

Creating a Sociotechnical API: Designing City-Scale Community Engagement

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ABSTRACT

Community engagement is to cities what user experience is to computing: it signifies a large category that simultaneously speaks to general qualities of interaction and to specific ways of doing that interaction. Recently, digital civics has emerged as a research area with a comprehensive approach to designing for civic encounters where community engagement is a primary concern for designing systems and processes that support broad civic interaction. In short, over the past year, we worked with municipal officials, service providers, and city residents to design a community engagement playbook detailing best practices for city-scale engagement. The playbook, as well as the collaborative process that produced it, provides a roadmap for thinking through the kinds of systems that might populate the design space of city-scale digital civics. This paper details our design-led research process and builds on emerging literature on designing for digital civic interaction.

Author Keywords

Digital Civics; Participatory Design; Publics; Community Engagement

ACM Classification Keywords

H.5.3 Group and Organization Interface: Collaborative Computing, Theory and Models

INTRODUCTION

Human-computer interaction has a long history of examining the promises and realities of computing technologies deployed to support government and democratic interactions [33,37,49]. More recently, researchers have examined how bureaucratic organizations take up contemporary systems meant to ease the burden of routine coordination and support public and regulatory accountability [40,56]. In a complementary move, others have examined how communities leverage computing to organize and act politically—working toward local solutions that require coalition

building, establishing shared identities, and place-making [15,17,24]. While each of these streams of research provide important historical context, accounts of professionalized governance, and community-based perspectives on the larger enterprise of participatory democracy [27,28], they do so through intentionally narrow lenses into how municipal entities and residents interact.

The difficulty here is that local governments are large, ever-changing organizations. They undergo periodic upheaval as elections install new leadership, service contracts for basic operations are renewed—from IT services, to garbage collection, to public parking fee collection and enforcement—and as the composition of city residents constantly changes. The consequence of this state of perpetual churn is that the many visions for what a city is and what it might become are under perpetual and contested revision.

When neither long-term plans for growth nor day-to-day operations of critical city services are stable, the need for robust, accessible, and meaningful community engagement is crucial [29,50]. The challenge here is creating processes and practices that survive past this organizational churn so that residents are able to insert themselves to help shape the policies affecting their neighborhoods and lives. This need is exacerbated because the term *community engagement* is to cities what user experience is to computing: it signifies a large and multi-faceted category that simultaneously speaks to general qualities of interaction and specific to ways of doing that interaction: while everyone can agree to wanting good community engagement, the precise ways in which that is done varies on the basis of any number of principled and pragmatic constraints.

With all of this in mind, we worked with municipal officials, private service providers, and city residents over the course of a year to design a comprehensive community engagement playbook. The term *playbook* has been appropriated from American Football to describe shared documentation of a team's offensive and defensive plays. In a civic context, playbooks can focus on specific service delivery practices or they can provide more general guides for how to connect residents to services. The playbook we created follows this genre: our goal was to design for a generous definition of community engagement—one that derived from the experiences and desires of community members and also included interactions with elected officials, municipal departments, public agencies, non-profit service providers, community associations, and resident-led

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civic organizations. Throughout our process, we attended to the challenges of designing for community engagement across the scales and sites of interaction between government and communities, including: time, geography (space), neighborhoods (place), socioeconomics, and the breadth of civic actors noted above.

The playbook we developed, and the collaborative process that produced it, provides a roadmap for thinking through the kinds of systems that might populate the design space of city-scale digital civics. Digital civics, as it has recently emerged, is an evolution and synthesis of research in community informatics, digital democracy, and smart cities that looks explicitly at the ways technology mediate the range of civic interactions. By taking a longer view of civic interaction, it moves beyond models of rational deliberation and discourse present in community informatics, past the support of democratic rituals present in digital democracy, and through the transactional assumptions underpinning smart cities. Instead, digital civics focuses on the relational elements comprising the fundamentals of civic interaction [11,47]. As such, it opens a more comprehensive approach to designing for civics, one that seeks integrative design efforts that treat civic interactions not as siloed encounters with particular entities, but, like user experience, one that pervades across all touch points of civic life.

FROM DIGITAL DEMOCRACY TO DIGITAL CIVICS

Across models of democracy, there are multiple ways computing might be deployed to support or advance particular outcomes [27]. For the standing research agenda of digital democracy, public deliberation has long been viewed as crucial [37,51]. It is within this line of inquiry that computing researchers have experimented with systems to support meaningful public deliberation and consensus building. The goal of much of this work is to connect communities together in consensus in order to influence governance.

Thinly veiled within this agenda is an assumption influenced by a Habermasian view of democracy and a Simoneon view of design [26,52]: that rational deliberation and a structured exploration of the design space (either design of supporting systems, or design of the urban and policy landscape itself) will produce solutions that satisfice. Even while recognizing the challenges of getting people to participate [50], much of the existing literature (with some recent exceptions, e.g., [2,15]) brackets the wide range of participation that inform not just rational and professionalized decision making, but also the accumulation and use of political power. However, both accounts of participation are necessary when designing for civic interactions as the political is inseparable from the rational.

