Crafting Moral Infrastructures: How Nonprofits Use Facebook to Survive

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We present findings from interviews with 23 individuals affiliated with non-profit organizations (NPOs) to understand how they deploy information and communication technologies (ICTs) in civic engagement efforts. Existing research about NPO ICT use is largely critical, but we did not find evidence that NPOs fail to use tools effectively. Rather, we detail how various ICT use on the part of NPOs intersects with unique affordance perceptions and adoption causes. Overall, we find that existing theories about technology choice (e.g., task-technology fit, uses and gratifications) do not explain the assemblages NPOs describe. We argue that NPOs fashion infrastructures in accordance with their moral economy frameworks rather than selecting tools based on utility. Together, the rhetorics of infrastructure and moral economies capture the motivations and constraints our participants expressed and challenge how prevailing theories of ICT usage describe the non-profit landscape.

Introduction

As individuals and their communities blur the lines between online and offline life, nonprofit organizations (NPOs) increasingly choose to extend their civic engagement efforts via information and communication technologies (ICTs) like social media (Mansfield & Connor, 2018). They do this because civically engaged communities have been shown to experience lower rates of crime, poverty, and unemployment, and have better health and education than their less engaged counterparts (Beggs, Hurlbert, & Haines, 1996; Norris, 2001; Xenos & Moy, 2007). What does it mean for a community to be "engaged" and how does this engagement happen? Generally, activities that pertain to the life of a community "count" as civic engagement. Researchers often provide examples such as poker clubs and bowling leagues when writing about civic engagement, but explicitly political activities such as voting and working with labor unions also appear in the literature (Norris, 2001; Putnam, 2001; Skocpol & Fiorina, 2004). Given the broad array of civic engagement activities in which NPOs engage, it is not surprising that the decisions NPOs make about which technologies to employ

reflects a set of equally broad goals.

Researchers have begun studying their technology choices and related practices as nonprofits use ICTs to engage with their local communities (Bopp, Harmon, & Voida, 2017; Hou & Lampe, 2015; Kim, Mankoff, & Paulos, 2014; Li, Dombrowski, & Brady, 2018; Voida, Harmon, & Al-Ani, 2011). This work showcases the breadth of NPOs civic engagement activity, ranging from the use of Twitter to encourage social action (Li et al., 2018) to building a strong organization by creating bespoke technology assembalges (Voida et al., 2011). While rich in empirical detail, much of this work is critical, often constructively so, when it comes to NPOs' online engagement efforts. For example, social media use by NPOs is shown to produce slacktivists or clicktivists who engage with ideas online but do not engage in offline political actions, such as rallys or lobbying days. The literature largely criticizes this "limited" engagement instead of valuing it as a type of engagement (Gálvez-Rodriguez, Caba-Perez, & López-Godoy, 2014; Hou & Lampe, 2015; Lovejoy & Saxton, 2012; Muralidharan, Rasmussen, Patterson, & Shin, 2011; Svensson, Mahoney, & Hambrick, 2015). Moreover, collectively this body of scholarship also tends to reinforce certain norms about the primacy of certain NPO activities over others, such as mobilizing citizens for rallies, elections or other political actions or fundraising. While these activities may be primary for established organizations with public advocacy goals, it is less true of nonprofit organizations as a whole given their wide range of goals and purposes.

In order to investigate why NPOs exhibit the behaviors they do, we studied the adoption and use of ICTs by 23 nonprofit organizations in Chicago, IL. These organizations vary in size, civic scope, and social reach, and employing an expanded view of what it means for an organization to "civically engage" enabled us to reveal patterns of ICT use that were not found in prior studies. We use the lenses of infrastructure and moral economy to explain why the assemblages of tools our participants describe emerged. We contribute to relevant literature by (a) characterizing these patterns and (b) articulating how the lenses of infrastructure and moral economies explain the assemblages NPOs create. We conclude by calling for a

more situated understanding of NPOs' ICT use in information-related literature, one that embraces the design challenges posed by NPOs' variable needs and contexts, and moves past the notion that there is a "correct" or even "optimal" way of using ICTs to meet engagement needs.

Related Work

NPOs and Their Goals

More than 1.8 million tax-exempt NPOs are registered in the United States (U.S.) (GuideStar, n.d.) and are classified by 29 different tax-exempt classifications according to the Internal Revenue Service (IRS). These nonprofits exist to further a range of social, cultural, and humanitarian causes (Institute, n.d.) and advance a variety of goals, including educating local residents (Kase, Zhang, Carroll, & Rosson, 2008), improving engagement with stakeholders (Hou & Lampe, 2015), and networking with the public (Voida, Harmon, & Al-Ani, 2012). Data from a variety of sources showcases the scope and scale of these efforts. For instance, the Urban Institute reports that financial contributions to NPOs by individuals, foundations, and corporations totaled $358.38 billion in 2014. That same year, 25.3% of adult Americans volunteered personal time, contributing 8.7 billion hours to the needs of shared, community life (McKeever, 2016).

Some NPOs use ICTs to support parts or all of their missions.[1] Nah and Saxton (2012) suggest that these NPO technology choices are motivated by four key factors: strategy (including fundraising, lobbying and market-based), capacity (including organizational size, website age and reach), governance features (including membership, organizations, board size and efficiency), and external pressures (including donor dependence and government dependence). Relatedly, Lovejoy and Saxton (2012) reveal that NPOs use ICTs for three primary reasons: information, community, and action. Looking specifically at Twitter, they find NPOs use it most to engage in information-related tasks, such as providing updates on organizational activities to

[1]We acknowledge that there is a story to be told about ICT non-use (e.g., Baumer, Ames, Brubaker, Burrell, & Dourish, 2014) by NPOs. However, this paper focuses on the technologies NPOs in our study choose to use and how they employed these tools once chosen.

stakeholders. Waters and Jamal (2011) also see the result: nonprofits tend to use Twitter to convey one-way messages rather than exploiting its dialogic or community building affordances.

