# Enacting Data Feminism in Advocacy Data Work

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In this paper, we present the results of a study that examines the role of data in nonprofit advocacy work. We conducted semi-structured interviews with 25 individuals who play critical roles in the data work of 18 different advocacy organizations. Our analysis reveals five key stakeholders in advocacy data work—beneficiaries, policymakers, funding and partner organizations, gatekeepers, and local publics. It also contributes a framework of four functions of data work in nonprofit organizations—data as amplifier, activator, legitimizer, and incubator. We characterize the challenges in data work that exist, particularly in widespread attempts to reappropriate data work across functions. These challenges in reappropriation are often rooted in participants' effects to enact data feminist principles from the margins of the data economy. Finally, we discuss how nonprofit institutions operate outside of the dominant data work goals known as the three Ss (surveillance, selling, and science) and propose a fourth S, social good, that is working to challenge the norms of the data economy and should be considered in research regarding the data economy moving forward.

Additional Key Words and Phrases: advocacy, data feminism, data work, data economy, nonprofit, third sector, social sector

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## 1 INTRODUCTION

The nonprofit sector addresses some of society's most pressing social issues. While doing so, nonprofit organizations are also under immense pressure to be 'data-driven' [35, 50, 62]. Yet, they often fail to capture data depicting critical aspects of nonprofit work [10]. Scholars across both nonprofit studies and computer-supported cooperative work have noted that the pressure to use

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data has often left these under-resourced organizations (e.g., [51, 66]), overwhelmed [50, 62] or even "disempowered" [15]. While early studies of nonprofit data use characterized data work practices and challenges more generally across the sector [66], more recent research has offered a deeper dive into data work practices in human service organizations [5, 11, 14, 19, 25, 64, 67], where the particular challenges related to client and inter-organizational data sharing have come to the fore [11, 14, 44]. And yet, relatively little is known about data work for advocacy—a crucial part of the mission of the sector.

Nonprofit organizations that engage in advocacy publicly represent a group or idea "with the object of persuading targeted audiences" about their stance or issue [13, 27]. Advocacy work includes "a large number of activities, from grassroots organizing, public education, policy research, lobbying, position papers on issues, voter registration, coalition participation or building, and election activities" [49] carried out with a diverse range of audiences including policymakers, funders, and the public [7, 57].

While it is clear that data is pervasive in advocacy work, there is little empirical understanding of what roles data play or what the challenges of using data in this context might be. And in a post-truth era [52], the question of how advocacy organizations are appropriating data and carrying out data work—the gathering, filtering, analyzing, interpreting, and curating of data [16]—is both timely and crucial. Nonprofit organizations advocate for causes that are often systematically overlooked by the public and private sectors [57]. They bring marginalized issues to the attention of more powerful stakeholders. Here, data centrally implicates politics and power dynamics, leading us to ask the overarching research question: ***What is the nature of data work conducted by organizations as they interact across stakeholders with more and less power?***

In this paper, we first offer a review of research about the data use of nonprofit and nonprofit advocacy organizations, a review of research about tactics and strategies of data use, and provide an overview of two theoretical frameworks that we apply in our research: Frumkin's dimensions of nonprofit work and data feminism. We then describe our methods—offer an overview of advocacy in the nonprofit sector, characterize our sample, and then describe our methods of data collection and data analysis. We present results of a semi-structured interview study with 25 individuals who conduct advocacy data work for 18 different nonprofit organizations, including a characterization of five audiences of advocacy data work and four different functions of advocacy data work: data as activator, amplifier, legitimizer, and incubator. Finally, we characterize the ways that participants try to reappropriate data work and the challenges they experience when doing so, linking these challenges to principles of data feminism that we see in how they enacted their data work.

## 2 LITERATURE REVIEW

### 2.1 Data Use by Nonprofit and Nonprofit Advocacy Organizations

Nonprofit organizations are under intense pressure to be data-driven, due to a broader cultural shift toward the quantification of work [39, 56], as well as the specific demands of funders [21] and the policy fields in which they work [11]. This pressure has caused many nonprofit organizations to "drown" in the collection of "heaps of dubious data, at great cost to themselves and ultimately to the people they serve" [62].

Nonprofit organizations are accountable to numerous stakeholders, each with the capacity to influence an organization's data work [7, 15], advocacy work [48, 53, 62], and broader mission [7, 62]. Over time, organizations have been found to prioritize the data demands of stakeholders that do not align with their own mission, making changes to what data are collected and managed, which then influence the overarching mission and work [15]. Despite this diversity of data demands, research has emphasized the incredible creativity that nonprofit professionals have exhibited in satisficing their information needs while functioning within the significant financial and technical constraints under which they operate [66].

Nonprofit scholarship often characterizes the nonprofit or social sector as a "gap filler," meeting needs that are underprovided by either the private or public sectors [57, 65]. Most of the scholarship on the data use of nonprofit organizations has focused on human service work in the sector; much less is known about advocacy data work. Studies of advocacy organizations' technology use more predominantly focus on their use of social media and Twitter, in particular [34, 53], rather than their use of data or information systems. Two notable exceptions include studies by Baum, who found that much of the data that organizations conducting advocacy have access to are financial and operational in nature [7] and Alvarado-Garcia et al., who found that activist organizations perform data work to inform citizens, request action, and build organizational capacity [2]. However, a more broad-based understanding of data practices supporting advocacy work remains missing from the literature.

## 2.2 Tactics and Strategies for Data Use

Researchers across disciplines have recommended specific tactics for the use of data. In the context of advocacy, Baum recommends that data should be clear and concise so that audiences quickly understand the message and impression they should have [7]. Additionally, she recommends presenting data in a variety of formats to increase the odds that one of the formats will resonate with each audience. Other studies highlight the importance of contextualizing quantitative data within narratives, which Erete et al. refer to as "data storytelling" [30].

Data use tactics also involve communicating information in salient and resonant ways that highlight how much something matters [28], a communication construct called framing. Numerous scholars have explored "media frames," (e.g., how political messaging is introduced) and their influence on public opinion [33, 42, 60]. Studies of framing data for advocacy, in particular, often investigate how public audiences perceive specific linguistic frames, especially scientific topics—from analyzing preference toward the terms "climate change" or "global warming," to the language of vaccination rollouts, to the development of language and rhetoric in the AIDS awareness movement [29, 38, 61].

Scholarship in political communication has also turned to interrogate the role of emotions in the use of data. Affective uses of data include tactics such as fact signaling, which Hong defines as "the strategic and performative invocation of epistemic and moral authority which may then be weaponized" [36, p. 86]. Hong traces how "charismatic influencers" leverage fact signaling by talking about facts in order to seem like they care about facts and reason [36].

Researchers have also highlighted the tactical value of identifying and using data that are more charismatic [54, 67]. Pine and Liboiron's case study of pregnancy mortality, for example, demonstrates how blood loss data was more charismatic than other metrics because it allowed obstetrical emergencies to be compared directly to injuries like gun shot wounds [54]. This shift toward the use of more charismatic data strategically brought increased visibility and empathy to the field of obstetrics. Similarly, Voida et al. [67] found that some units of measurement were more charismatic than others to key nonprofit food pantry stakeholders.

Scholars are also working to make sense of higher-level strategies around data use. Most commonly, researchers emphasize that quantitative data is used as a legitimizing force [3, 55]. In a case study characterizing a labor union's data work, Khovanskaya and Sengers coined the phrase "data-rhetoric" to describe the strategic use of data to "bolster the legitimacy" of arguments [41].

Existing research has provided evidence of a rich collection of strategies and tactics for data work, often drawn from case studies of data use in a specific context. Little scholarship exists that helps us understand the broader scope of strategies of data use and how these strategies and functions relate to each other and to specific data use tactics and challenges for advocacy.

## 2.3 Theoretical Frameworks

We apply two theoretical frameworks in this research, both of which we review here: Frumkin's dimensions of nonprofit work [31] and D'Ignazio and Klein' *Data Feminism* [24].

### 2.3.1 *Dimensions of Nonprofit Work.*

Frumkin characterizes the breadth of nonprofit work along two dimensions [31]. First, the nonprofit sector responds to different external forces: a *demand-side orientation*—that is, organizations respond to the needs of society—and a *supply-side orientation*—that is, organizations are driven by the resources and ideas of the beneficiaries, donors, volunteers, and entrepreneurs in their local publics. Second, the nonprofit sector finds two kinds of value in its work: an *instrumental rationale*–that is, the value of nonprofit work is serving the needs of society—and an *expressive rationale*—that is, the value of nonprofit work is serving as an outlet for others to express their values. These dimensions structure a two-by-two matrix that characterizes four functions of nonprofit work in Table 1.