Community Engagement & Participatory Governance

In order to support plural forms of participation, there is a need to recognize the different kinds of engagement that occur across formal and informal settings. In part, this means acknowledging the many motivations and impediments to participating in civic life: from level of education, to income, to affective and emotional responses to particu-

lar issues [21]. In contrast to the largely positive and hopeful rhetoric of participation in digital democracy literature, literature on community engagement points out that people do not typically engage in civic processes out of obligation or altruism, but as a result of anger at perceived injustice [21]. When people are angry, they are more willing to take on conflict to address imbalances in questions of resource allocation and the determining of winners and losers. What this suggests is that persuasion—and the consensus borne of deliberation—is in fact the enemy of participation because a “persuaded audience is not organized and engaged... it is more passive than active” [42].

Community engagement, then, exists within a space of tension between communities and public administrators. When communities truly engage in civic processes, they do so through politics of conflict; moreover, a truly democratic process of “deciding who gets what, where, when, and how” requires both embracing and working through that conflict [46]. Public administrators, however, are trained through a process of professionalization that both puts questions of policy and administration in technical terms—a rational problem to be addressed systematically—and seeks to design systems that protect against conflict [42]. In this way, community engagement for many public administrators is little more than sharing information and soliciting feedback, infrequently rising to the higher levels of Arnstein’s ladder of community participation [1].

While Arnstein’s perspective on participation has been critiqued for focusing too heavily on issues of power [54], we would argue that power relations are precisely what dictate the course of conflict between communities and public administrators. When public administrators see “neighborhood politics as locally and inwardly oriented,” they “don’t appreciate the politics of a situation as they arise” and are “unable to conceptualize the political implications of some of their decisions... often [failing] to understand the intensity and emotional nature of the opposition” [46]. This observation renders impossible attempts to create productive community engagement—and systems of support—based on two sides working toward alignment precisely because of the power dynamics at work.

For human-computer interaction and digital democracy research, the legacy of working with institutional actors means deployed systems have largely attended to the professional practices and technical framing of public problems that eschew the politics of community engagement.

Designing for Digital Civics

In a move beyond the privileged and professionalized versions of democratic participation, digital civics seeks to understand and design technologies for a wider range of civic interactions and experiences. There are two key elements to digital civics. The first is a turn to participatory systems. These kinds of systems and experiences provide an encounter with speculative future worlds that, according to McCarthy and Wright [43], enable “an open, empathic, and critical questioning relationship... [that] construct[s]

new imaginaries through mutual learning." Digital civics seeks to enable this mutual learning and transformation by engaging in conflicts and counter narratives [16,24]; it also points out that the transformative nature of participatory systems deployed for civic purposes is felt incrementally rather than immediately.

The incremental impact of participatory systems leads to the second element of digital civics: a shift from transactional to relational interaction [11,47,55]. By attending to the relations that underpin our civic lives, we open the design space to include modes of identity- and place-making [17,24], as well as sites of advocacy and activism [2,15,16]. The shift from transactional to relational interactions confronts the assumptions that government, or city (as a unitary entity), is simply engaged in *transactions* to *service* constituents. Instead, it enables us to begin to view governments (local or national) as *composed* through *relations* with constituents. Further, it is precisely these relations—not the deliberative transactions—that matter most in day-to-day civic life [5,11].

It is precisely these relational and reflective interactions of everyday civic life that Korn and Volda have begun to animate in their outline for friction as an important design frame for civic systems [35]. Instead of focusing on the privileged moments—voting, council meetings, public hearings—they bring to our attention the ways in which civics, and the community engagement practices it comprises, span multiple sites and are enacted at multiple scales. What follows is an account of our design-led intervention to bridge these sites and scales. Just as service designers recognize that the way we understand large systems is only through the touch points we have with them [53], we have set out to map and inform the many civic contact points in our urban setting by designing a comprehensive guide to community engagement meant to be relevant both for city residents and for the different kinds of organizations and institutions that make up a diverse civic landscape.

CONTEXT, METHOD, & ANALYSIS

In 2014, ground was broken on a new U.S. football stadium in Atlanta, Georgia. While the process to bid, design, and site the new stadium went quickly—and, from an outward appearance, smoothly—the battle over the stadium did not end when the mayor and others ceremonially turned the first shovelfuls of dirt in May of that year. What followed was an ongoing, contentious, and ultimately unsuccessful process to secure a robust community benefits agreement between the City, the professional sport team building the stadium, and communities directly affected by the stadium construction. Such an agreement would have provided accommodations like commitments to hire local vendors, construct affordable housing, and complete infrastructure improvement projects in the local community.

Recognizing the failures of the community benefits process, the mayor's office, supported by an organization called Living Cities, took on a project to examine and re-imagine

how community engagement occurs within Atlanta. The project was focused on working with the five neighborhoods most directly impacted by the new stadium. With this starting point, we partnered with the city and with representatives from each of the affected neighborhoods to first inventory local service groups, including: faith-based development coalitions, social service providers, neighborhood civic organizations, public agencies, and non-profit organizations with a variety of programming and scopes of funding. This inventory served to set a foundation for understanding where and how community engagement occurred as well as the cultural legacies and power dynamics that led to the present breakdown in engagement. A substantial component of the challenge was working through the conflict between the city and neighborhoods dealing with economic and physical distress, the immense impact on the cultural heritage of the community from the stadium project—which demolished and displaced two historic churches, one being the first African American church in Atlanta—and a lucid fear among longtime residents of being intentionally displaced through redevelopment and gentrification.