NPOs and Technology Choice

In trying to understand why NPOs choose and use the technologies they do, we turned to literature on technology choice and briefly review major theories below. We focus on three theories that focus on utility and are often cited in information literature.

Task-Technology Fit. Much of the technology choice literature in information systems (IS) uses a task framework when explaining how individuals select technologies to use. Tasks are actions that individuals undertake to turn "inputs into outputs" (Goodhue & Thompson, 1995, p. 21) and are often associated with uses of data collected and provided by a computation system (Goodhue, 1998). Task-technology fit (TTF) is a measure of how well a technology facilitates this input-to-output process for individuals. The TTF model is chiefly concerned with the relationship between technology use and individual worker performance as measured by self-reported indicators of effectiveness, productivity, and performance. When users depend on a system and see a good fit between that system and their tasks, they perceive performance to improve.

Since it was initially proposed as a technology choice framework in 1995, TTF has been applied broadly to investigate a diverse range of information systems and has been combined with or used as an extension of other models related to IS outcomes such as the technology acceptance model (TAM) (Ehrlich, 2000; Klopping & McKinney, 2004). TTF has also been extended; for instance, Lu and Yang (2014) propose a social/task-technology fit (STTF) model, in which the social-technology fit refers to the degree to which a technology (especially social network sites) fits users' social needs. In this model, social characteristics refers to users' needs for social demands.

Uses and Gratifications Theory. Instead of basing technology choice on some dimension of task accomplishment, uses and gratifications theory (U&G theory) uses a needs framework to suggest that people actively seek out specific media to satisfy

specific needs. U&G research has typically focused on how media are used to satisfy cognitive and affective needs (Urista, Dong, & Day, 2009). Researchers leverage U&G theory to explain what motivates individuals to switch from traditional media to new media and what kinds of gratifications these media are providing (Eighmey & McCord, 1998; LaRose & Eastin, 2004; Papacharissi & Rubin, 2000; Stafford, Stafford, & Schkade, 2004). A key distinguishing feature of social media are their abilities to fulfill a need for interactivity (Ha & James, 1998).

Affordances. Researchers argue also that technologies are chosen on the basis of their perceived affordance(s). The idea of an affordance originates with Gibson, who saw that people relate objects in the world with an imagined purpose or usefulness (Gibson & Walker, 1984). This imagined utility, or the perception of a relationship between an object and an outcome, is the way that affordances were largely conceived until Don Norman (1988) moved the idea from the realm of material objects into the digital world. Norman (1999) saw that the way an interface was designed would have an effect on how people thought about its perceived affordance(s). However, Kaptelinin and Nardi (2012) argue that the sense of a technology's potentiality is more than just a function of the technology itself; it matters in what context or environment that a tool exists to be used. These authors suggest that the application of any technology—whether imagined or actualized—must be understood within a context that gives it meaning. We explain more about the context in which NPOs choose and employ information and communication technologies in the section below.

NPOs and Engagement in Social Media

Researchers in a wide range of information-related disciplines have examined NPO social media use, and explicitly address issues of civic engagement via social media. In these studies, "engagement" refers to myriad activities including direct advocacy and stakeholder communication. For instance, Hou and Lampe (2015) interviewed advocacy organizations and analyzed their social media feeds with an eye towards small nonprofits. They argue that social media can facilitate NPO engagement efforts only if

organizations understand their own social media performance. Similarly, Briones and colleagues' (2011) study of ICT use by the American Red Cross suggests that a lack of human resources and skills can create barriers for NPOs trying to use social media to build relationships. Other studies point out the challenges many nonprofit organizations face (Kase et al., 2008; Le Dantec & Edwards, 2008; Voida et al., 2011, 2012) while recognizing that advanced technology use is often not the highest priority for small organizations given their other demands (e.g., delivering social services) (Briones et al., 2011; Hou & Lampe, 2015; Voida et al., 2012).

Some information-related research criticizes NPOs more directly—usually to say they are not capitalizing on the interactive or community-building features afforded by ICTs (Gálvez-Rodriguez et al., 2014; Hackler & Saxton, 2007; Hou & Lampe, 2015; Lovejoy & Saxton, 2012; Muralidharan et al., 2011; Svensson et al., 2015). Researchers point out that most communication on social media remains one-way rather than interactive (Svensson et al., 2015) or call for more staff to be assigned to carry out social media strategies (Hou & Lampe, 2015). Researchers do recognize that the constraints NPOs face depend on their membership and resources; specifically that they rely on volunteers whose expertise may not include cutting edge ICT use (Le Dantec & Edwards, 2008). In the most extreme cases, these kinds of criticisms sound eerily like "blame the user" arguments of the past.