Table 1. Four functions of nonprofit work (from Frumkin [31])

| | Demand-side Orientation of Nonprofit Work | Supply-side Orientation of Nonprofit Work |
|---|---|---|
| Instrumental Rationale of Nonprofit Work | Service Delivery:<br>Provides needed services and responds to government and market failure | Social Entrepreneurship:<br>Provides a vehicle for entrepreneurship and creates social enterprises that combine commercial and charitable goals |
| Expressive Rationale of Nonprofit Work | Civic and Political Engagement:<br>Mobilizes citizens for politics, advocates for causes, and builds social capital within communities | Values and Faith:<br>Allows volunteers, staff, and donors from local communities to express values, commitments, and faith through work |

Many nonprofit organizations focus their business model predominantly within one quadrant (i.e., human service organizations might focus predominantly on service delivery; advocacy organizations, on civic and political engagement; social enterprises, on social entrepreneurship; and religious organizations, on values and faith). Even so, many organizations have more well-rounded portfolios of work that extend across quadrants. A human service organization, for example, might focus on service delivery while also providing a venue for its volunteers and donors to express their values and faith through their work with the organization, while also training those same donors and volunteers in civic engagement as relevant legislation is considered by local policymakers. Frumkin emphasizes that the nonprofit sector as a whole should strive to create balance across these four functions, noting that these four functions of nonprofit work can either "complement each other or they can create tensions" [31].

The advocacy work of the nonprofit sector typically responds to the needs of society (a demand-side orientation) and finds meaning in serving as an outlet for citizens to express their values (an expressive rationale). Some organizations—often characterized as advocacy organizations—center their missions in this quadrant of civic and political engagement. Yet advocacy organizations are not the only nonprofit organizations that engage in advocacy work. Nonprofits of all types and (in the United States) tax statuses are encouraged to engage in advocacy, which can include "...grassroots organizing, public education, policy research, lobbying, position papers on issues, voter registration, coalition participation or building, and election activities" [49].

### 2.3.2 *Data Feminism.*

In *Data Feminism*, D'Ignazio and Klein draw from intersectional feminist theory to advance a framework for critically analyzing the practices of data science [23, 24]. They argue that data is power and that data work has been designed to serve interests of power — not the interests of the marginalized. Specifically, they describe data work as primarily organized around three broad institutional functions. These are referred to as "the three Ss" of the data economy — science (universities), surveillance (governments), and selling (corporations).

D'Ignazio and Klein enumerate seven principles of data feminism:

1. **Examining power (DF1)** is understanding the distribution of power across stakeholders. Power distribution influences visibility.
2. **Challenging power (DF2)** is challenging those power distributions, asking what sort of data work would be equitable to those with the least power.
3. **Elevating emotion and embodiment (DF3)** foregrounds situated knowledge grounded in lived experience.
4. **Rethinking binaries and hierarchies (DF4)** refers to correcting ontologically false binaries, such as gender.
5. **Embracing pluralism (DF5)** focuses on inclusively bringing together numerous perspectives and privileging minoritized perspectives such as "local, Indigenous, and experiential ways of knowing" [24, p. 18].
6. **Considering context (DF6)** focuses on contextualizing the current landscape of power and emphasizing how data are not neutral.
7. **Making labor visible (DF7)** refers to the benefits of bringing visibility to the labor that underlies the breadth of data work. Doing so allows for a more transparent understanding of the distribution of labor and power for others.

Data feminist principles have been applied to advocate for more equitable data in contexts as diverse as COVID-19 data [23], textile design [45], and exploring the future of explainable AI [46].

Although nonprofits' missions may not correspond to the work of the three S's, these institutions of the data economy — particularly governments — hold strong sway over nonprofit organizations and their data work. For example, Bopp et al. found that financial dependence on a three S can cause *data drift*, causing data work to inevitably align with funders' demands [15]. Benjamin also detailed the consequences of funders' accountability schemes over nonprofit organizations where a rejection can jeopardize the relationship between grant giver and receiver, which, in turn can influence the receiver's likelihood to acquiesce to data demands or position communication defensively to maintain the status quo rather than advocating on improving data work and questioning implicit notions behind funders' established practices [8].

This research suggests that nonprofit work represents a fourth S of 'social good' — not working from a power position within the data economy, but doing powerfully important work from its' margins.

## 3 METHODS

We conducted a semi-structured interview study of how nonprofit organizations use data in their advocacy work. This research was conducted in the context of a semester-long information science course during Spring 2020, with all students—including 16 undergraduate and four graduate students—and the instructor collaborating in research design, data collection, and the first stages of data analysis. The research was disrupted mid-semester due to the start of the COVID-19 pandemic and, as a result, the final phases of analysis and writing were carried out by the four graduate students (the first four authors) and the instructor (the last author) over the course of the following year.

### 3.1 Sampling

To ensure both depth and breadth in the sample–as advocacy work is taken up by a diversity of nonprofit organizations—we first identified four distinct policy fields (a) in which organizations advocated for a diversity of issues and beneficiaries, and (b) in which there were enough nonprofit organizations in that policy field working locally so that we could recruit from multiple organizations. We recruited participants, then, from organizations whose mission was working across dimensions of nonprofit work: Civic and Political Engagement (n = 12), Service Delivery (n = 5), Values and Faith (n = 4), and Social Entrepreneurship (n = 4). The organizations conducted work in the following four policy fields: Social Justice (n = 8), Mental Health (n = 6), Environment (n = 6), and Education (n = 5). Within each policy field, we first identified organizations that conducted advocacy work—typically foregrounded on their websites in their mission statements, from publications available on their webpages or social media platforms. Then, we looked for evidence of data use in their advocacy work—which primarily meant that the organization had an employee explicitly dedicated to working with data and advocacy or their website contained examples of data being used for advocacy work.

We recruited individuals who self-reported as being responsible for using data or data communication in the advocacy work of their nonprofit organization, referencing staff pages and authored content on organizational websites and LinkedIn profiles. In some cases, our first contact referred us to another or to additional individual(s) within the organization.

### 3.2 Participants

We recruited 25 participants who worked for 18 different nonprofit organizations in the U.S. in the four selected policy fields (Table 2). 17 participants identified as female, seven as male, and one as non-binary, a gender skew which is typical in the nonprofit sector [40]. A few interviewees opted to participate in group interviews with their colleagues; these are denoted in the table where multiple participants are listed in the same row. We conducted a total of 19 interviews.

### 3.3 Data Collection

We conducted semi-structured interviews with participants, either in-person or remotely through the audio/video conferencing platform, Zoom. Each interview was conducted by a pair of researchers, with one predominantly responsible for leading the interview and the second responsible for note-taking and follow-up with any additional questions that arose from the interview. The interviews lasted between 45 and 90 minutes, with an average length of 54 minutes. All interviews were conducted between March and April 2020.

The interview protocol covered the following themes: the advocacy work of the organization, the role of the participant in that work, the breadth of data and technologies used in the participant's advocacy work, and higher-level reflections on trends and challenges of data use in the advocacy work of the organization.

Each interview included specific questions asking participants to walk through their use of data for one or more specific advocacy projects. We prompted participants to sketch the data journeys of those projects [6]. We tailored follow-up questions based on the specific experiences of each

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https://www.zoom.us/

Table 2. Demographic and Employment Characteristics of Participants.

| Pn | Org. Type | NTEE Code [22] | Advocacy Issue | Function of Nonprofit Work | Job Title |
|---|---|---|---|---|---|
| P1 | 501c(3) | P84 | Social Justice | Service Delivery | Community Education & Advocacy Director |
| P2 | 501c(3) | C30 | Education | Social Enterprise | Executive Director |
| P3 | 501c(3) | C19 | Environment | Social Enterprise | Chief Impact Officer |
| P4 | 501c(3) | C19 | Environment | Social Enterprise | Programs Manager |
| P5 | 501c(3) | F80 | Mental Health | Values & Faith | Advocacy Community Leader |
| P6 | 501c(3) | C30 | Environment | Service Delivery | Policy & Outreach Coordinator |
| P7 | 501c(4) | R40 | Environment | Civic & Political Engagement | Data Administrator & Analyst |
| P8 | 501c(3) | Q70 | Mental Health | Civic & Political Engagement | Founder & Executive Director |
| P9, P10, P11 | 501c(3) | I20 | Social Justice | Civic & Political Engagement | Policy & Outreach Coordinator |
| P12 | 501c(3) | C27 | Environment | Social Enterprise | Digital Engagement Strategist |
| P13 | 501c(3) | C01 | Environment | Civic & Political Engagement | Director of Programs |
| P14, P15, P16 | 501c(3) | O99 | Education | Civic & Political Engagement | State Organizing Director, Parent Organizer, Parent Organizer |
| P17, P18 | 501c(3) | I20 | Social Justice | Civic & Political Engagement | Research & Policy Analyst, Research & Policy Analyst |
| P19 | 501c(3) | B01 | Education | Values & Faith | Executive Director |
| P20 | 501c(3) | S81 | Social Justice | Values & Faith | President-Elect for a local chapter |
| P21 | 501c(3) | F11 | Mental Health | Values & Faith | Manager: State Policy |
| P22 | 501c(3) | Z99 | Mental Health | Service Delivery | Program Manager |
| P23 | 501c(3) | L19 | Social Justice | Civic & Political Engagement | VP of Member Services and Community Development |
| P24, P25 | 501c(3) | F30 | Mental Health | Service Delivery | Executive Director, Recovery Education Manager |

participant, for example, by asking those in managerial positions about data decisions that impact the direction of the mission. We audio- or audio/video- recorded the interviews and then transcribed the audio for anonymized data analysis.