It was in this context that we conducted a series of workshops to cultivate a shared understanding of community engagement—the commitments and responsibilities of institutional actors and residents—and to design the community engagement playbook. The playbook was meant to serve as a locally rooted guide, describing both the obligations outsiders have when approaching a community and the responsibilities communities have once approached. While the initial motivation for the playbook was to produce a corrective artifact following the breakdown during the community benefits process, there was a mandate from the Mayor's Office to produce something that would be useful more generally as several of the city's neighborhoods were facing similar challenges managing changing economic conditions, redevelopment, and gentrification.

Method

In order to develop a playbook that would reflect the broad range of experiences and needs of community stakeholders—and that would be relevant to a staggering range of professional and administrative practices across city departments, service agencies, and active non-profits—we developed a multipart design intervention that built on the inventory noted above. The first part of our process involved collecting interviews from representative stakeholders in both the target neighborhoods and across city government and other public or quasi-public entities with official responsibilities, projects, or programming active in the area.

To collect the interviews, we recruited community members from the five target neighborhoods and provided training and equipment so they could interview fellow residents about their experiences with the city—everything from dealing with the day-to-day operations of waste management, watershed, and public safety, to specific development projects and longer histories of engagement around eco-

conomic and social mobility. Altogether, eight community members interviewed forty other residents about the current state of community engagement and their experiences with the many forms of outreach, communication, and collaboration different city agencies might engage in.

In parallel, members of the research team along with two additional community members interviewed forty-two municipal employees and officials about their community engagement practices. These interviews focused on the kinds of projects that involved different forms of community engagement and details about how those different kinds of engagement practices were brought to the public and, in particular, to the residents of the five neighborhoods.

Collectively, these interviews formed the basis for both a large-scale public event we called the “Solution Session” as well as a series of working sessions that followed. Together, these events were conducted in order to understand the challenges and breakdowns of community engagement and to develop a set of shared expectations and obligations.

Solution Session

The solution session was a large public event attended by approximately 100 people composed of residents from the impacted neighborhoods as well as municipal employees. The goal of the event was to juxtapose the main challenges that the city was facing against the issues with which the community was dealing. To do so, we provided a set of scenarios taken from the interviews that described either community resident experiences when approached with engagement or the experiences of municipal employees when trying to engage. We then had attendees identify the community responsibility in the scenario and the municipal (or service provider) responsibility in the scenario.

The responses we solicited asked attendees to define priorities and formulate clear, specific actions that either city officials or community members should take to resolve breakdowns more adequately. The actions that attendees documented established a system of ground rules to achieve a desired end—good community engagement—and to help bridge the gaps between the experiences municipal employees or community members had in the past with the engagement experiences they wanted to have in the future.

By focusing on specific scenarios and asking session attendees to think through shared responsibilities, we were working to create an environment that both acknowledged the distrust and skepticism from decades of strained relations while illustrating how the underlying breakdowns were not the result of individual malice or neglect, but from both the city and the communities working from systemic constraints deeply rooted in complex racial and economic histories. Ultimately, we wanted to make the social and organizational infrastructure of community engagement visible so that we could then set about reimagining how that infrastructure might be created to support the desired experiences, processes, and outcomes expressed throughout the evening.

Working Sessions

Over the next nine weeks, we held eight two-hour working sessions with a group of residents, city employees, and project personnel. Each working session was composed of five to eight community members who responded to our open invitation to participate at the solution session. In total, twelve different community members attended at least two working sessions and a group of four individuals attended four or more meetings. At least two community members were present at each gathering.

The working sessions—hosted in two accessible locations within the community—were developed to establish a shared definition of community engagement grounded in the experiences of residents and municipal employees. Each session was structured to identify and co-develop the core principles of the playbook and to create and refine the content of each play.

Analysis

We took detailed field notes at each stage, and collected all content produced at the solution session and subsequent working sessions. These materials were then analyzed in an inductive and ongoing manner in order to cluster the content around a core set of ideas [7,13,45]. The analysis was not thematic as such, but instead followed the structured and iterative development of content intended for the community engagement playbook: the first round of analysis focused on clustering to identify the kinds of plays that would make up the playbook; the second round of analysis clustered principles that should guide community engagement; the final rounds of analysis clustered around kinds of actions—what would eventually become plays—that different stakeholders should take to enact the principles within each of the identified action areas.

The areas of focus that arose out of our early analysis included: communication, trust, institutional barriers, coordination, employment, education, infrastructure, housing, and relationships. Similarly, the key principles that came out of the workshops included the need for engagement practices that were carried out: accountably, sustainably, inclusively, collaboratively, consistently, humbly, respectfully, holistically, and purposefully. These then informed an expansive set of actions—actions that would operationalize a specific area, like education, as well as actions that would respond to a specific principle, like inclusivity. These were then refined iteratively to create an agreed upon playbook that reflected both *what* needed to occur for successful community engagement and *how* it should occur.