Yet, even if we assume that NPOs want to improve their stakeholder engagement (e.g., to raise funds, to garner political support, etc.), there is little guidance in the existing research with regard to measuring social media's influence for this agenda. Most studies focus on only Facebook and Twitter (Hou & Lampe, 2015; Nah & Saxton, 2012), and they do not present data on engagement measures beyond dollars raised and signatures collected. For example, Carboni and Maxwell (2015) sampled five youth development organizations and found that longer Facebook posts and increased spending on advertising predict increased stakeholder engagement as measured by likes, comments, and shares. A higher number of posts negatively predicts stakeholder engagement, which suggests that frequent posting is not, on its own, a successful

strategy for NPOs to employ. With the same measurement of engagement, Cho and colleagues (2014) explored NPOs' use of Facebook, finding higher levels of engagement with organizational messages when two-way symmetrical communication was used, compared to public information or two-way asymmetrical models. These are measures of input and interactivity, not impact, and the studies do not address the motivations and strategy behind visible communications.

Why does this narrow framing of ICT use and civic engagement measurement matter? The world of nonprofits and their related ICT usage is much broader than the existing literature would lead us to believe. These studies do not acknowledge the wide amount of variation in the goals and missions (Institute, n.d.) of the over 1.8 million nonprofit organizations in the U.S. For instance, health and human service organizations, religious organizations, and those focused on hyperlocal geographies (i.e., neighborhoods, small towns) are often overlooked. These are just a few of the 29 classes the IRS uses to categorize tax-exempt NPOs; the range of activities among organizations without tax-exempt status is also missing. Researchers have already begun to prescribe norms for nonprofits' technology use and choices. This implies both that NPOs are making choices from a set of distinguishable, accessible options and that a single set of norms should apply across NPOs.

Research needs to account for those NPOs that are little more than volunteer groups with no full-time paid staff—as well as those larger enterprises, such as the American Red Cross, that employ thousands of staff members. We also know that not all forms of engagement are the same, meaning that the way nonprofits choose to use ICTs must also, by definition, vary accordingly. To these ends, we designed a study to explore this diverse landscape and to push against what we saw as a premature institutionalization of nonprofit ICT norms in the information literature.

Research Study

To better understand NPOs' choices about ICTs and their usage, we conducted an exploratory, qualitative study of 23 different organizations in Chicago, IL with a specific

focus on how these organizations aim to facilitate civic engagement. This study was motivated by and must be understood by several methodological guideposts we oriented our research around. First, we used a broad definition of civic engagement when selecting nonprofit organizations—namely, we defined *civic engagement* as, "the way(s) in which associated groups of individuals work together to improve the quality of life in their community(ies)." Our definition mirrors that of another presented by Ehrlich (2000). Second, we intentionally set out to examine nonprofits that were defined by a variety of organizational missions. While a mission of public advocacy is a key factor in civic engagement, not all nonprofits consider themselves advocacy-organizations; to limit our sample to this single organizational type would be biased. Third, we believe that the practices of civic engagement extend beyond outreach and communication-related activities, so we opened ourselves to discovering more than these standard practices when collecting data. Finally, we chose to include informal and loosely structured groups in our nonprofit sample to recognize the potentially unique decisions made by volunteers operating at the grassroots level.

Data Collection

To accomplish the goals of this study, we employed a stakeholder-focused approach. Employing this approach means that we did not assume Chicago nonprofits possessed the structures that are associated with traditional forms of organization. Instead, we recruited participants from organizations based on the concept of community attachment. By *community attachment* we mean the interpersonal, participatory, and sentimental connections people have to their communities (Kasarda & Janowitz, 1974). This provided a novel way of examining nonprofits rooted in civic engagement literature, which argues that community attachment and social capital are two mechanisms that foster civic engagement (Fieldhouse & Cutts, 2010; Halpern, 2004)—that more personal connections, participation, and positive sentiment about one's community encourage communal activities.

We recruited interview participants through email and Twitter in the fall of 2017.

Potential participants came from a directory of nonprofits. We enrolled a total of 23 individuals who were employed by, or affiliated with, 23 Chicago nonprofit organizations, which we detail further below. Fourteen participants were men and 9 were women; 18 were White, 3 American-Indian, 1 Black, and 1 Asian. The majority of study participants belonged to more than one nonprofit or volunteer organization, so we asked them about the organization to which they felt most attached. Subjects reported that they were most attached to nonprofits where they spent the greatest amount of time, which indicates our data was likely to be accurate. We do not include a table of participants here but instead provide *Table 1* that summarizes the kinds of organizations with which they were affiliated. Because we used IRS data to recruit participants, we believe most of the organizations were NPOs in the tax-exempt sense. Though, we did not confirm the tax status of any of the organizations our participants discussed, the NPOs in our study serve their "quality of life" missions through direct advocacy, religious practice, social events, and other activities.

Our interview subjects represented organizations that possess a wide variety of missions, ranging from grassroots political organizing to promoting literacy through reading. To better understand the overall sample, we identified six broad types of organizations according to their primary missions, which we also define and enumerate in *Table 1.* Our sample was neither random nor representative but instead included a wide variety of NPOs to support claims about which patterns likely hold and those which do not in terms of their missions. One commonality shared across the whole sample was each organization sought to improve the "quality of life" of the communities they served. We conducted semi-structured interviews with each of our 23 NPO participants. During these interviews we asked questions related to the concept of community, offline communities, tools used by nonprofits to communicate with the public, civic engagement, community attachment, information access, tool adoption, and interaction with others online. Each interview was conducted by a graduate student in a face-to-face setting, was audio recorded, and then transcribed by a third-party service.