### 3.4 Data Analysis

We conducted iterative and inductive data analysis, generally following the phases of grounded theory, but adapting it for the scale of researchers involved [20]. In the first stage of data analysis, we divided up into four policy field analysis teams according to the policy fields of the participants interviewed by each researcher. The researchers who co-conducted each interview also co-conducted the first iteration of open coding on the transcript from that interview. The pair then conducted an interview walkthrough with the rest of their policy field analysis team. The goal of these interview walkthroughs was to share open coding, to reflect on the similarities and differences across accounts from interviewees within the same policy field, and to compile a list of benefits and challenges in the data use of organizations in the same policy field. The first phase of analysis concluded with results within each policy field written up as executive summaries. These executive summaries were emailed to participants as a member check at the conclusion of the semester [47].

In parallel, we also began exploring similarities and differences in participant experiences across policy fields through affinity diagramming carried out via the jigsaw method [4]; that is, the analysis teams recombined so that each new team contained at least one member from each policy field team. These new jigsaw teams, so called because each member of the policy field team carries an essential 'piece' of the puzzle (i.e., the key codes and themes from the analysis within each policy field), each conducted affinity diagramming in Mural. Categories that appeared consistently across each of the resulting six affinity diagrams included the different audiences served by advocacy data. As a result of this observation, each pair of interviewers conducted another round of coding of the interviews they conducted based on the guiding question: *How is the use of data in advocacy work tuned to particular audiences?* In response to this guiding question, all pairs of co-interviewers contributed key excerpts and memos to a shared Google Doc file, with categories added as needed. The final set of audience categories at this stage included the following: Allied Organizations, Gatekeepers, Broad Publics, Lawmakers, Funders, Vague Audiences. This was the final iteration of analysis conducted by the entire research team at the conclusion of the spring 2020 semester.

Following the conclusion of the course, the first author listened to the audio and read the transcripts for all interviews, to ensure a more broad-based understanding of the entire corpus moving forward. The graduate student researchers and the course instructor reread all excerpts and memos that had been categorized by the entire research team. While the theme of 'audience' was strong and cross-cutting throughout the data, the initial set of categories around audience types did not foreground the most important narratives articulated in the interviews. In addition, some of the key stakeholders played roles beyond that of audience (i.e., as sources of data or as partners in designing data work) and the initial coding did not reflect these multifaceted roles.

This smaller analytic team re-coded the data based on a similar but refined guiding question: *Why is the data work being done in the way that it is?* Each of the first three authors coded one-third of the transcripts, driven by the new guiding question. During weekly meetings, they reviewed their subset of interviews and discussed their coded excerpts (aggregated in Mural), developing new inductive categories together [43]. The last author of this paper joined the team meetings once most of this round was complete to discuss the relationships among the various categories. During initial rounds of axial coding, discussion centered around classes of assumptions about stakeholders that motivated the "why" of particular data tactics. Subsequent axial coding, however, began to draw connections among stakeholders and higher-level strategies and motivations for data work. In particular, the observation that some data work was motivated by the demands of funders and policymakers whereas other data work was motivated by a value for the voice of beneficiaries resonated with Frumkin's foundational scholarship about the demand-side and supply-side orientations of the nonprofit sector [31]. As the research team revisited Frumkin's framework, we noticed that other functional distinctions in our data resonated with the instrumental and expressive rationales of work, as well.

The first and last author conducted additional axial coding using Frumkin's two dimensions of nonprofit work as a framework for organizing codes. In this round of coding, data work practices aligned in a two-by-two matrix based on their stakeholder orientation and their rationale. Sometimes advocacy data work served as an activator of audiences; sometimes data work served as a legitimizer of the organization; sometimes the data work served as an amplifier of the needs of beneficiaries; and sometimes the data work served as an incubator for innovation in data practices. These four functions are characterized in our results section. Nearly all codes that did not cluster into one of

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https://www.mural.co/

the four functions characterized trade-offs and challenges encountered when participants tried to reappropriate data between functions.

The first author's memos written during these final iterations of axial coding highlighted some of the disconnects between the values and motivations underlying participants' and other stakeholders' instincts about data work. Of particular salience were the challenges they experienced because of their desire to ensure that clients and beneficiaries were empowered through their data work. Because of these memos, we turned to D'Ignazio and Kleins' foundational work on data feminism [24] and noted resonance between our original inductive codes and their principles of data feminism [24]. The first, fourth, and final author, then, conducted a final deductive analytic pass through the data using the principles of data feminism as an analytic framework to interrogate how power was organized, navigated, and challenged in participants' data work.

## 4 RESULTS

### 4.1 Overview of the Different Organizational Functions, Policy Fields, and Advocacy Data Work

We first present an overview of our participants' context as data advocacy workers in terms of their organization's alignment with Frumkin's four functions of nonprofit work and core issue focus area. Our sample of individuals working at 18 nonprofit organizations represents those prioritizing across the four different nonprofit functions as well as four unique policy fields.

*4.1.1 Policy Fields.* The eight participants working with **social justice** organizations in our sample advocate for a wide range of issues and beneficiaries including immigration reform (P1), fair housing initiatives (P17, P18, P23), and inclusivity with respect to gender identity (P9, P10, P11) and disability (P20). The six participants working with **environmental** organizations in our sample advocate for local environmental issues such as animal and habitat conservation (P6, P7), as well as recycling and composting (P12, P13). They predominantly focus their advocacy data work on educating local publics and policymakers about issues including green initiatives, the impact of climate change on agriculture, and the harm of pollutants.

The six participants working for the five **mental health** organizations conducted advocacy work on a breadth of issues from supporting suicide prevention, to enforcing policy related to advanced directives, to operating patient mental health facilities. Data work practices that were common across the mental health policy field include deploying and using survey data about mental wellness (P5, P21) and perceptions of mental health (P22). The five participants from three **education** organizations conducted a range of advocacy data work to support universal pre-k (P14, P15, P16), for summer camp funding (P2, P19), and canvassing to garner support for 'Internet for All' initiatives (P14, P15, P16, P19). But similarities in data work were more common within organizational function than within policy field. For a full breakdown of participants by both policy field and function of nonprofit work, refer to Table 3.

*4.1.2 Organizational Functions.* Our participants worked with organizations spanning across the four quadrants of Frumkin's functions of nonprofit work, situated at the intersections of organizational orientation (supply vs demand) and mission rationale (instrumental vs expressive) [31].

Twelve participants in this study prioritize their **civic and political engagement function**, the function that is most closely associated with advocacy work. Organizations prioritizing this function predominantly use data to highlight beneficiaries' needs with audiences of power to affect change. For example, P23 uses data to advocate for the enforcement of fair housing initiatives with property owners and policymakers; P14, P15, and P16 present data from their community organizing to school boards and local lawmakers. The other prominent genre of data work by

Table 3. Participant Distribution by policy field across Nonprofit Functions (from Frumkin [31])

| | Demand-side Orientation of Nonprofit Work | Supply-side Orientation of Nonprofit Work |
|---|---|---|
| Instrumental Rationale of Nonprofit Work | Service Delivery:<br><br>Social Justice (n = 1)<br>Environmental (n = 1)<br>Mental Health (n = 3)<br>Education (n = 0) | Social Entrepreneurship:<br><br>Social Justice (n = 0)<br>Environmental (n = 3)<br>Mental Health (n = 0)<br>Education (n = 1) |
| Expressive Rationale of Nonprofit Work | Civic and Political Engagement:<br><br>Social Justice (n = 6)<br>Environmental (n = 2)<br>Mental Health (n = 1)<br>Education (n = 3) | Values and Faith:<br><br>Social Justice (n = 1)<br>Environmental (n = 0)<br>Mental Health (n = 2)<br>Education (n = 1) |

organizations prioritizing civic and political engagement involves collecting additional data to fill biased gaps ("missing data" in the language of D'Ignazio and Klein [24])—in existing datasets, whether about rural LGBTQ communities (P9, P10, P11) or underserved children in community schools (P14, P15, P16).

Five participants in this study emphasized their organization's **service delivery** function. Their organizations prioritized providing direct services to beneficiaries. This access to beneficiaries gives them ample opportunities to collaborate in setting data work priorities or collecting data. The most common genre of data work conducted by service delivery organizations, then, includes publishing beneficiary-forward data work, such as datasets, whether for depicting change in animal populations (P6) or via a quality of life inventory as a measurement of happiness (P22). Additionally, close relationships with communities allowed P1 (Social Justice), P24, and P25 (Mental Health) all prepare people with lived experience to present data driven testimony for lawmakers about their respective policy fields.

Four participants in this study prioritized their **values and faith** function, primarily creating events and spaces for volunteers and clients to express their values through work and participation in organizational events (e.g. fundraising walks). Participants working at values and faith organizations conduct data work that allows stakeholders to express their experiences and values. P19, for example conducts *"empathy interviews"* with students and their guardians to better understand their educational needs. P20's organization carries out community-based interventions for homelessness through feedback loops (i.e. listening sessions, suggestion boxes, exploratory surveys) used to influence directions for data collection that help articulate the experiences and needs of those experiencing homelessness within their communities.