DESIGNING & ENACTING COMMUNITY ENGAGEMENT

The structure of our design intervention revealed the challenges of community engagement at different scales of experience. By casting a wide net through the Solution Session, we created an event where residents and municipal employees could gain a sense of the multiple sites of engagement and how those sites are encountered by different stakeholders. The working session then turned to more fine-grained detail about how to motivate and structure commu-

nity engagement by specifying how it should be done. That specification—the playbook—became both a guide for implementation and a metric against which stakeholders could hold each other accountable for whether they were practicing “good” community engagement.

Solution Session

The solution session was structured around six scenarios derived from the interviews conducted by residents and the research team. Attendees sat at round tables of eight to ten people and worked together to answer two questions: For the scenario [described on this card], what are the responsibilities for the city or the community? How can we help you do your job [complete your responsibility] better? Each table had an intentional mix of residents and municipal officials so that conversation could develop around where responsibility was situated and the impediments to delivering on those responsibilities. Attendees wrote their responses on post-it notes and placed those responses relative to each other on a larger sheet that was then used in a full-group report at the end of the evening.

The responses covered a range of obligations, a special organization of how those obligations related to each other and whether the weight of obligation fell to either city or community.

For example, one of the scenarios (complete with supporting quotes from the community interviews) read:

The community thinks that they should have a say, earlier on, in overall city planning discussions.

Quote from resident: *“At the end of the day, by the time you have any input, the decision's already made. It's like the plan that they give you is a B plan, when the A plan has already been implemented.”*

This scenario led to a series of notes describing the obligations shared by city and community members as well as the shared responsibilities necessary to meet those obligations. In part, the responses for the city included: build relationships, use consistent messaging, go where people are, and create a process with clear opportunities for action. For residents, some of the obligations included: participate consistently, know how to use the process, and increase involvement. For all of these obligations to be met, participants pointed to a set of concrete steps that both residents and officials could take: develop a common language, and provide education on subject matter, process, and effectiveness.

The responses from the example above were indicative of the tone and content created across the set of scenarios presented to the attendees. It became clear that both municipal officials and residents were aiming for meaningful interaction, but breakdowns would occur at multiple points: when process was unclear, when the timeframe and expectation for input were not communicated, when information was unavailable, or when there was no shared language. Each of these breakdowns orbit the tensions of rationalized

public administration, where the use of technical language and professional decision-making practices foreclose wider participation from individuals without the vocabulary or the professional background. These breakdowns turn civic interactions into *de facto* black boxes as non-professional actors are unable to access information or meaningfully participate in processes. Further, the realities of political power wielded through the speed of decision making, or the use of engagement to *inform* rather than *co-develop*, was a source of tension with residents who desired more active and constructive roles in determining the future of their communities.

The solution session made it clear that engagement matters in both *how* it is conducted and *where* it is conducted. With this in mind, the kind of deliberation tools that dot the history of digital democracy focus much too narrowly on a vision of engagement framed simply as informed decision making (e.g., [10,36,37]). To be sure, providing resources and training so citizens are well informed is an important element, as are tools that enable asynchronous participation in order to help mitigate the constraints on participating in face-to-face forms of public meetings. However, each of those responses assumes a rational and, in many ways, technical progression through engagement processes where a best or optimal solution is the goal.

The echoes of Simon's notion of satisficing that reverberate through this perspective on community engagement are baffled by the realities of municipal operations and urban planning where power and politics drive both how engagement happens, where, and at what speed. Taken together, the output from the solution session put into clear relief that the challenge of community engagement is one of problem setting, not one of problem solving [12], and that designing technologies and processes that support and empower meaningful engagement from all stakeholders needs to embrace multiple logics simultaneously, rather than bracket or silo them.

Following our quasi-thematic analysis of the material produced at the solution session, we honed in on four categories to drive the next phase of the design process: *responsive communication*, *investments in each other*, *building for us all*, and *sustaining relationships*. These areas became a way to structure and focus the work done over the following weeks to develop the content and tone of the community engagement playbook.

Working Sessions

In the weeks following the solution session, we held eight working sessions to develop the content and structure of the playbook. These working sessions were composed of a consistent group of representatives from the community, municipal agencies, and other service providers. In all, each session had ten to fifteen people present representing neighborhoods, municipal organizations, and private service providers. We structured each meeting around a brief re-cap of what had occurred previously, followed by the introduction of a structured activity to author specific play-

book content and build on previous work. We ended with a set of closing remarks that included homework to setup the following working session.

Session 1: Setting the Tone, Establishing Goals

We structured the first working session to build out specific activities that should be done under each of the four categories developed from the solution session. The goal was to break down each area—communication, personal investment, building for all, and sustainable action—into a series of more specific actions that should be undertaken by either municipal entities or by community organizations. This structure was derived directly from the framing in the solution session that asked attendees to organize engagement work along lines of responsibility that tilted toward city or community. While the goal built directly on the work done in the solution session, what we did not realize until we held the first working session was that we needed to create a space for individual experiences to form the foundation of our design process for the playbook. In other words, despite the common context of the solution session, we needed to return to problem setting with the smaller group rather than leaping straight into problem solving.