Data Analysis

After conducting our interviews, we coded them in Dedoose using both an inductive structural (Saldana, 2015) and literature-driven approach to develop codebooks related to ICTs, affordances, and adoption causes. Our ICT-related codebook was created by listing all ICTs (N = 56) mentioned in interviews. We used literature[2] to guide the development of our affordance and adoption-related codebooks. In particular, this meant we itemized discrete concepts from theories of technology choice and combined them with the findings of prior NPO adoption studies. To determine the codes included in our codebooks, we combined duplicate concepts based on a process of reaching shared consensus. In the end, we labeled 20 affordances and 15 adoption causes. We provide the complete list of codes and examples of passages coded according to these three codebooks in *Appendix A*.

We applied codes to full conceptual units at the sub-paragraph level. We did not limit the number of codes per passage, but we required concepts to be explicitly stated or strongly implied in the text. For example, speaking about why he used an email list to work with a political group, one interviewee said that, "Whoever makes the list will automatically put all our membership on the list and it blasts out to everybody" (P19). In this statement, the interviewee indicated that group members used a tool because other people signed them up for it. This passage was coded as an adoption-cause related to *Leadership*.

Finally, to provide an additional level of granularity to study findings, we exported coded data from Dedoose and tabulated co-occurrence counts. Examining code co-occurrences provided a way to examine relationships between codes in passages of text, such as Facebook's use as a tool to share links to news articles. To account for differences across participants in the number of tools they mentioned, and how many times they mentioned them, we normalized all co-occurrence counts. This produced a score for co-occurrence groupings that ranged between "0" and "1" and reflected the

[2]See, for instance, (Auger, 2013; Davis, Bagozzi, & Warshaw, 1989; Goodhue, 1998; Goodhue & Thompson, 1995; Guo & Saxton, 2013; Hou & Lampe, 2015; Kase et al., 2008; Lovejoy & Saxton, 2012; Nah & Saxton, 2012; Park, Kee, & Valenzuela, 2009; Rogers, 2003; Smith & Gallicano, 2015; Voida et al., 2012; Walker, 1969) and the technology choice section above.

proportion of total occurrences relative to the larger code category. We calculated co-occurrences in three tables: ICT x Affordances and Adoption Causes; Affordances and Adoption Causes x Affordances and Adoption Causes; and Affordances x ICTs. A natural break occurred around 15% (or 0.15), so we discounted co-occurrences below that threshold to make data analysis more meaningful. We chose that threshold because it lessened the potential for rare code co-occurrences to appear more meaningful than they actually were. Next, we analyzed the co-occurrence of codes from all three codebooks, which provided a measure of how frequently, relative to all affordance and adoption references, a particular ICT was discussed.

Findings

The analysis of our interviews revealed a complex set of relationships among ICTs, the affordances our participants understood them to have, and articulated rationales for their adoption. In this section, we discuss ICTs, affordances, and adoption causes frequently mentioned in our interview transcripts. Code applications are shown in *Table 2*, which makes clear that Facebook dominated the other ICTs that nonprofits and their affiliates reported using. With regard to affordances, five perceived uses accounted for most (61.4%) interview passages that we coded in our data. Finally, NPOs articulated five key explanations for their ICT adoption choices. Within our sample, these rationales accounted for 72.5% of relevant, coded interview passages. At the end of the section, we describe how NPOs assembled technologies for situated needs and report on value-based technology choices.

The Predominance of Facebook

All of our participants echoed the sentiment expressed by one interviewee with regard to Facebook: "[It] is definitely number one just because it's sort of like the default. It's like the standard, you know social media that everything else is, sort of like, measured by" (P18). Participants also frequently talked about Facebook walls and/or pages, using Facebook to organize events, communicating (in private) with individuals through Messenger, and creating groups to coordinate activity. Looking at

our co-occurrence tables, the code *Facebook* co-occurred with all 20 possible affordances and 14 of 15 possible ICT adoption codes. Unsurprisingly, the Facebook event code co-occurred with organizing and coordinating events. Interviewees also said that they used Facebook's event functionality because they were already familiar with the tool. Even the integration of technologies in assemblages, which we discuss below, was seen as a Facebook-related boon. P23 elaborates:

> If someone was posting a photo on Instagram, that photo would show up on Facebook and it would show up on our website and in our feed, or something like that, and it would also mention and promote other organizations that we're collaborating with more often. So [by doing that... we can ideally] take advantage of the publicity that another organization might do as a result, and that could increase the number of people who would see it.

The reasons participants reported using Facebook were multifaceted, but they often related to audience reach. Discussing ICTs in relation to political recruitment and organizing, P6 said: ''Facebook makes it easy for people to invite their friends [to our events, because people already...] spend a lot of time on Facebook." Participants believed that "[almost] everyone is on Facebook" (P16) and said they adopted Facebook because it provides access to "a wider audience" (P1) than competitors, regardless of their engagement needs. One participant went so far as to call Facebook "the universe" (P5), referring to the many functions that it afforded. Yet, "reach" was not the only thing NPOs cared about when communicating with members of the public. Elaborating on this point, P20 said:

> We're looking to retain the attention of people who already support our issue but also making things easy enough to understand that it's accessible to a larger audience. While we don't compromise our views to reach a wider audience, we do try to use that space to really, really amplify our messaging in a way that is accessible to people who are already plugged in.

Finally, while Facebook emerged as a central topic in our interviews, it was clear to us that it could not meet NPO needs in all circumstances.

