Part-time volunteers were regarded as insufficient, with one respondent noting, “We have costs that aren’t met, such as a technical team to plan, design, [and] upkeep the site [by] analyzing and properly preparing the data for the site.” With regard to recommendations for marketing the site to users, another respondent stated:

“You need staffing resources to do this work well...Creating the site is less than half the work in making it a real resource: It requires energy to get something out, and you need a champion to teach people about the value and build partnerships. It is not a growth strategy without a person committed to the work.”

Discussion

The sites included in this study represent a geographically and socially diverse set of organizations, but they share a similar goal in defining community and fulfilling a commitment of service to that community. The Urban Institute's Community Platform provides organizations with a tool to aid them in this process of building community by helping to identify needs and assets and to bring them together in a geographic information system to serve their constituents (Boris, Garvey, Gilbert, Pollak, & Scannelli, 2011). This research has explored dimensions that can help to explain the adoption and sustainability of these systems in the nonprofit sector.

Several key points emerge from our analysis. First, a plurality of sites affirmed that their (primary or secondary) motivation for adoption of GIS technology was to aid in building community and collaboration. Second, although the sites recognize and profess the need to reach out to the community by involving various stakeholders in the development and implementation of their GIS applications, their actions lag behind in bringing stakeholders to the table in the development phase. Third, although sites acknowledge the possibilities of GIS tools for identifying and building community and engaging in collaboration, follow-through to enact community in the sites was inconsistent with these professed interests. Design of the CP, like other GIS tools, involves numerous decisions over matters that could benefit from a broader community perspective, such as geographic boundaries, types of organizations to be included, services to be featured, ease-of-use considerations, and so forth. Given the potential of these initial decisions to dictate the level of community involvement with GIS sites, host organizations might be expected to convene a large group of diverse parties in the launch of CP sites. Yet, the experience of these sites does not suggest that such conversations are routinely taking place across a broad spectrum of community stakeholders.

Further, organizations' modest records of engaging with a diverse group of stakeholders during GIS site launch seemed to contribute to the challenge of using the CP site to build community. An examination of the experiences of other nonprofit organizations involved with various GIS projects across the U.S. reinforces this observation. For example, practitioners involved with the long-running Richmond Neighborhood Indicators Project, which began in 1998, describe the partnership among city, university, and nonprofit officials as "key to [their] success," and the Local Initiatives Support Corporation touts "strong data and GIS collaboratives" as critical to project sustainability (Local Initiatives Support Corporation 2002, 16 and 13). Similarly, in developing a guidebook of best practices for GIS-based neighborhood indicators systems, Kingsley (1999) points to "using information as a bridge to encourage collaboration among stakeholders" as a shared characteristic among six successful projects (32).

By contrast, many CP sites considered strategies for engaging community members only after initial launch of the GIS site. The sites that exhibited such a reactive posture seemed to embrace a strategy for increasing use of CP that consisted of identifying community needs and interests to enhance the appearance and usability of the site post-launch. This type of "retrospective" community building required organizations to work harder than they had originally anticipated to earn support from their communities. Although most respondents were able to articulate the value of CP for the host nonprofit, they were less successful in communicating its value to the community at large. According to one respondent, "People do not yet see the value in it [CP site] for them."

Our interview data allow speculation about possible reasons for the variable levels of community involvement in site launch found across the CP sites. GIS is a rapidly changing, advanced technology, whose capabilities can be difficult to grasp without sufficient training

(Hwang & Hoffman, 2009). In addition, because the Urban Institute has proven remarkably flexible and supportive in licensing arrangements across sites, it has, perhaps, encouraged sites to make the investment on the general merits first and to defer questions of community building and involvement until later, post-launch.

Even so, often these nonprofit organizations were not adequately informed or prepared to provide the resources needed to involve the community effectively in the development of their GIS applications, or to appreciate the financial and personnel investment it would take to sustain them in the long run. As a consequence, they faltered in involving the community on the “front end,” and found themselves in the challenging position of trying to build interest and use on the “back end,” after crucial decisions concerning the very definition of that community and the data, information, and design features of the GIS had already been made and institutionalized in the system. Ultimately, these results suggest that nonprofit organizations found it much easier to build a GIS-based website than a community.

Indeed, many organizational leaders responsible for adopting CP may have had a vision for their sites, but they did not adequately seek the input of stakeholder groups regarding this vision until after the sites had been launched, resulting in limited community buy-in. It is difficult to build community when the voice of the community has not been heard early in the process. This type of retrospective community building represents an internally focused approach to mission fulfillment and service, rather than the externally driven approach suggested by the nonprofit literature (for example, Drucker, 1990; Wolf, 2012).

Conclusion

Although the present inquiry was successful in securing information from all operational Community Platform sites, the study has several limitations. First, we were able to conduct interviews only with representatives of the CP host organization, rather than stakeholder groups and other actors, restricting our ability to comment on the use and application of GIS technology from these diverse perspectives. Second, because the CP software is a relatively new application and most sites have had it in place for only a few years, these findings speak mainly to the development and early implementation of the sites. A GIS site can grow and change over time to embrace a broader community view, and as noted by one of our respondents, involving too many partners initially can inhibit site launch. However, decisions about community identification and building through GIS technology occur in the early stages, and limited involvement at the outset can restrict community voice in the long run. Third, CP is only one example of a GIS-based system. Other GIS tools may produce different results, though the scant extant research literature undergirds the findings here regarding GIS implementation in nonprofits.

The adoption of GIS applications such as Community Platform and other mapping and visualization tools holds great promise for the nonprofit sector and is likely to expand in time (Roudebush, Fischer, & Brudney, 2013). The involvement of broader community perspectives in this work is integral to contributing to its progress. Three categories of recommendation are offered to guide future development.

First, on the broad use of GIS, partners are advised to clarify how the use of such technology aids them in achieving their specific aims. Given that GIS favors measures of community that are both quantifiable and readily available in electronic format, aims involving a more holistic understanding of community may remain elusive. GIS is best seen as one of several tools available to nonprofits to aid in developing an authentic understanding of their community

of interest. In addition, because the use of GIS requires a resource investment, the influence of specific funding and data partners on the agenda should be addressed explicitly to ensure that these perspectives do not dominate the broader aims pursued.

Second, as a technology GIS remains poorly understood by many working in the nonprofit sector. This problem could be addressed by relying on GIS vendors to offer more detailed literature/instruction describing site development and use and illustrating the potential of the technology for community building and engagement. In addition, educational institutions could offer more training in GIS and related applications to nonprofit students; they could also consider expanding the focus of this training to include not only the technical features but also, and more importantly, the underlying purposes and goals that can be served through these powerful electronic tools. So-called “Public Participation Geographic Information Systems” are an emerging area that deserves greater attention in these classes.

Finally, the success of these GIS applications as a tool in community building requires more than the launch of a website. A wide range of stakeholders is required to ensure that the work extends to ongoing engagement to build a coalition of potential partners and users. Only with broader buy-in can the full potential of GIS be realized as a core tool in the community building work undertaken by nonprofits.

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