To that end, the majority of the time in the first working session was taken by community members giving detailed accounts of their experiences with community engagement—most typically where it had failed to deliver or had appeared disingenuous, especially within the context of the stadium project and the ongoing creation of plans for neighborhood development and economic renewal. Some of the conversation reached far back in history to the changes that occurred in Atlanta following the Civil Rights movements and the unintended economic consequences of integration that undermined a vibrant local Black economy and began to sow the seeds of divestment and decline [22,32,38].

The outcome from this activity helped us to understand that *education* was an important engagement goal missing from the items distilled after the solution session. Education covered both a sense of being informed—outsiders need to educate themselves on how to go about working with community members—and through empowering residents by validating community members' contribution through their experiences. Simply put, in order to create a playbook for effective community engagement, we needed to be *enacting* through our process the same forms of cooperative, co-involved participation we wanted populating the playbook. The first step of embodying that genuine engagement was to provide a space where community members could educate us and each other on where they were coming from and what they wanted to achieve.

While the first session did not materially advance the creation of content for the playbook, it did establish an important tone for the process. By collectively framing the problem with the people involved, we made it clear the process should be based on genuine cooperation and co-ownership and not slip into old habits of tokenism and

appropriation [1]. Allowing the conversation to drift away from a focused transaction of doing some task-oriented work enabled us to meet community members on their terms and move at their pace [48]. The consequences of this followed the observation that it is important to share the responsibility of co-creating a participatory research agenda [41]. Our detour into personal accounts of community engagement and the motivations for participating in the working sessions established shared ownership of the process and established the personal relationships needed to see that process through—both being important elements of successful participatory endeavors [4,18,44].

Sessions 2–4: Actions and Principles and Plays

Having established a shared understanding of personal history and common goals for what a community engagement playbook should accomplish, the three sessions that followed were productive in generating content for the playbook.

The process moved through in-person activities that asked participants to generate verb/adverb pairs that completed the statement: “effective community engagement should [verb] [adverb].” We then moved to creating specific plays that answered the questions “how” for each verb/adverb pair. Finally, we began to develop sets of checklists to further break down the answer to how, so that multiple adverbs—what we had then termed principles—would be realized. All of these materials formed the basis for the content of the playbook.

Throughout the three working sessions the participants and the research team continually refined, aggregated, and distilled what would become the core sets of actions, the principles guiding those actions, and the plays that implemented the actions according to the principles. The interim steps settled on the categories of action that included: design/build, communicate, collaborate, educate. Additionally, a large set of principles included engagements that were conducted: transparently, inclusively, creatively, responsively, sustainably, holistically, respectfully, and empathetically (among others too numerous to list here).

This process of choosing terms was more than an exercise in semantics: it set shared expectations for different sets of actors within a range of engagement encounters. For example, one participant strongly believed that “holistically” was a necessary adverb for the playbook. He justified this by speaking to his experiences running youth programming and the systemic challenges he and the youth he worked with face in education, employment, and their personal lives. He pointed out that the young people he worked with were engaged, but the piecemeal approach of that engagement meant many were still left exposed to the systemic biases that impede social and economic mobility. By articulating how his constituents' needs are holistic in nature (i.e. requiring resources across multiple entities and coordination across those resources—by no means a new observation, e.g., [40,56,57]), he focused attention on how efforts

of inclusion needed to account for more than just the specific time and place of engagement.

The observations made by this particular community member, and the way they informed his articulation of both actions that community engagement should accomplish and the way those actions should be done, reflect the larger issues of doing design work for social justice [20]: a recognition that engagements need to have different temporal qualities and are not simply point-in-time interactions; that engagements need to be reciprocal and relational, not transactional; and that engagements need to embed generous and distributed notions of accountability.

The final steps during this phase put the mutual obligations and responsibilities of municipal officials and community members into conversation with the trajectories of actions and principles. In turning to the intersection of actions born of civic responsibilities and the principles those actions needed to embody, we explicitly recognized engagement as two-fold, where at times it would be initiated by municipal entities and at times initiated by the community. This was an important turn in the development of playbook content as an implicit historic assumption was that these particular communities were always, and are only ever able to be, reactive. The perceived reality being that communities were not meant to influence decisions up front, and instead could only participate after institutional actors had made decisions behind closed doors. By shifting the problem framing around engagement as co-productive and bi-directional, we were able to bring forward a key frustration articulated by residents that they did not feel their voice mattered in determining their futures with respect to planning and [re-]development.

What also became clear was the extent to which plural engagement made for messy intersections of competing logics—not just from the perspective of systems that might support particular tasks [56], but from how each of the members of the working group conceptualized and internalized their responsibilities with respect to community engagement and the constituencies they represented. Competing views as to whether youth or the aging population should be of primary concern rankled throughout this process; the effectiveness of municipal operations and whether or to what degree grievances reflected poor process or poor use of process—bug or user error—persisted when specific examples were raised; and yet, these sessions still built empathy such that the plays generated were commonly understood to address particular material, organizational, or social constraints at each of these sites of conflict.