Assembling Alternatives for Situated Needs

The other ICT applications mentioned by interviewees were often employed by NPOs to improve on one of Facebook's identified weaknesses. For example, in interviews, a near universal complaint about Facebook was that its RSVP function did not accurately predict how many attendees events would have. NPOs "want to know people are actually going to be there and not just clicking like" (P20) on events. In response, alternative tools like Eventbrite and Evite were used to achieve more accurate head counts. Participants suggested these tools were more accurate because using them to RSVP required marginally more investment from the audience to complete the RSVP form or book a ticket (even if free) than clicking "yes" or "interested" on Facebook: "[EventBrite is] much more tangible and much more of a commitment than just clicking a button on Facebook" (P04).

A "long tail" of 46 different tools such as phones/SMS texts, Instagram, Facebook Groups, and Facebook Messenger, EveryBlock, Slack, etc. were also mentioned by participants as alternatives or extensions of Facebook, but three in particular—Twitter, Email, and Websites—were commented on the most for their particular affordances. Twitter was articulated as a popular platform for sharing "geopolitical stuff" (P18) and "one-liners" (P19). Twitter's hashtags were also seen to have a particular utility, as P13 commented: "you can look up the hashtag. You can search the hashtag or follow it. There are some people there at the event also posting at the same time." Participants noted email's value as a reliable way to contact individuals within the organization: "The email is for my boss, the email is for volunteers, the email is not for people in general to the community" (P02). Finally, websites were usually spoken about as specific sources of information that offered NPOs more control over their virtual presence. One participant juxtaposed her employer's website with Facebook by saying that, "we're able to put more detail on our website. [It allows us...] to control who sees

what and when" (P23).

The articulation of technology affordances also occurred in relation to ICTs in combination. Perceived affordances emerged from tool assemblages that were created by our participants to accomplish specific goals, sometimes used in specific sequential patterns. Discussing this, one interviewee talked about the final stage of a five-tool process used to coordinate events:

> I would say that our email blast is our final funnel. We get people who learn about an event on Facebook and come to the event, but we are casting a wide net. Once we get your email we know that you're actually interested. Then we can communicate very directly about the stuff we're doing and the priorities we have going. (P11)

NPOs appeared to be assembling ICTs together to create a viable means—according to them—to advertise, coordinate, and organize events. NPOs also expressed an interest in employing this strategy more generally. Talking about leveraging multiple tools to meet organizational goals, one participant said, "I think that if we could do anything we would plan in advance our strategy and think about [this type of assemblage...] more purposefully" (P23).

Value-Based Technology Choices

Throughout our interviews we also saw evidence that individuals' personal attitudes affected their thinking about technologies and decisions whether or not to use them to advance goals. For example, speaking about Twitter, one interview subject felt that it was "boring" (P5). Similarly, Snapchat was considered a tool used by a "younger audience [than ours]" (P21). But a much more predominant insight found in our data was that organizations signaled their values when making their ICT choices. One example of this is the way that NPOs went out of their way to ensure communications remained private. Participants in our sample who worked with undocumented immigrant communities and environmental activists that protested the Dakota Access Pipeline described choosing to use WhatsApp because of its encryption capability.

Another participant spoke about community organizing and inclusivity as a motive for ICT adoption: "I think Facebook is the easiest way for people to organize themselves but there's also a barrier with who can and cannot [. . . get involved]" (P8). Elaborating further, this "barrier" was revealed to be an inability by non-English speakers to read a neighborhood association newsletter. In response, the participant's brother created a Spanish Facebook page for the association to help promote neighborly inclusivity.

Even technology non-use was articulated through a value-based lens. In speaking about a progressive political group that used NationBuilder to register and organize voters, P6 remarked that the company that sold it "took a bunch of credit for Trump winning [the 2016 election]." In response, the NPO planned to stop using NationBuilder once their annual subscription ended; they did not want to patronize a company that served a key political antagonist. Finally, in discussing why she doesn't use Facebook or email, one participant (P20) commented:

> [A] lot of the people that we're trying to help. . . they're coming out of jail and they don't have cell phones. If they do have a cell phone, it's a government phone and they're not able to access anything. Or they don't have a computer. . . We actually sent snail mail out to the people that we bonded out.

In short, NPOs chose ICTs based on how they aligned or did not align with certain social, political, and cultural values the organizations and their members held. It also bears mentioning that these values align with civic missions typical of the nonprofit sector.

Concluding this section, our participants assembled combinations of ICTs that can be described generally as "Facebook+". In these assemblies, the Facebook platform intersected with all (or nearly all) affordances and adoption causes identified by prior literature and mentioned by our participants. The choices NPOs made to extend and augment Facebook aligned with their values and their stakeholders' needs. The long tail of "+" ICTs included tools such as EventBrite and Evite that serve particular RSVP purposes, WhatsApp and cell phones that offer less surveillance (and require that

stakeholders possess less sophisticated devices), and that enabled NPOs to control their message and public image. In the next section, we explain how these assemblages emerged and why prior discussions of technology choice among NPOs miss important infrastructural and moral considerations that NPOs take into account.

Discussion

NPOs in our study relied on Facebook as infrastructure for their communication and outreach, and they chose ICTs that fit their values and resource constraints. Broadly speaking, existing theories of technology choice emphasize a utility model, whether that utility is expressed in terms of affordances (Kaptelinin & Nardi, 2012; Norman, 1999), uses and gratifications (Papacharissi & Rubin, 2000; Urista et al., 2009), or a perceived synergy of some kind. These theories do not adequately explain the assemblages that NPOs describe using in our data. Instead, we argue that NPO ICT use is better explained using the dual lenses of infrastructure and moral economy. While we are not suggesting that NPOs pay no need to technological efficacy, we do want to raise the notion that their choices appear to be equally motivated by community practices, standards, and expectations. Existing theories of technology choice suggest the technology and what it can do is the most prevailing concern when users weigh their choices. By contrast, we found that how the technology is embedded in the NPOs' worlds and how it aligns with their values were the most salient factors in guiding their choices.