Four participants in this study prioritized their **social entrepreneur** function, predominantly providing contracted data work to other organizations. Data work for these organizations features a balanced reliance on both publicly available data with experimental data work. P3 and P4, for example, use U.S. census data to build ARCGIS models for small environmental nonprofits. In a similar light, P12's social enterprise creates infographics for public audiences while also undertaking new data collection through environmental sensors.

### 4.2 Overview of Stakeholders in Advocacy Data Work

In previous work, Baum [7] distinguished three audiences for nonprofit advocacy organizations: clients (which Benjamin [9] later argued be referred to more broadly as beneficiaries), policymakers, and funders. Yet, our research suggests two key distinctions from Baum. First, when talking more specifically about their data work, the participants in this research referenced two additional audiences: gatekeepers and local publics. Second, participants considered stakeholders' roles in a more flexible light, noting that while all were audiences of data, some had roles beyond that of audience. We provide an overview of each stakeholder along with their relationships to advocacy data work.

*4.2.1 Policymakers.* Participants refer to those responsible for creating policy as "lawmakers," "legislators," "politicians," or sometimes, more cynically, as "bureaucrats." Our participants identified policymakers across all levels and branches of government as the most critical audience for achieving social change. P7, for example, weaves together both qualitative and quantitative data to provide testimony to policymakers in legislative hearings:

> *When you can match up people's individual stories and how they're impacted with large-scale quantitative data, it makes your argument a lot easier and you can go into a legislative hearing and say, 'You know, transportation now is the number one source of carbon emissions and it contributes X amount of greenhouse gas'. And then, 'By the way, here's Nicole. Her family is battling asthma and it's because greenhouse gas emissions are from ozone pollution.' When you have different forms of data and you're going into a hearing or a testimony, it bolsters your own argument.* (P7, Environment)

For participants like P7, advocacy data work with policymakers is stressful because compelling this stakeholder group to act is an incredibly difficult task. Since policymakers represent their own constituencies with varying viewpoints on issues, this stakeholder is often reluctant to follow recommendations from organizations. P5 (Mental Health), for example, described the reputation for stagnancy policymakers have, saying, *"we really don't expect too much to happen… [policymakers are] pretty wed to the way things are now."*

The role of data in advocacy work with policymakers has been described as providing *"leverage"* (P7), *"influence"* (P20), and *"demonstrat[ing] change"* (P21). Numerous participants explain their tactics for approaching policymakers with data to aid their decision-making. Advocacy organizations that prioritize policymakers as an audience for data (e.g. P7, P9, P12, and P25) also focus much of their data work on characterizing precedent from other jurisdictions, evidence of bipartisan support, their own organization's impact on past legislation, as well as local data about what is affecting constituents. Data are delivered in numerous contexts to policymakers, including through white papers, lobbying presentations, and testimony. Having such data in hand before making a case, however, means that policy ends up being *"more reactive than proactive"* because *"it's not until you have the data [about a problem] that you necessarily get the attention of lawmakers"* (P21, Mental Health).

*4.2.2 Funding & Partner Organizations.* Funding and mission-aligned partner organizations are influential, active stakeholders in the data advocacy work done by our participants. In addition to providing monetary contributions, funding organizations often act as consultants throughout a given advocacy campaign and are audiences for a steady stream of information from the organization. Multiple participants stated that most advocacy data work is driven in the direction of funders' interests, *"A lot of our data choices are driven by funders, bluntly. It is trying to either respond directly to preferences of a funder or, probably equally, trying to envision or empathize or forecast what a funder will need"* (P2, Environment). Funders influence the data work of the organizations that they fund, often stipulating accountability metrics that organizations need to submit in reporting, for example:

> *You have to demonstrate that you do the work. You have to demonstrate why we need these funds, and data is very important in showing the need. You use the data to show, 'here are the complaints we're receiving', 'here are the funds that we need to help enforce a federal law'.* (P23, Social Justice)

Funding and mission aligned partner organizations already understand the significance of the advocacy issue and do not require the same sort of data work as policymakers to be compelled. Due to their unique role in both the process and product of data work, many participants talked about choosing funders and partners carefully. Funders want to see how well an organization is serving their beneficiaries and achieving its own goals. *"We're constantly assessing people as well as seeing how the community is doing. That's kind of the data gathering we do. We present this to funders"* (P22, Mental Health). But different funders require different data. P18 (Social Justice), for example, collects data for one funder via qualitative surveys about their beneficiaries' experiences with the organization. In contrast, P16 (Education) collects quantitative data for another funder about *"how many people we're getting in, how many families or students we're impacting."*

*4.2.3 Beneficiaries.* Participants refer to the intended beneficiaries of their advocacy work in myriad ways, sometimes in ways that are specific to a particular policy field (e.g., "students" or "refugees"). For organizations also providing direct services, beneficiaries were also referred to more generally as "clients." Some participants recognize that the beneficiaries of their advocacy work extend to caregivers of those who might be less able to self advocate, such as parents or guardians of children. As *audiences* of data work, organizations target beneficiaries with data that can be used to educate and empower them, particularly to prepare them to engage with powerful audiences (whether on behalf of the organization's advocacy or otherwise). For example: P15 (Education) describes how she addresses concerns about both the issue and her organization. *"When recruiting [beneficiaries to testify], we take a lot of care to give them good facts that support [the issue] and our own [organization's] success. You have to be trusted in order to be believed".*

Yet, participants often considered that beneficiaries' more important stakeholder role in data work was as a *source of data.* Almost all participants reported collecting some amount of data from beneficiaries in order to help their organization prioritize advocacy efforts based on beneficiary need. For example, P9, P10, and P11's social justice organization conducted exploratory focus groups with beneficiaries about their healthcare challenges. It was through these conversations that their organization embarked on collecting their state's first dataset on the health experiences of LGBTQ residents, including even more overlooked indigenous and rural LGBTQ populations. Overall, myriad discussions about data collection highlight a deep desire for participants to engage beneficiaries directly to better understand their needs and lived experiences.

*4.2.4 Gatekeepers.* All organizations in this study carried out advocacy data work with 'gatekeepers' as stakeholders of power—individuals who hold some sort of authority over an organization's beneficiaries, particularly in obtaining access to beneficiaries for data collection. For example, while people with mental illnesses are the beneficiaries of mental health advocacy, participants working in this policy field report that physicians, first responders, and law enforcement are also critical audiences for their advocacy data work as gatekeepers. Similarly, participants from education nonprofits report that school districts and administrators act as gatekeepers for student and family beneficiaries in their advocacy data work. P24 referred to her organization's advocacy with gatekeepers, which consists largely of the re-education of emergency room staff and first responders, as *"training the trainers"* (P24, Mental Health). Although beneficiaries in certain policy fields interact more with gatekeepers than others, all of our participants mentioned some level of interaction with gatekeepers, whether as an audience for data-driven educational advocacy, as a source of legitimacy for other stakeholders (policymakers or funders), or as a source of data for information gathering. For example, P1 (Social Justice) distributes surveys to the lawyers working with their refugee beneficiaries to help determine the direction their policy proposals should take.

The organizations in this sample use two main types of advocacy data work with gatekeepers. First, data are used to re-educate gatekeepers about the advocacy issue via workshops on policy implementation and beneficiary rights (e.g. P21, P24, P25) or white papers (e.g. P10, P19). Second, gatekeepers are sought after by organizations in order to propose implementing new strategies (e.g. advocating for beneficiary representation on decision making groups (P5, P8, P17, P18, P22) or asking for a rent moratorium (P23, P24, P25)).

*4.2.5 Local Publics.* Finally, participants report that they also strive to reach a broader and more general audience with their work. They most frequently refer to this audience as “the public” or “the community” but generally target local publics, determining who is part of this audience based on the legislative jurisdictions they work with. Some participants explained how they turn to local publics in community organizing efforts, in which they recruit leaders and volunteers. Most participants said that data shared with local publics is usually repurposed from material presented to other audiences. P1 provides an example of data work for this stakeholder:

> *We’re writing a report that’s intended to be focused on policy decision-makers. The goal is that we can lift stuff from the report or social graphics—one pagers—we basically take smaller pieces out so we can use the report for bigger or smaller things.* (P1, Social Justice)

Participants target local publics primarily to raise awareness about their issues, with secondary goals of gaining donor support, volunteers, and drawing in diverse groups of people. Local publics were generally perceived as uninformed about organizations’ advocacy issues. Advocacy data work, then, often starts with the basics, for example: *“People are really interested in learning how to recycle. . . For us, that’s the bottom rung. It’s a very basic level of understanding”* (P12, Environment). From there, arguments are presented in scaffolded ways to contextualize the data and explain both the implications and the proposed course of action.

Advocacy data work is used to mobilize local publics into action through donating, voting a certain way, or vocalizing their opinion on potential policies through outreach tactics such as social media posts, donor mail, educational outreach events and online presence.

### 4.3 Four Functions of Advocacy Data Work

While advocacy work is most commonly associated with an expressive rationale and a demand-side orientation (i.e., mobilizing citizens and communities to address pressing social issues) [31], our analysis of the *advocacy data work* carried out across stakeholder relationships highlighted a more diverse set of rationales and orientations. Indeed, our analysis identifies examples of data work that align with each of Frumkin’s theoretical dimensions— across both demand-side and supply-side orientations and across both instrumental and expressive rationales—resulting in a new framework of four functions of advocacy data work.