Sessions 5–8: Form and Content

After the fourth working session, we had developed a substantial amount of content for the playbook. This content included the work that community engagement should accomplish, the principles that guided that work, and specific activities, procedures, and processes that would need to be implemented to plan and deliver effective community engagement. The research team synthesized this content

iteratively with feedback and revision during the final working sessions to create the final set of community engagement plays.

One ongoing challenge throughout the process was the ambiguity around what a community playbook was meant to accomplish. Some participants felt uneasy contributing to conversations without knowing what explicit outcomes we were working towards, particularly when similar conversations had happened in these communities before to little or no consequence. The practical challenge was that engagement, for everyone in the room, was always a component of a specific project or kind of process. We, however, were not designing a road or a zoning procedure or public safety program; we were designing a set of guidelines that could reasonably be applied to each.

This disconnect pointed to the historically transactional mode of civic engagement within the area. Engagement was part of a service delivery model: services originated with the city or other service provider, and were reacted to by the community. Breaking from this model, the playbook was not meant to be a how-to guide to resolve particular service issues, but rather a meta-guide to address breakdowns in existing civic processes while reasserting engagement as relational. In the end, we were not implementing an engagement process for a specific project, but instead creating a kind of socio-technical API to guide a wide range of projects where community engagement was needed.

The ambiguity around working session goals was one of many examples where participants did not see eye to eye. As validating and productive as it was for expectations to align during the workshops, it was first necessary to generate what Korn and Volda have termed friction [35]. Friction, in this case, is a necessary mechanism to expose divergent values and provoke participants to better engage with mechanisms of civic engagement.

Participants in the working sessions participated in part because they wanted to make sure the playbook would describe a process that had their best interests in mind; however, it was not until there was disagreement or confusion around the plays and the positioning of the content that these interests were articulated and made manifest. While the research team tried to make the case that the abstract principles were fundamental for the playbook, participants continually wanted concrete resources to address material constraints of engagement. The friction present throughout the process, and particularly toward the end as the playbook took shape, was an important part in achieving an outcome where participation resulted in a truly co-owned outcome and where the shared accountabilities to how it would circulate in the world were made clear to everyone involved in its creation [8,20,56].

DISCUSSION

As a tool to guide engagement, the playbook provided a way to resist the technical framing of planning issues, instead guiding municipal officials to work with the political

realities of affected communities and guiding residents on how to demand such realities be built into civic processes. Further, all of the principles and plays were developed in a frame of contention and contestation as the residents who worked with us to develop the playbook were in the midst of their own hard-fought negotiations around master plans and redevelopment cascading from the construction of a multi-billion-dollar sport stadium.

In the end, what the playbook provided was both a process to begin enacting the very kinds of community engagement it was meant to guide as well as a roadmap for understanding the location and qualities of civic touch points. These touch points included the kinds of outcomes from civic interaction residents wanted—communication, personal investment, building for all, sustainable action, and education—and how those outcomes could be realized through the plays and guiding principles. All of this suggests different categories of digital civic systems that differ from supporting the transactions of deliberation and instead seek to mediate contested and vigorous relations within and across community boundaries.

Citymaking through Engagement

The first area we can turn toward to think more broadly about the role of community engagement is smart cities. With the rise of increasingly networked smart cities, boundaries blur across levels of scale, sets of actors, and the digital artifacts that are produced to connect them. Forlano argues that as sociotechnical issues and infrastructures grow more enmeshed—specifically in the context of smart cities—so too must our capacity to think and design for these complexities [23].

Central to her claim is that the values of the smart city agenda align with those found in computer science, favoring efficiency, speed, and seamlessness. Just as public administration frames the world in the technical problems of planning and municipal operations, smart cities also privilege a technical and transactional framing of cities as their residents participate in, or become appropriated by, sensors, data, and analytics. This framing makes the local and political impact of smart city services and mechanisms more difficult to identify and thus more difficult to hold accountable, to critique, or to resist. Here is where the rhetoric and aspiration of smart cities attempts to obviate civic engagement because the political axes of history, justice, and culture are rendered illegible through instrumentation.

In the same way that cities are moving towards denser networks of issues, technologies, and bureaucracies, the civic responses to these developments must also connect across multiple sites. Part of Forlano's argument is that engagement—and the design work to support and foster that engagement—needs to include both the people that make up cities as well as the objects a city comprises: “design investigations of socio-technical systems and collaborative citymaking require more nuanced theoretical underpinnings than those offered by [human-centered design]. Instead, they require that we decenter the human to consider the

agency of nonhumans in the context of the Anthropocene” [23]. This move builds directly on the material turn in science and technology studies (e.g., [6,34,39]), and has similar advocates among design researchers in HCI who argue for the need to critically approach design as interacting with publics composed of human *and* non-human actors [30,31].