Facebook as NPO Infrastructure

The traditional view of infrastructure articulates a sociotechnical substrate on which other tools and systems are built, used and maintained according to community standards and practices. As such, infrastructure is a fundamentally relational entity (Jewett & Kling, 1991) that emerges (and perpetually re-emerges) in practice (Star & Ruhleder, 1996)—a fact that many researchers have already pointed out (Erickson & Jarrahi, 2016; Ribes, 2014; Ribes & Lee, 2010; Star & Ruhleder, 1996). For the NPOs in our study, Facebook possesses all of these characteristics: it is a sociotechnical,

relational substrate upon which NPOs create bespoke assemblages. This situated and ongoing practice of Facebook use among NPOs aids in evolving and expanding infrastructure over time while at the same time allowing NPOs to meet their engagement goals. Other studies of NPO technology use also found assemblages rather than single or even primary tools (Stephens, 2007; Voida et al., 2011), but our participants describe Facebook as the infrastructure on which these assemblages are built and not just another tool in the set.

Several empirical insights from our data underscore the framing of Facebook as infrastructure. First, it is embedded in the social arrangements of nonprofit organizations, is used frequently, and supports the ICT needs of nearly every required NPO task. Speaking about this point, one participant said, "I think that [Facebook] is pretty darn complete. I mean, they got the Messenger. You can direct message people. You can invite people. And you can just post publicly" (P3). The centrality of Facebook within the NPOs' communities further underscores its infrastructural nature. There is something imperative about it, which led one group to force a member to "make a Facebook [account]" even though she did not want one (P14). However, usage here is not merely a matter of capitualization to social pressure. Civic engagement requires interacting with community members, and the most straightforward way to do so, according to our interview participants, was to use the same tools (e.g., Facebook) that their stakeholders use. Nemer and Tsikerdekis (2017) found that people became more active citizens when they were comfortable using technologies. NPOs appear to recognize that their stakeholders use Facebook, are comfortable there, and may intuitively leverage that confidence to increase civic engagement. The larger social practice of using Facebook provided NPOs audience reach that they would not otherwise have. Coupled with the functions associated with Facebook as a platform (e.g., providing event details, sharing information), this reinforces its centrality as infrastructure embedded in NPO social arrangements.

Complementing Facebook's practice-oriented ubiquity in NPOs' toolkits, however, is an even more important point. If not always technically true (i.e., not necessarily via

API), Facebook acts as an installed base upon which NPOs add on related technologies to fill gaps or extend desired features. For example, only when Facebook failed to provide accurate RSVP counts did one NPO turn to RSVP tools such as EventBrite and Evite to fill their needs. Likewise, ICTs such as Instagram or NationBuilder were also chosen to augment Facebook with particular functionalities, not to replace it. Twitter was agreed to be ideal for "spur of the moment observations" (P15), which meant that it was used to live-tweet events usually publicized on Facebook. Recalling Star and Ruhleder's (1996) dimensions of infrastructure, we claim that Facebook is NPO infrastructure because it plugs in to other ICTs (or allows them to plug into it). Importantly, this extensibility, as shown by our examples, reinforces the embedding of Facebook into NPOs' practices rather than disembedding it into a series of separate technological moves. Seen together, these infrastructural maneuvers provide NPOs with tremendous impact beyond what a single tool could provide.

This finding is in line with a study of volunteers and their technology use by Voida, Yao, and Korn (2015). They find, similarly, that volunteers in nonprofits employ technologies (e.g., productivity software, vehicles) that are "infrastructural already" (p. 12). In other words, volunteers seek out and use everyday tools that are extensible enough to accommodate their needs, not tools that are specifically designed for nonprofits. Our participants experienced Facebook in the same way—they leveraged it as a multipurpose infrastructure for communication and interaction, and extend and augment it with other ICTs as needed. Voida and colleagues ask us to imagine technologies that "include dimensions of work and social structure" (p. 12), and our participants describe Facebook as a boundary-crossing, transecting infrastructure. Existing theories of technology choice do not adequately explain how and why NPOs make these 'Facebook+' decisions. Research on motivation in social media use suggests that motivation varies among both social media tools (e.g., Facebook, Twitter) and social context Oh and Syn (2015); our participants talked about their motivations in explicitly principled language. Thus, we argue that the lens of moral economies, described next, explains these practices with greater parsimony than existing research.

Technology Choices in Relation to Moral Economies

Our second finding reveals that technology choice by the nonprofits in our sample was driven largely by a sense of moral fit and resource accessibility. These ideas derive from a moral-economic perspective, which posits that economies are organized systems of resource exchange with psychological and normative regularities (Daston, 1995). Scott develops the notion of a moral economy using the example of peasants. When viewed in moral economic terms, peasants exist within a system that has a well-defined "notion of economic justice" and a "working definition of exploitation" (Scott, 1977). As such, it should come as little surprise if they do not rebel under seemingly obvious exploitative conditions in search of income maximization—the rationalized economic expectation—but instead express a logical agency by focusing on creative forms of subsistence. Drawing on this perspective, Vertesi and colleagues (2016) apply a moral economy lens to understand how people make decisions in personal data management. They define "the moral economy of data management" as "a locally adjudicated way of combining devices, services, and social ties so as to personally embody a good and appropriate relationship to personal data" (p. 479). In both of these cases, the moral economic move by actors stands in contrast to the purely economic (i.e., utility-driven) move. It is this local adjudication, which balances resource choices with local values, that explains the actors' context-specific system choices.