Overall, participants described their organizations as often trying to ensure that their data work serves many or all of these different functions: as an amplifier for the voice and visibility of beneficiaries, as a legitimizer of the organization and its work, as an activator and mobilizer of audiences, and as an incubator for promoting innovative strategies for quantifying and addressing the issue (as shown in Table 4).

Table 4. Four Functions of Advocacy Data Work

| | Demand-side Orientation of Advocacy Data Work | Supply-side Orientation of Advocacy Data Work |
|---|---|---|
| Instrumental Rationale of Advocacy Data Work | Data as Legitimizer:<br>Data are the product that the nonprofit delivers; these data legitimize the organization's expertise, its mission, and/or its policy proposals<br>Core challenges: stakeholders with power can feel entitled to make specific asks that can cause data drift | Data as Incubator:<br>Data are used to promote innovative data work, particularly innovative strategies for quantifying the issue<br>Core challenges: overreliance on data can constrain innovation; innovation may challenge the status quo that organizations are more more comfortable or adept working with |
| Expressive Rationale of Advocacy Data Work | Data as Activator:<br>Data are used to mobilize a diversity of audiences, particularly policymakers and funders, whether those data come from beneficiaries or other sources<br>Core challenges: different audiences are compelled by different data and sometimes-polarized audiences have to be compelled without turning them off | Data as Amplifier:<br>Data are used to amplify the voice and visibility of often-marginalized beneficiaries<br>Core challenges: data collection can overburden beneficiaries; gatekeepers may prevent access to beneficiaries; beneficiaries may have niche problems that are not generalizable to the broader population (and are therefore not charismatic) |

*4.3.1 Data as Activator.* When data work reflects an expressive rationale and a demand-side orientation (as is most typical for advocacy work), it is used as an activator, to mobilize a diversity of audiences in order to achieve societal change. Data is used as activator to compel funders or donors to give, policymakers to vote, or activists to volunteer. P11 (Social Justice) characterizes advocacy data work as simply: *"How can we get the right data into the hands of the right people so that they can make better decisions?"* —whether decisions about how they spend their time, their money or their votes.

P2, for example, works for a volunteer-run educational summer conservation program. He uses data to recruit potential volunteers from among their local publics: *We have to look at data to add to our case and show [potential volunteers]...'If you come through [our organization], these are the impacts that we have'"* (P2, Education). P2 activates his audiences by using data to project what kind of impact they would have if they joined the organization.

Participants recognized that different stakeholders need to be activated in different ways and tailor their data work to different audiences, approaching them *"empathetically"* (P2) with their priorities and interests in mind. Different stakeholders find different metrics to have varying levels of charisma, and organizations aim to approach audiences in the most charismatic way according to their values, preferences, and geographic location: *"When you are thinking about advocacy work. . . you're thinking about a strategy. You have a certain suite [of information] or prospective stakeholder group which will carry more weight [in front of audiences]"* (P6, Environment).

Nearly all participants emphasized that data was a necessary but insufficient starting point for compelling and mobilizing audiences. While data is important, P3 succinctly echoed most participants' central advice for compelling audiences with data: *"Facts mean less than feelings. Translating facts into feelings is a new process that we need to just get used to at this point"* (P3, Environment). P19 further elaborates through an example of how she convinces people to attend her organization's advocacy events: *"If I am wanting you to come, I am not presenting data. I am appealing to your heart and I'm convincing you that you'll have a great time when you come and that your kids will love it and talk about it all year long"* (P19, Education).

Yet participants also recounted a litany of trade-offs in mobilizing audiences with data-based appeals. They have to compel the problem, but they also have to avoid turning off audiences in a variety of ways—avoid implying that a problem cannot be solved, avoid blaming those in the best position to solve the problem, and avoid politically polarizing language. While compelling audiences to understand the scope and urgency of a problem, some participants warned that the data cannot be so dire as to imply that a problem cannot be solved. P3, for example, emphasized the importance of using data to present an optimistic front in the face of *"big picture problems"*:

> *[The more] you can give people numbers not only about the amount of greenhouse gas emissions that have been diverted, but also the kinds of work and policies that are happening at a **local level** and base that on science...the more it can feel like we are still making progress... You know, there are big picture problems that we're working on but then showing data that supports the fact that we are making progress? – [It] can be really inspirational to people.* (P3, Environment)

P17 emphasizes how essential it is to characterize the problem without inadvertently implying that any of the organization's stakeholders are to blame for any facet of the social issue:

> *I'm really trying to have that balance between saying there is an issue without placing blame on any person, particularly the person that is in the best position to help solve the issue...Oftentimes, the people that are at fault are the ones that are also the ones who can solve the problem.* (P17, Social Justice)

Finally, advocacy data work is also influenced by the political polarization of contemporary society. Participants describe the importance of engaging with politically diverse audiences without using polarized language that audience members might associate with message frames that contradict their worldviews. For example, P2 recounts some of their organization's internal debates on using the politically polarizing term "climate change" in their public communications for their summer youth program.

> *Maybe they don't believe in climate change. Maybe they don't like that term for whatever reason; we've had to have internal discussions to say, 'if we don't use this term... "climate change"...we will be successful with this audience and [if] the same impact will happen, what's the harm in that?' And that's actually a more complicated discussion... because you have to examine things like what's the compromise of our mission?* (P2, Education)

Finding ways to activate audiences without turning them off was the predominant focus of nearly all interviews. In addition to the three most common tactical trade-offs exemplified above, other participants also highlight the importance of not turning off audiences by telling them things that they already knew (P14), making cultural faux pas (P8), and presenting data in a way that is not tuned to the data literacy or education of the audience (P18). P1 expresses participants' shared appreciation that *"When the data falls flat, then the problem is different than we think it is, or the data isn't collected in the way that we need it to be [or]....we missed the mark with the audience"* (P1, Social Justice).

*4.3.2 Data as Legitimizer.* When data work reflects an instrumental rationale and a demand-side orientation, it is used as a legitimizer of the organization's expertise and mission. Many participants described how they use data to legitimize their organization with stakeholders. P2, for example, explains that *"We use data to justify our existence, to underscore our impact, to prove our credibility all of the time"* (P2, Environment).

Participants reported using a range of specific kinds of data as legitimizer. Many collected their own data to quantify the impact of their organizations' work (often referred to as accountability data), particularly the number of beneficiaries served or individuals impacted. Participants also reported using data to legitimize the mission of their organization—underscoring the scope and importance of the issue. Some organizations relied on outside data and constrained their data use to sources that they felt would be most credible with their stakeholders, such as scientific, peer-reviewed publications (P6) or government data sources (P7, P12). Other organizations collect new kinds of data about an issue and publish it into reports that become a product of the organization. For example, P11's organization collects, publishes, and distributes data about *"experiences of LGBTQ folks in healthcare."* The data work related to this publication serves to legitimize both the social justice issue at the center of the organization's mission and the organization itself, as the reputation of the report brings credibility.

Participants reflected most at length on the importance of data work needed to legitimize their organization's work to obtain and maintain funding. Much of their data work, in these cases, is driven by how funding organizations want to see work quantified. P16 provides specific examples of the metrics that their funders want to see:

> *The way we get funded is through very much quantitative data around how many people we're getting in, how many families or students we're impacting, and that's where the balance is. To get funding, we need to report on how many of the things we're doing.* (P16, Education)

In order to convey their legitimacy to funders, then, organizations aim to use data work to foreground their organization's impact:

> *We use what has been set forth by our grants to make determinations and for the most part, we get dictated what those numbers will be, what that statement of work looks like. But we use that as our guiding, defining, peak components…I think that's really how we define [impact]. It's based on what's set forth by our grants and our funders.* (P24, Mental Health)

P24 uses the data work pre-determined by funders as a starting point and, in many ways, trusts her funders' preferences about metrics and the data work that would be needed to generate those data.

However, the data work organizations feel is important may not align with what more powerful stakeholders, such as funders, might want. When organizations focus too much on producing the data that these stakeholders want, they risk experiencing data drift and mission drift [15]. As P19 warns: *"People will perform to what you track and measure"* (P19, Education). Performing to predetermined metrics without critical engagement sidesteps the opportunity for organizations to critically reflect over existing data, the relationship among data and mission, and the ways in which data depicts their beneficiaries. It also runs the risk of disempowering organizations and their beneficiaries.

*4.3.3 Data as Amplifier.* When data work reflects an expressive rationale and a supply-side orientation, it is used as an amplifier. Participants believe that data amplifies the voice and visibility of their often-marginalized beneficiaries: *"I think that, in general, the voices of marginalized people about their experiences are not believed and data is the tool to be able to prove it"* (P1, Social Justice). For many participants, data work to amplify the voice and visibility of the beneficiaries **is** advocacy.