Many of the elements above became apparent during the process of creating the community engagement playbook. The residents of the community had agency in the process to create and shape the plays guiding engagement, but so did objects like the stadium, master development plans, and housing development projects whose presence persistently structured what we collectively meant by community engagement, including: the conditions of conflict, the processes for desired outcomes, the shared obligations and responsibilities stakeholders had to each other.

In Forlano's call for collaborative citymaking, she prompts designers to place critical perspectives at the forefront of their practice and seek to develop alternative values in order to address the increasing inaccessibility of city processes and systems. The abstract nature of our working sessions was one way for us as designers to address this urban entanglement. By hosting multiple sessions with a stable group of residents, city officials, and individuals from non-profit organizations, we were able to better *align* expectations for what different actors could contribute or how they could influence outcomes within particular civic processes. Additionally, the process demonstrated the complexities of the issues at hand, and showed why it was important for community responses to connect across people, processes, and objects—via residents, community benefit plans, and stadia.

The goal of demonstrating the interconnectedness of civic experiences was not to didactically teach participants how to do civic engagement, but to develop empathy and understanding. Our framing interviews spoke to the ways that both community organizations and municipal agencies were all already experts in their specific domains, but were doing their work along parallel tracks. The alignment that resulted through the working sessions illustrated how community engagement is rhizomic, requiring multiple parties to understand and work through *common principles* rather than assuming *common goals*.

By acknowledging and affirming the work that was already being done by communities—and by putting that work into communication with similar work done in municipal agencies—we were collectively working to document and enact moves from non-participation and tokenism to opportunities for genuine citizen power by aligning around forms of partnership [1]. One way for systems to better support alignment processes is to offer opportunities for increased transparency. By revealing the goals, motivations, and resources of a group of actors, others can find opportunities to align with these efforts. We are not arguing for full transparency as a corollary to successful citymaking; that is, we acknowledge that information and resources should be

strategically shared such that an organization or community can maintain autonomy and security, only making transparent that which they believe will advance self-interest or enable coalitions to form around common issues.

We can also acknowledge that while transparency is an important value to be incorporated into civic processes, transparency manifests itself differently across the minutiae of citymaking: from requests for services to public works, within the context of local elections, or through planning and development processes. In each, transparency provides different kinds of affordances matched to the different kinds of obligation to engagement and participation placed on resident or municipality [19]. These obligations are what motivated the structure of the solution session in which multiple stakeholders disclosed and negotiated where responsibilities fell for different kinds of community engagement. Within this, however, there is a need to pair transparency with other practices that make information and resources more legible. For example, it is not enough for a city department to release data to qualify as being transparent if other community and civic groups do not possess the resources or skills to make sense of those data. Transparency, in this instance, is not a singular practice to be implemented piecemeal but, as a kind of socio-technical API, must be implemented across multiple sites and levels of scale in order to be accessible and to create opportunities for alignment. By better aligning the practices and expectations of multiple stakeholders around common goals, it reduces some of the work necessary to collaborate across issues and community groups and better empowers community groups to advocate for themselves and serve their own interests in public processes that impact their livelihoods.

Multivocalities of Participation

It is important to acknowledge that transparency alone does not necessarily lead to alignment—nor does alignment mean consensus. Instead, alignment points to the commonalities that *do* exist, while acknowledging that there will be plenty of disparities as well. These disparities are as important and necessary to digital civics as shared concerns and issues across civic actors do not necessarily entail common methods, priorities, or outcomes.

That said, because both community organizations and municipal organizations will inevitably deploy different methods around similar issues, as such, systems and processes need to be underdetermined in order to be flexible enough to cater to the strategies of different actors. For our purposes here, determined systems are those that support transactional outcomes. They work from the assumption of a consensus-driven process of rational problem solving designed to reduce friction and avoid conflict. Just as public policy professional practice seeks to reduce friction by framing issues in technical terms, similar reflexes are lurking within human-computer interaction where usable and intuitive systems attempt to similarly reduce friction.

As a counter framing, underdetermined systems are those that work with, and introduce, friction [35]. They offer the space and flexibility for community organizations to self-determine their own best path to achieve a particular goal. As issues travel through affected communities, friction becomes precisely the attribute that lets residents and community organizations know when their interests are not being served. Similarly, friction gives them traction to influence the process to arrive at a different—and, ideally, more beneficial—outcome.

The way friction was built into the playbook was by placing plays for both community associations and municipal entities into conversation with each other. This enabled plays that build on established practices of community organizing to reflect the obligations communities can call upon from municipal actors in terms of maintaining accountability, sharing information, and setting expectations. The playbook does not just help guide small community organizations through the process of building membership and mobilizing for action, it injects friction into the process by providing a tool to hold municipal actors accountable to the agreed-to principles of engagement enshrined in the document.

This is where some of the uncertainty about the playbook—its underdetermined characteristic—became a resource. As the working group disagreed about how the plays in the playbook might be applied to specific projects, they did not disagree on the guiding principles. The plays provide friction—or traction—but the principles provided the common ground that mediated where consensus failed. In designing a framework for civic engagement, we created a mechanism that was pragmatic and productive without assuming consensus would be possible or that confrontation would be avoidable.