In the moral economy in which the NPOs in our study operate, we see the same normative decision frameworks in play as organizations seek to align their technology choices with their values and maximize localized resources at hand (i.e., social capital, legitimacy). In so doing, we see them choosing to exploit existing systems or use affordable ICTs that do not require dedicated or specialized technical resources as a creative and intentional means to connect with constituents or affect certain desired social outcomes. Similar to the individuals in Vertesi and colleagues study, the NPOs in our study use technology to enact a complex vision of relationality that is normatively appropriate and sufficiently impactful. For example, NPOs consciously aim to reach and empower their constituents, but do so with regard to minimizing surveillance (e.g.,

NPOs supporting undocumented immigrants by using WhatsApp) or matching communication preferences (e.g., avoiding ShapChat or utilizing postal mail). In other words, these NPOs are crafting infrastructural assemblages that both respect their constituents' privacy needs and social media routines while also allowing them to meet their responsibilities to their stakeholders.

The NPOs we talked to are also similar to the peasants in Scott's Scott discussion—they are struggling to survive first. Participants explicitly mentioned day-to-day activities (e.g., announcing events, sharing news stories) or modified their comments with phrases such as "just trying to share" (P04) or "just trying to get people in [the space]" (P01) in ways that illustrate their attempts to meet their basic needs. They also talk about leveraging social media's reach to facilitate the creation of offline relationships, but did not mention social media as the end goal or final site of engagement.

In sum, the NPOs in our study demonstrated complex moral intentionality in their ICT choices. They were not driven by utilitarian motives to maximize economic activity or donations—participants rarely talked about fundraising. They used Facebook not out of isomorphic social pressure, or as underresourced agents, but as creative actors who saw a way to exploit a ubiquitous tool by refashioning into an infrastructural assemblage with bespoke "gap fillers" such as EventBrite or WhatsApp. These choices recognize that certain social media enable them to access and then maximize the attentional and social resources of their community. These findings are in line with earlier research about civic engagement and ICTs in Chicago that found distinct communities selected different technologies for discussing crime in part because of their various levels of trust in the police and fear of retaliation (S. L. Erete, Miller, & Lewis, 2014). Erete and colleagues (2016) also found that Chicagoans adapted different technologies for reaching different audiences (e.g., using email to communicate with police) or holding public officials accountable (e.g., recording meeting notes to capture public officials' verbal statements). In their study and ours, Chicagoans used technologies that supported their values—privacy, accountability—not just revenue or

engagement.

As we noted earlier, some of the research on NPO ICT use takes a "they should do X" tone in discussing how NPOs use ICTs (e.g., "Small organizations need to better understand and evaluate the success of their social media performance" Hou & Lampe, 2015). These authors assume that NPOs are trying to maximize engagement online and that engagement is a primary goal. But what if NPOs, like peasants, are trying to subsist? What if their primary concern is not engagement but survival because survival is necessary for their other goals? Sensitivity to these concerns is paramount for researchers, technology designers, and nonprofits. As Le Dantec and Edwards (2008) warned us 10 years ago, we must be careful to be supportive rather than disruptive when encouraging ICT use in nonprofits. NPOs operate in conditions of resource constraint, sometimes including minimal technical expertise, with majority-volunteer workforces who often attempt to serve already marginalized populations. In our research, we witnessed NPOs appropriating existing infrastructure and extending it in line with their values—a practice that reveals commendable adaptability. Though we advocate for a empathetic reading of their activities, we recognize that researchers can also encourage NPOs to think about how social media may advance or change their activities in ways they haven't considered.

Conclusion

We set out to understand how NPOs make choices about technologies to use in civic engagement activities and found that all their choices now flow through or at least contend with Facebook. The accounts our participants provide reveal that NPOs leverage ICTs within their local contexts, the financial and expertise constraints they face, and the information infrastructure that Facebook has become. Because existing utility-based theories of technology choice do not adequately explain the behaviors we see, we use the lenses of infrastructure and moral economies to explain the emergence of assemblages of tools our participants articulated. In doing so, we highlight Facebook's embeddedness in the NPO universe and clarify why particular patterns of tools and

uses appear. We argue that these particular assemblages are a product of Facebook's infrastructural position in contemporary communication systems and NPOs' values generally conceived, and not, as prior work suggests, a failure of NPOs to appropriately capitalize on technical features of ICTs in a functional sense.