For many participants, the issues advocated for by their organizations suffer from an incredible data deficit. In some cases, there is simply a lack of data to begin with, in some cases because of the relative invisibility of the already-marginalized beneficiaries. P11, for example, conducts data work to amplify the experiences of LGBTQ individuals in healthcare:

> *Our most significant, game changing data set or publication is our 'Invisible Report'...where we talked about the different experiences of LGBTQ folks in healthcare, there was no data to understand what that experience was. So we learned things in there around our people, out to their healthcare providers* (P11, Social Justice).

In other cases, the experiences of some stakeholders are lost in larger, publicly-available datasets. Participants expressed frustration with the lack of control they have over these external data sources: *"I don't have control over how it's collected, I don't have control over the databases that it's stored in…for the most part, I'm relying on information that's already been collected by some sort of entity"* (P1, Social Justice). As a result, some participants report collecting additional data to amplify the experiences of beneficiaries whose experiences effectively disappear in aggregated data analyses: *"Just because the statewide numbers in terms of unemployment and job growth and economic growth look good… it doesn't necessarily mean that those benefits are being felt equally by everyone and in every place in the state"* (P17, Social Justice).

In most cases, the lack of data about an organization's beneficiaries or issue perpetuates the invisibility of many already-marginalized groups. But as participants report: data is visibility and visibility is *"game changing"* (P11).

But amplifying the voice and visibility of beneficiaries also, in most cases, requires quantifying something about a social issue. Decisions about how to quantify social issues are notoriously challenging. Nearly all participants expressed firmly-held stances that data for amplification must respect the agency of beneficiaries. Additionally, P20 highlights that the more we learn about social issues, the more we need to update "our approach to measuring," creating a never ending cycle of data work for data as amplifier:

> *[For] human beings and things that aren't always as easily measured, our approach to measuring different parts of that changes as we learn more. It's not as fixed, or doesn't have the same history or it has other problems. We are always trying to figure out the best way to make projections and to measure what it means to see a reduction in homelessness.* (P20, Social Justice)

More pragmatically, conducting data work with beneficiaries is not without its own challenges. In addition to the substantial financial, time, and resource commitment for organizations and beneficiaries alike, P22 explains, *"Having someone successfully fill out a survey every quarter can be a challenge"* (P22, Mental Health). Several participants also reported that their beneficiaries often do not self-advocate, leaving the burden of defining and understanding the pressing issues for these communities to fall on the organization's data collection. P14, P15, and P16, (Education) for example, discovered one of their beneficiaries' critical issues years into their relationship.

While the scope of data work for data as amplifier varied across participants, participants overwhelmingly expressed consideration for how data work does and does not reflect the voices and experiences of their beneficiaries. Participants often reflected on navigating what others have referred to as the paradox of visibility–when visibility becomes "hypervisibility" and exposes them to surveillance [12, 18], particularly for their marginalized beneficiaries. Organizations try to address this through member checks of the data they collect (e.g. P14, P15, P16, P20, P21, P22).

*4.3.4 Data as Incubator.* When data work reflects an instrumental rationale and a supply-side orientation, it is used as an incubator to promote innovation, notably through innovative strategies for quantifying the issue. This was the least common kind of data work that was discussed in interviews; when it occurred, however, it had some of the farthest reaching effects.

Quantifying outcomes of nonprofit and advocacy work is notoriously difficult [17]; for some organizations in our study, then, promoting innovations in quantification are a key part of their advocacy work. For example, P20's organization has long been frustrated with how the prevalence of homelessness in their country and community has been measured—relying on a once-a-year canvass and count of individuals on the street. As a result of data (as amplifier) work they did with beneficiaries, P20's organization developed a new strategy for quantifying outcomes for individuals experiencing homelessness: *"Our approach to solving the problem of homelessness is shifting from a place where communities and the federal response has really centered around inadequately counting, under counting people one time a year"* (P20, Social Justice). Instead, the organization designed an approach to *"measure if someone was making progress towards getting to functional zero [and out of homelessness]"* (P20, Social Justice). Promoting this new method for quantifying outcomes in her field became a significant form of the organization's data advocacy work. Their data advocacy work has successfully become an industry standard.

### 4.4 Reappropriating Data Across Functions

With constrained resources, there is only so much advocacy data work that nonprofit organizations can do. Over and over again, participants shared stories of trying to reappropriate data work optimized for one function for other functions, as well. And over and over again, these stories of trying to reappropriate data were frustrated by challenges that seemed to stem from them trying to enact values through their data work—values that they never referred to as data feminist, but that consistently aligned with one or more of the seven principles of data feminism (DF): examine power (DF1), challenge power (DF2), elevate emotion and embodiment (DF3), rethink binaries and hierarchies (DF4), embrace pluralism (DF5), consider context (DF6), and make labor visible (DF7). In what follows, then, we characterize the data journeys of advocacy data, as data is reappropriated from function to function. Throughout, we highlight the ways in which data feminist principles are enacted and, sometimes, thwarted in advocacy data work.

Data work considerations start when organizations define their missions and theories of change and assess their capacity for data work against financial and labor constraints. Data work, after all, is expensive. Participants recounted doing unofficial cost benefit analyses on potential data work and its potential impacts that almost always began with examining power (DF1). The most prevalent trade-off considered at this point was whether to privilege the data work demands of more powerful stakeholders (e.g., funding organizations), in which case resources were used for data as legitimizer, or to privilege the data work needs of beneficiaries in which case resources were used for data as amplifier. When organizations prioritize data as amplifier, they are embarking on a journey in which they will be continually challenging power (DF2) as a mechanism of change. P20 articulated this tradeoff most pointedly, considering whether to *"use data for improvement and not for perpetuating a judgment orientation"* (P20, Social Justice).

*4.4.1 Data as Legitimizer -> Data as Amplifier.* Some participants highlight the challenges of reappropriating data work from legitimizer to amplifier. When producing and using data as legitimizer, data workers are generally more limited in challenging inequities (DF2) perpetuated by data work because funders, rather than beneficiaries or workers themselves, are driving the priorities at this stage. P16 (Education), who collects quantitative metrics for their funders about the numbers of students and families who are impacted by their programs, describes how exclusively collecting data required by funders overlooks other outcomes that the organization, itself, cares about:

> *But when it comes to what kinds of conversations we're having, are we keeping volunteers engaged, do volunteers enjoy being involved with [our program], that's something that I really care about, but that really depends on the organizer and manager and how they decide to use that data.* (P16, Education)

When data as legitimizer is reappropriated for data as amplifier, then, participants reported significant challenges. While data as legitimizer is driven by powerful stakeholders' needs, data as amplifier is driven by nonprofits' need to capture and understand the voice and experiences of beneficiaries. Unfortunately, differences among how powerful stakeholders and data practitioners understand and value data were common across interviews and policy fields (e.g., P13, P16, P20, P24, P25). Tensions around reappropriating data from legitimizer to amplifier often stemmed from data workers' insistence on critically examining power (DF1)—particularly the politics of how their policy field and beneficiaries are characterized by quantitative data.

Participants seeking to understand local beneficiaries' needs had to delicately negotiate whether or not they could carry out certain forms of data work with their funders. In particular, they reported tensions with funders' expectations for their data work that often devalued emotion, embodiment (DF3) and context (DF6), or uncritically reproduced harmful binaries and hierarchies (DF4). For example, P20 and P16 described how prioritizing legitimizing data work can overlook the voices of local beneficiaries and drift away from "the work" of the organization:

> *Our view on how we should be measuring that outcome might change. We've had to figure out how to really walk that fine line of wanting to stay really true to the work and go with the iteration and learning.* (P20, Social Justice)

Here, P20 explains how important it is to be open to the dynamic nature of outcome measurement, to be ready to iterate and learn. This need, which they recognize—to embrace pluralism (DF5)—is one that is challenging to negotiate with funders who have strict and inflexible demands for data. In this case, despite the fact that funder and partner organizations often have expertise in relation to the beneficiaries holistically, when data work as legitimizer is turned to amplification, the local beneficiaries' context is often stripped away.

*4.4.2 Data as Amplifier -> Data as Activator.* Organizations that prioritize their data work resources for data as amplifier typically then reappropriate those data as activator—using data collected to give visibility to the voices and experiences of their beneficiaries to compel local publics, lawmakers, or gatekeepers. Across both functions, participants' data work reflects their examination of power (DF1). Their data is used both to address structural inequality and be a powerful tool in challenging injustice (DF2). Data as amplifier can be used to provide empirical evidence of the experiences of populations with nondominant and intersectional identities who are ignored or marginalized in data or its analyses (e.g., P1, P11, P20). In an activator role, data is central to nonprofits' power to amass resources and compel more engagement with social issues, and data communication is carefully and strategically curated to different stakeholders (e.g., P2, P6, P8, P17).