Another way to articulate this underdeterminism is to return to McCarthy and Wright's observation that mutual learning creates accommodations for conflicting methods and tactics while also working towards alignment. This concept supports both the professional practices of the planners, legislators, and municipal staff who have their established practices for civic work, while also allowing for corollaries that better support meaningful community or grassroots contributions. As the multi-stakeholder group worked with each other through the design process, they built up a strong sense of empathy for the challenges that residents face during prolonged and multiple community engagement programs, and the challenges municipal officials face when the invisible realities of their job and of regulation create perceptions of expediency or ill will.

By engaging in a process of mutual learning, the activity of community engagement sheds its didactic cloak and becomes once again participatory. The mutual learning that occurred through our design process and was codified in the playbook do not demand the disruption or obsolescence of existing professional practices; instead, they work to expose those processes—from both community and municipal sides—and make them legible to each other.

Prefigurative Design

Both multivocalities of participation and citymaking through engagement point to the boundaries and limitations of current digital democracy practices that rely on rational and deliberative frameworks. The messiness and contention—the righteous anger at injustice—that motivates widespread engagement is not a measured enactment. It requires social capital and tools for managing a diverse set of relations [2]. Instead of transactional services and practices—the exchange of information or resources for others—we contend that the relational nature of digital civics—that is, the accumulation and strategic alignment of information and resources—points to a wider spectrum of civic practices benefiting existing work, organizations, and initiatives.

The emphasis on alignments is a means of moving beyond simply articulating civic issues, and operationalizing existing resources and efforts to work through these issues. The work of alignment—finding opportunities for mutually beneficial work—echo models of civic interaction found in radical activist and organizing discourse. Specifically, these point to autonomy and coalition building, two principles from the anarchist organizing framework of prefigurative politics [25,58]. Here, autonomy refers to the agency to pursue work within an organization or movement that speaks to an individual’s interests. Coalition building refers to the practice of multiple organizations collaborating to advance similar goals. In the same way that concepts discussed above seek to expand the boundaries of civic action, prefigurative politics “express[es] the political ‘ends’ of their actions through their ‘means’” [9,14,25]. If organizers envision a more inclusive future society, they incorporate more equitable practices in the present in anticipation of that future.

We can observe prefigurative practices already taking place in HCI-related sites: at a grassroots, videogame-focused conference, ICTs played an important role for conference organizers to enact the same principles the conference espoused, such as inclusivity and accessibility [3]. The strategic use of existing platforms, such as WhatsApp, contributed to a more inclusive and democratic internal organizational structure. By participating in both a larger group chat, as well as smaller group chats dedicated to particular tasks, volunteers had the agency to choose what work they did and skills they developed (i.e. autonomy) while also contributing to conference operations (i.e. coalition building). WhatsApp afforded more lateral means of communication that did not prescribe specific modes of participation, but rather supported multiple, complementary entry points into conference organizing.

While WhatsApp provided affordances for prefigurative action within the context of a conference focused on inclusion, we can begin to see where similar affordances arise through the many civic touch points citizens have with municipal agencies. Likewise, we can begin to imagine a corollary to prefigurative politics through a notional prefigurative design, where design work that is explicitly oriented in service of political or civic goals does not only articulate

or represent these goals as design objects, and instead structures design processes to do the work of trying to actualize them. This stands in contrast to human-centered design practices which position themselves outside the frame of use—experience, use, and values are extracted through an attenuated design process as raw material to inform the design. Prefigurative design, on the other hand, exists within the design frame and enacts the experiences, uses, and values in the design *process* rather than only in the articulation of the system or artifact.

The design work we have presented here follows the traditions of participatory design with some affinity toward speculative design. From the former, it borrows the mechanisms of stakeholder participation and collaboration to build outcomes that both reflect and benefit those involved in the process. From the latter, it borrows the vision, creativity, and radicalism of imagining and creating an alternative future. Returning to the anarchist roots of prefigurative politics, prefigurative design both anticipates an alternative future and changes current circumstances to better resemble this anticipated future [9,14].

Elements of prefigurative design emerge from the design process we described here in three material ways: first, we built in mechanisms of accountability and ownership to ensure the same participants showed up week after week in order to build on past conversations and activities and establish a trajectory toward common goals (i.e. building a playbook of best practices); second, we built in flexibility and space to support sustained and meaningful participation, such that the resulting artifact served the needs of the participants that differed from the needs we outlined as designers and researchers; third, we provided channels for participants to do work that matched and built on their own interests and skills to encourage sustained participation and ownership over the final content of the playbook.

While each of these elements may seem modest, they reveal the relational dynamics that offered opportunities for more fruitful civic interactions. The cumulative efforts across multiple actors and sites generated the momentum for civic engagement to intervene in more entangled, networked, and complex urban processes. Similarly, friction, alignment, and the underdetermined system of plays operated as mechanisms for communities to make space for their needs and concerns to be adequately addressed. In this context, prefigurative design becomes a way to explore and experiment with civic interactions, examining the intersections and affordances of activism, advocacy, deliberation, and engagement.

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