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Table 1
Categories of the 23 NPOs with whom our participants were affiliated

Type	Description	NPO Count
Advocacy organization	Raised awareness about issues among stakeholders and pushed for changes like criminal justice reform	3
Social group	Dedicated to creating or maintaining social connections	2
Interest group	Non-political groups motivated by shared interests	5
Political community	Sought to create electoral coalitions of individuals to support candidates in efforts to win office and pass laws	4
Religious community	Motivated by religious affiliations	1
Residential community	Dedicated to issues within residential geographies such as traffic congestion and gentrification	8

Table 2
Frequencies with which codes were applied

Codebook	Code	Applications
ICT	Facebook	702
ICT	Twitter	266
ICT	Email	192
ICT	Facebook Events	128
ICT	Websites	106
Affordances	Sharing links, media, and other information	343
Affordances	Advertising and promoting information deemed valuable by nonprofits	298
Affordances	Finding and retrieving information	280
Affordances	Organizing and coordinating events	269
Affordances	Fostering a sense of presence or attachment	146
Adoption causes	Perceived benefits	362
Adoption causes	Cultural and personal attitudes	196
Adoption causes	Nonprofit goals and strategies	129
Adoption causes	Audience composition	120
Adoption causes	Perceptions about ICT ease of use	105

Appendix

Additional Details about Coding Process and Codebook

ICT	Affordance	Adoption	Excerpt
Facebook	Foster Sense of Presence or Attachment	Perceived Ease of Use	"Facebook has made it so much easier to form groups and to meet up and to have conversations with multiple people. I feel like I wouldn't even have met a lot of these people in groups if it hadn't been for Facebook."
Facebook Event	Organize and Coordinate Events	Leadership	"I don't make that decision. The organizer will make that decision. I wouldn't mind if they created a Facebook event for that, but I guess it's just because it's a professional type of meeting is how I would describe it."
Facebook Messenger	Personal Use	Audience Composition	"I just use Facebook Messenger for two or three friends that I talk to that are really close friends that we just talk everyday kind of a thing."
Facebook	Political Discussion and Organizing	—	"If I support Planned Parenthood, for example, and I'll follow them on Facebook and if they say on their local Chicago page, 'Hey, there's a march in downtown Chicago,' then I'll participate in that."
Facebook Group or Poll	Present Opinions	Goals and Strategies	"For the book club, we use Facebook to discuss what book we want to read. Sometimes we'll run a poll. [...] like, 'Hey here are some suggestions, which book do we want to read?'"
Facebook	—	Audience Size	"I guess just there's more people on there, more people communicating, it's more active. So that makes me want to use it more."
Email	Distributed Work	—	"Agendas are usually sent out the day before via email. We do make use of email lists too."

Instagram	Encourage Stakeholder Interaction	—	"So, if someone was posting a photo on Instagram, that photo would show up on Facebook. It would show up [...] in a feed or something like that, and it would also mention and promote other organizations that we're collaborating with."
Google	Find and Retrieve Information	—	"Yeah, it depends on how I feel, I don't know. I don't know how I make that decision. Like, I want news right now about something, I would Google it."
Snapchat	Personal Use	Relationship With Other Tool Users	"I don't have that many friends on Snapchat. So, it's not very useful for me."
Twitter	Share Links, Media, and Other Information	Cultural and Personal Attitudes	"[Twitter isn't] useless, I just don't understand it. My brother uses it a lot for like different articles. He uses it to share different articles and opinions."
Phone/SMS Text	—	Audience Composition	"It's just texting or calling [to communicate and organize] because they're older, so they're not on social media."
Website	—	Resources	"Part of this is like, again, having a web developer that is a volunteer. We can't be like, 'We need you to make the thing and do it now because we paid you.' No. We love and respect this person and get that they're overwhelmed."
NationBuilder	—	Values and Ethical Considerations	"A bunch of the people [. . .] are really upset about NationBuilder, because they took a bunch of credit for Trump winning. They sold their product to various Trump-aligned interests."
—	Advertising and Promotion	Perceived Benefits	"Mainly just marketing I guess. Just trying to get people to get in the coffee shop. You know if I offer a special or [...]. Yeah, just trying to get people in the door, advertising."

Table A1

Representative interview quotes with code applications

ICT	Affordance	Adoption
Action Network	Audience Composition	Advertise or Promote
Bandcamp	Audience Size	Archive
Blog	Cultural and Personal Attitudes	Build Organizational Capacity
Camera/Videocamera	Dependencies	Collect Data
CiviCRM	Familiarity with Tool	Creativity and Experimentation
Constant Contact	Goals and Strategic Orientation	Distributed Work
Craig's List	Leadership	Encourage Stakeholder Interaction
Doodle	Other	Find and Retrive Information
Email	Perceived Benefits	Foster Sense of Presence or Attachment
EventBook	Perceived Ease of Use	Lobby Officials
Eventbrite	Relationship with Tool Users	Motivate Stakeholders
EveryBlock	Resources	Network
Evite	Stakeholder Influence	Organize and Coordinate Events
Facebook	Urgency	Personal
Facebook Event	Values and Ethical Considerations	Political Discussion and Organizing
Facebook Group or Poll	—	Present Opinions
Facebook Messenger	—	Privacy
Flickr	—	Real-time Event Discussion
Flyers	—	Share Links, Media, and Other Information
GoFundMe	—	—
Google	—	—
Google Drive/Docs	—	—
Google Other	—	—
GroupMe	—	—
Hype Machine	—	—
Instagram	—	—
LinkedIn	—	—
MailChimp	—	—
MeetUp	—	—
MeisterTask	—	—
MySpace	—	—
Newsletter/Newspaper	—	—
Nextdoor	—	—
OkCupid	—	—
Phone/SMS Text	—	—
Pintrest	—	—

Postal Mail	—	—
Reddit	—	—
Server	—	—
Skype/Videoconferencing	—	—
Slack	—	—
Snapchat	—	—
SurveyMonkey	—	—
Television/Radio	—	—
Tinder	—	—
Tumbler	—	—
Twitter	—	—
Unspecified	—	—
Viber	—	—
Website	—	—
WhatsApp	—	—
Yelp	—	—
YouTube	—	—

Table A2

ICT, affordance, and adoption-related codebooks, in alphabetical order

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