For interviewees, one of the primary ways data can challenge inequities in the transition from amplifier to activator is by exposing a broader audience of stakeholders to the *"game changing"* (P11) visibility of people and experiences undercounted or ignored in existing data work. Yet, it is incredibly different to find quantification metrics that are meaningful to numerous stakeholders across roles as amplifier then activator. Every three months, for example, P22's mental health organization distributes surveys to beneficiaries to collect *"a measurement of happiness"* (P22, Mental Health). The primary aim of this measurement is to bring visibility to the health progress their beneficiaries have made (data as amplifier), by tracking metrics such as the number and duration of hospitalizations. Using these beneficiary-centered metrics diminishes the interpretive weight given to metrics that beneficiaries do not feel are as indicative of their progress. Later, these data are reappropriated from this amplifier function when aggregated changes in beneficiaries' hospitalization rates are presented to activate their funding organizations or policymakers (data as activator) to support mission-aligned funding streams and policy. Here, the same data are reappropriated in order to demonstrate how the organization's service model decreases the burden upon the state as well as charismatic gatekeepers (healthcare workers). The successful transition here comes at the cost of decentering the experiences of beneficiaries in favor of other intermediary stakeholders and interpreted metrics. P22 reports that her organization has not updated their methods of measurement in over two decades, demonstrating the significance of the challenge in finding metrics that translate well between different functions of data work.

Other tensions stem from the fact that data for amplification often emphasizes emotional and embodied knowledge (DF3), which are often deemed essential to understanding the experiences of beneficiaries. However, most participants felt that three critical stakeholders—policymakers, funders, and gatekeepers–tend not to place as high a value on emotional and embodied knowledge, and place higher value on larger-scale, quantified data. This disconnect makes the reappropriation of data as amplifier to data as activator less effective with those audiences. For instance, P9 reflects how with some stakeholders, they only *"know"* when there is data: *"we know, but we're not collecting any [quantitative] data, so we don't know"* (Social Justice).

P3 suggests that they key to transitioning from data as amplifier to data as activator is embracing pluralism and promoting the consideration of (local) context (DF6)—also the key to leveraging emotion, and thus, compelling action.

> *We've been talking, as scientists, for a really long time, and [global data work] doesn't hit people emotionally and personally the same way as kind of* ***local data*** *and information does…The more personal and local you can make data and advocacy work with, the better… it's not personal when it doesn't make us act. From a sociologist standpoint we need to focus on the stories and the data that are personal and that can change people's behaviors.* (P3, Environment)

P19 describes another tension moving between data as amplifier and activator—that beneficiaries' voices might be saying things that others do not want to hear. P19 talks here about the delicate data work needed to figure out how to convey their student beneficiaries' data to activate a gatekeeper without turning them off:

> *I was presenting market research to one of my clients about a program they built online, and long story short, the students were delivering information that my client doesn't want to hear.… So we [my colleagues and I] had a long conversation ahead of time on how to present the data... you have to figure out how to convey data in a way that doesn't make people defensive on the spot but highlights the area that needs to be improved.* (P19, Education)

P19 explains how data that brings visibility for beneficiaries can also bring shame or feelings of defensiveness for another (in this case, a gatekeeper). When data work intended for amplification is being turned to activation, practitioners like P19 must perform additional work to manage their organization's relationship with essential stakeholders while maintaining commitments to data that reflects the perspectives of those with local, experiential knowledge considering context (DF6) and embracing pluralism (DF5).

*4.4.3 Data as Amplifier -> Data as Incubator.* When organizations first assess how their beneficiaries' problems are contextualized in data, some recognize fundamental deficits and issues in the data work around their beneficiaries' problems. Most participants collected data about their beneficiaries to address gaps in knowledge, however, a few participants took it upon themselves to invent alternative, more charismatic ways of conducting this data work and contextualizing their beneficiaries' challenges. These innovations in data work which originate from amplifying beneficiaries voices and experiences are carried out with data as incubator.

For example, P9,10, and 11's organization carries out substantial advocacy work with LGBTQ populations. Their work began with a critical examination of power (DF1) around LGBTQ communities' representation and contextualization (DF6) in existing datasets. After realizing the extent to which their beneficiaries were rendered visible by existing data (data as amplifier), they engaged members of LGBTQ communities throughout the state to iteratively co-design a new survey (data as incubator). Directly engaging with beneficiaries's communities exemplifies how principles of data feminism can innovate and improve data work, notably honoring multiple perspectives while centering local and experiential ways of knowing (DF5), and emotion and embodiment (DF3). Following multiple survey design iterations with beneficiaries, they launched their state's first-ever survey about medical outcomes for LGBTQ people, with a focus on rural communities whose LGBTQ populations face an acute lack of visibility in data and access to essential health services. The challenges here lie in the organization understanding when it has a full enough sense of the contextual landscape (DF6) surrounding their beneficiaries' problems. Another challenge is that it is difficult for organizations to quantify emotional and embodied knowledge (DF3).

*4.4.4 Data as Incubator -> Data as Activator/Legitimizer.* Organizations who successfully come up with new ways of measuring their beneficiaries' problems face challenges when transitioning from their data as incubator work to *demand-side data work*, whether activation or legitimization. Data work as incubator typically stems from deep engagement with examining and challenging power (DF1, DF2), and results in innovations that privilege forms of knowledge that include multiple perspectives (DF5) and that resist quantification (DF3), reevaluate and redesign reductive, harmful classifications (DF4) and recontextualize beneficiary data (DF6).

The key challenge, then, in moving from data as incubator to legitimizer or activator is convincing stakeholders that current forms of data work lack essential context (DF6) and that new forms of data are needed. The challenge of transitioning this data from an incubator role is twofold. As practitioners use these innovative new data to convince stakeholders of the legitimacy of the organization or cause or to activate various forms of engagement, they also must simultaneously convince stakeholders to buy into the data feminist principles in which these innovative new forms of data are grounded.

A central goal of organizations that publish their own datasets in their advocacy work follows the fourth principle of data feminism, to challenge classification structures that have been oppressive to their beneficiaries and reduce the nuance of their experiences to binaries (DF4). P9, 10, and 11's interviews, for example, showcase how the shift from data as incubator to data as legitimizer and activator can require practitioners to create buy-in from stakeholders around the missing context (DF6) that results from uncritical use of harmful classification hierarchies (DF4). A key innovation in the survey developed by P9,10,and 11's organization was more inclusive gender reporting options, as opposed to the normative gender binary option. After this incubator work, the organization repurposed and presented this data work to partner and funding organizations and to policymakers. Throughout, practitioners worked to convince stakeholders to rethink binary gender classification (DF4) in part to legitimize the organization's core mission and claims around LGBTQ healthcare as well as to activate others to adopt more inclusive gender reporting options. Activating policymakers to embrace their data work innovations, practitioners framed their contributions as providing a deep understanding of the context behind existing datasets (DF6) by juxtaposing their work with existing datasets.

Reappropriating incubator data work, then, means not only advocating for an issue but advocating for the data feminist principles, themselves. Stakeholder audiences must be convinced to embrace other forms of knowledge (e.g. emotions, social boundaries, politics) (DF3), rethink binaries (DF4), embrace alternate ways of thinking (DF5), and consider context (DF6), adding additional breadth to the ways in which they classify the world. When stakeholder audiences do accept this work, however, they have opportunities to have systemic impacts on data work for beneficiaries.

## 5 DISCUSSION: THE DATA FEMINISM OF ADVOCACY DATA WORK

The participants in this study were careful about how they acquired, collected, and used data; however, they never pretended their data were neutral. For example, *"Academic settings are perceived as being value neutral. You can just say: this is what the data says and it is what it is. In an advocacy space, there are a lot more considerations that need to go into how you convey findings"* (P17). When P17 conducts data work, he aims to prioritize and respect his own beneficiaries' concerns and voices while presenting data in ways that are as charismatic as possible to other stakeholder audiences… as do nearly all of the participants in this study.

These data practitioners recognize that they operate from the margins of what D'Ignazio and Klein refer to as the "data economy" [24]. Their position as nonprofit data workers both comes in conflict with and is shaped by a broader data economy oriented around the aims and practices of powerful institutions.

> *It's worth stepping back to make an observation about the organization of the data economy: data are expensive and resource-intensive, so only already powerful institutions — corporations, governments, and elite research universities—have the means to work with them at scale. These resource requirements result in data science that serves the primary goals of the institutions themselves. We can think of these goals as the three Ss: science (universities), surveillance (governments), and selling (corporations). This is not a normative judgment (e.g., "all science is bad") but rather an observation about the organization of resources. If science, surveillance, and selling are the main goals that data are serving, because that's who has the money, then what other goals and purposes are going underserved?* [24, p.41]

Although nonprofit institutions do not perform data work primarily serving the three Ss (science, surveillance, or selling), they do rely on three S institutions of the data economy for both funding and data. Thus, their work is shaped by and deeply implicated in the values and power dynamics of the data economy. Participants in this research recognize the influence of powerful institutions in their data work, and navigate their relationships with the three Ss in intentional and nuanced ways. Some participants report opting only to work with mission-aligned funders in response to previous experiences that have led to data drift (e.g., P13, P24). Many participants noted that they had to rely on government and university datasets, despite there being missing data pertaining to their beneficiaries (e.g., P9, P10, P11, P20, P21), or there being a lack of relevant data characterizing beneficiaries in an organization's specific geographic reach (e.g., P6, P9, P13). Some participants who used government data reported acknowledging caveats in publications about how they interpreted generalized public data to focus on their beneficiaries (e.g., P4, P7, P14, P15).

In this study, the social sector serves as a catalyst for the transformation of the broader data ecosystems in which they work. Nonprofits' nondominant position is an *asset* which allows them to play unique and innovative roles in the data economy. Although they do not make up large portions of the data economy— nonprofit and social sector organizations only make up 7% of the United States' workforce, and 5.7% of its GDP [1]—they provide an important voice and influence in pushing back on the values, aims, and even methods that drive data work. In order to minimize the influence of non-mission-aligned institutions of the data economy, many of the advocacy organizations in this study reappropriate funding and data in order to bring visibility to their beneficiaries' problems and mobilize audiences (amplifier -> activator). Other organizations work to change the way that beneficiaries are represented through innovating new forms of data work (amplifier -> incubator).

Our findings point to conceptualizing nonprofit data work around a motivation outside of the 3Ss, which we describe as the fourth S: social good.

### 5.1 A Fourth S: Social Good

Carrying out data work with a primary goal of social good from the margins of a data economy dominated by surveillance, selling, and science is challenging and requires constant negotiation among the values and goals of the different stakeholders. Our research highlights several such challenges as they are experienced day-to-day by data workers within nonprofits. For example, an overreliance on existing data constrains nonprofits' ability to innovate; acquiescence to the data demands of funders causes data drift (see [15]); and compelling politically polarized audiences is difficult to do without offending them.

And yet, the question of what constitutes "social good" is an important one. D'Ignazio and Klein critique a tendency within computing and information sciences to describe their goals as "data for good" without specifying principles and practices:

> *These efforts have had demonstrable social impact. And yet, there remains a nagging fuzziness with respect to what it means to "do good." Whose good are we talking about? What are the terms? Who maintains the databases when the unicorn-wizards leave the community? And who pays for the cloud storage when the development portion of the project is complete?* [24, p. 141]

These critiques resonate with critical theorists in nonprofit studies and social work, as well (e.g., [26, 58]). Nonprofit scholars focus most centrally on the influence of funding on social good, questioning the bias wrought by money-as-power. This focus on the relationship between funding and social good sharpens our analytic attention over the relationships among the Ss in the data economy. Just as the values of social good are marginalized by the values of selling, for example, so too are the values of science marginalized by the values of selling. The science that is pursued is often the science that powerful funding agencies choose to prioritize…and the science that is carried out by scholars with demographic privilege in academia [32, 59, 63].

D'Ignazio and Klein suggest that one heuristic for what constitutes social good is the goal of "co-liberation," which approaches 'good' from the perspective that "oppressive systems of power harm all of us, that they undermine the quality and validity of our work, and that they hinder us from creating true and lasting social impact with data science" [24, p. 9]. For the organizations embodying data feminist principles in this study, goals of co-liberation involve both moving away from powerful institutions of the data economy and, instead, toward the values, goals, and voices of their beneficiaries. While all participants sought some degree of co-liberation, their organizations' success at meeting co-liberatory goals varied. Some participants' need to prioritize data as legitimizer work to maintain funding limited their ability to dedicate significant efforts toward co-liberatory data work. Other participants were able to prioritize co-liberation goals more effectively by framing their efforts as data as amplifier, elevating their beneficiaries' voices to powerful stakeholders. Participants who were the closest to achieving co-liberatory goals did so through both data work as amplifier or data work as incubator and by embodying numerous data feminist principles — partnering with beneficiaries and employing (and in some cases being led by) those with lived experience in their organization. Working more closely with beneficiaries allowed these organizations to approach data work from the emotional, embodied, and ontological perspectives of beneficiaries, opening up critical opportunities for data as incubator work. Through collaborative data work, these organizations and their beneficiaries were able to catalyze change throughout the data ecosystem that aligns with the goals and principles of co-liberation.

Although nonprofit organizations have politics of their own to own up to (e.g., [37]) and operate in positions of power in relation to their beneficiaries [9], they appear much better suited to conducting data work with a goal of co-liberation than institutions from other sectors of the data economy. These organizations are in a promising position to think and act critically with data, carrying out data work in support of marginalized beneficiaries from their own position at the margins of data science. Just as the nonprofit or social sector is considered the "third" sector, viewed in complement to the private and public sectors, the advocacy data work revealed through this research suggests a fourth S, asserting values in data science that are distinct from those of surveillance, selling, and science.

Research that sets its unit of analysis on the fourth S will enable researchers to understand the challenges that organizations face when attempting to embody specific data feminist principles in different areas of their advocacy efforts; these findings might be taken up by institutions across sectors in building a more co-liberatory data economy. But as the data work of fourth S organizations also catalyzes change across the data ecosystem, researchers might also take up inquiries that extend beyond the organizations of the fourth S, tracing the impact of their data work across sectors and institutions, mapping which of the four functions of data work are most likely to catalyze change, how that change takes place, and what those patterns of change look like across interorganizational networks and coalitions. This line of inquiry would also enable researchers to identify best practices for inciting that change and creating larger segments of the data economy that embody data feminist principles.

## 6 LIMITATIONS AND FUTURE WORK

This research sampled a range of nonprofits serving a small assortment of beneficiaries, with primary missions distributed among each of Frumkin's four nonprofit functions. Future work would be well served to explore the transferability of these findings to other parts of the nonprofit sector—to what extent and for what specific classes of nonprofits might practices embodying data feminism exist outside of our sample? Further, to what extent and for what classes of other organizations might data feminist practices exist? Would we find practices embodying data feminism in public sector human service organizations, for example? Or in social enterprises, where organizations take on the dual goals of social good and selling?

This research also only sampled U.S. nonprofits, where organizations conducting advocacy work do so in the context of specific laws constraining their activities based on tax-exempt status. The U.S. nonprofit sector is also broader than the nonprofit sector in other countries, particularly those in which more social services are provided by the government. As such, future research would be well served to explore advocacy data work in other countries where the social and legal contexts surrounding advocacy—and thus, advocacy data work—are quite different from that in the U.S.

More pragmatically, if researchers want to better understand how to convince organizations invested in science, surveillance, or selling to take up data feminist principles, they might be well served to take on case studies of how nonprofit advocacy organizations advocate for data feminist principles, exploring nonprofit advocacy work focusing on specific beneficiary groups. What tactics and strategies do successful advocacy campaigns centered on working toward co-liberation employ to change the hearts and minds—and epistemologies—of new stakeholders? If we want to create space within the data economy for individuals dedicated to serving beneficiaries within their communities–and the beneficiaries, themselves, to be empowered through and by data work, this would be an especially compelling direction for future work.

## 7 CONCLUSION

In this research, then, we see specific data tactics and practices that enable four functions of data work. Because these organizations are beyond the margins of the data economy—not a part of the resource-intensive data powerful—they are actively reappropriating data across functions. In all of this, we see not just the data work that they do, we see the values and principles that orient that data work. Principles of examining power (DF1), challenging power (DF2), and considering contexts (DF6), underlie much of their data work and a great deal of instances of reappropriation. Other principles such as elevating emotion and embodiment (DF3), rethinking binaries and hierarchies (DF4), and embracing pluralism (DF5) anchored many of the challenges that they experienced. And some of the most wide-ranging and impactful data work called on these organizations to advocate not just for their advocacy issue but for the data feminist principles, themselves.

In prior research, Bopp et al. [15] highlighted the reciprocal interaction between organizational mission and data work, finding not only that—as one would expect—mission affects data work, but that data work affects mission, as well. They coined the term "data drift" to characterize the phenomenon in which changes to the types of data collected precipitate mission drift in nonprofit organizations. Our research highlights an even broader space of interactions between mission and data work. In particular, the advocacy data work presented in our analysis foregrounds the often tenuous balance that nonprofit organizations walk among the myriad functions they serve in society.

Data work is central to advocacy, but it serves multiple functions beyond simply supporting quintessential advocacy activities such as public education, policy research, or coalition building. In many regards, advocacy work *is* data work. Data are tools with epistemological value to create knowledge about pressing social issues. As organizations work to address these issues in their communities, they rely on data work that is both time consuming and expensive. Not only do different stakeholders demand different data, they require being compelled by data in different ways. With limited resources, advocacy data work seems to need to be all things to all people. This is a huge ‘ask’ of any organization, but especially organizations working under the kinds of constraints that the nonprofit sector typically operates under. As organizations try to reappropriate data in so many different ways, they run the risk of shortchanging the functions of data work most central to their mission. But in the process, we see data practitioners both enacting and advocating for data feminist principles, and doing so from the margins of the data economy. But it is also these margins that have a powerful co-liberatory voice; and it is this data work that deserves to have a recognized place in the data economy as a fourth S: social good.

In this research, we have made the following contributions:

- Identified five stakeholders for advocacy data work, including beneficiaries, funding and partner organizations, policymakers, gatekeepers, and local publics;
- Constructed an analytic framework of four functions of advocacy data work in nonprofit organizations, including data as amplifier, data as activator, data as legitimizer, and data as incubator;
- Characterized the data journeys and related challenges in reappropriating data work across the four functions using a data feminist framework; and
- Argued for the inclusion of a new S in the data economy: social good.

This research is a first step towards honoring the challenging and promising advocacy data work that practitioners in the nonprofit sector do, in line with the seventh principle of data feminism—make labor visible.

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