Owning the data, owning the agenda: Citizen Science as a participatory governance tool in Jerusalem

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This article examines how citizen science, when structured around resident ownership of data, can function as a catalyst for participatory institutional change in divided urban settings. Drawing on a process-tracing study of community safety initiatives in four neighbourhoods of Jerusalem, two Jewish-majority and two Palestinian-majority, the analysis explores how residents used data to influence governance agendas. The study finds that citizen-generated data operated as a political instrument, eliciting three distinct institutional responses: *cognitive uptake* (confidence in resident-led data), *affective shock* (perceived challenge to institutional legitimacy), and *strategic alignment* (recognition of residents as partners). Even in a context marked by asymmetric power and mistrust, these dynamics enabled citizen-generated knowledge to gain institutional recognition and shape collaborative action. The findings highlight the politics of data as a mechanism through which citizen science can enhance accountability and offer a practical pathway toward collaborative governance in Jerusalem and other divided cities.

Detenere i dati, orientare l'agenda: la Citizen Science come strumento di governance partecipativa a Gerusalemme

Questo articolo esamina come la Citizen Science, quando strutturata attorno alla proprietà dei dati da parte dei residenti, possa fungere da catalizzatore per un cambiamento istituzionale partecipativo in contesti urbani divisi. Fondata su uno studio, basato sul metodo del process-tracing, delle iniziative per la sicurezza della comunità in quattro quartieri di Gerusalemme, due a maggioranza ebraica e due a maggioranza palestinese, l'analisi esplora come i residenti abbiano utilizzato i dati per influenzare le agende di governance. Lo studio rileva che i dati generati dai cittadini hanno operato come strumento politico, suscitando tre distinte risposte istituzionali: acquisizione cognitiva (fiducia nei dati raccolti dai residenti), shock emotivo (percepita sfida alla legittimità istituzionale) e allineamento strategico (riconoscimento dei residenti come partner). Anche in un contesto caratterizzato da asimmetria di potere e sfiducia, queste dinamiche hanno permesso alla conoscenza generata dai cittadini di ottenere riconoscimento istituzionale e di plasmare azioni collaborative. I risultati evidenziano la politica dei dati quale meccanismo attraverso il quale la Citizen Science può migliorare la responsabilità e offrire un percorso pratico verso una governance collaborativa a Gerusalemme e in altre città divise.

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Introduction

Over the past two decades, public governance has undergone a profound transformation. Traditional models that positioned citizens as passive recipients of policies, or at best as consultees in decision-making processes, are being increasingly replaced by participatory approaches that invite civic engagement across the policy cycle. However, as many scholars argue, the mainstreaming of participation has not necessarily translated into meaningful shifts in institutional power or policy agendas. Participation often remains procedural rather than transformative, designed to legitimize pre-determined decisions, rather than to redistribute epistemic authority or decision-making power (Bherer *et al.* 2017; Creighton 2005). In this context, scholars and practitioners alike have begun to explore more radical forms of public involvement, in which citizens do not merely participate in institutional processes, but actively produce the knowledge and frameworks that govern them (Hecker *et al.* 2018).

Citizen science has emerged as one of the most promising modalities for this shift. Traditionally developed in the environmental sciences and biodiversity monitoring, citizen science refers to the involvement of non-professional volunteers in the production of scientific knowledge (Leager *et al.* 2023; Roche *et al.* 2020). However, in recent years, citizen science has evolved from a data collection tool into a form of participatory governance, one that allows communities to define problems, generate evidence, and intervene in public decision-making processes (Chiaravalloti *et al.* 2022). When citizens collect, interpret, and control data about issues that directly affect their lives, they may challenge existing institutional hierarchies and reshape governance agendas. In this sense, citizen science is not only a methodological innovation; it represents a political shift in the architecture of knowledge and authority.

This paper argues that citizen ownership of data constitutes a new pathway of participatory institutional change. By generating evidence that is both locally grounded and collectively owned, citizen science initiatives can transform the relationship between residents and governing institutions. Rather than asking whether citizens are engaged in participatory processes, the more critical question becomes who owns the knowledge that informs collective decisions? When citizens own the knowledge, they can also claim ownership over the public agenda.

To explore this shift empirically, the paper examines a multi-neighborhood community safety initiative in Jerusalem, where residents (with NGOs), rather than authorities, collected, analyzed, and mobilized data regarding local safety challenges. The initiative, embedded in an institutional framework involving community councils, municipal departments and NGOs, provides a unique opportunity to trace how citizen-led data production shapes institutional responses. Unlike conventional participation processes, which rely on institutional invitations to engage, this model begins with citizen-defined problems and citizen-controlled knowledge, compelling institutions to respond to emergent public claims grounded in local data.

The central research question guiding this study is: *How does citizen science, when structured around resident ownership of data, function as a catalyst for participatory institutional change?*

Addressing this question contributes to three ongoing debates. First, it advances scholarship on participatory governance by shifting attention from participation as engagement, to participation as epistemic authority and collaborative governance (Ansell and Gash 2008). Second, it expands the conceptual scope of citizen science beyond environmental monitoring, demonstrating its role as a governance technology capable of reallocating power and responsibility between institutions and communities. Third, it contributes empirical evidence to discussions of institutional responsiveness under conditions of complexity and mistrust in divided cities, like Jerusalem.

The case of Jerusalem, while characterized by deep societal divisions, asymmetric power relations, and low levels of institutional trust, is not presented here as an exception (Brenner *et al.* 2026; Allegra *et al.* 2012; Bollens 2012). Rather, it functions as an extreme case that illuminates how participatory innovation can emerge precisely where institutional legitimacy is weakest. Governance in Jerusalem is shaped by markedly unequal opportunity structures: Jewish and Arab-Palestinian residents experience fundamentally different modes of access to municipal institutions, policy arenas, and mechanisms of representation (Avni *et al.* 2022). These structural conditions profoundly shape the possibilities for agenda-setting or mere participation, especially among Palestinians (Brenner *et al.* 2026). By examining citizen science in this context, the study explores how citizen-led knowledge production interacts with these conditions. Jerusalem thus offers a critical lens for understanding both the potential and the limits of participatory governance.

The remainder of the paper unfolds as follows. Section 1 develops a theoretical framework that conceptualizes citizen science as a form of participatory governance innovation, outlining a process of data ownership, agenda control, and institutional response. Section 2 presents the

research design and methodology, detailing the participatory structure through which residents conducted the community safety study, and the process-tracing method. Section 3 presents the processes in two neighborhoods and the "Politics of Data" by showcasing the institutional responses to the data. The paper concludes by discussing broader implications for the theory and practice of participatory public action.

1. Theoretical Framework

Participatory Governance: Background and challenges

Participatory approaches to public policy have evolved significantly over the last five decades. Early models focused on consultation as a means to democratize public decisions, seeking to overcome the hierarchical logic of ruler/ruled relations (Fung 2006; Klijn and Koppenjan 2002). This shift was conceptualized in the trajectory of the "interactive state" (Akkerman *et al.* 2004), where institutions increasingly opened decision-making cycles to societal actors. However, as scholars have observed, much of this participation remained bounded by institutional agendas and did not necessarily redistribute power or knowledge (Creighton 2005; Bherer *et al.* 2017).

By the 1990s and early 2000s, the discourse of collaborative governance emerged, highlighting co-production and network-based problem solving (Innes and Booher 2003; Ansell and Gash 2008). Within this paradigm, participation was no longer judged only by its inclusiveness, but by its capacity to improve institutional intelligence and generate actionable solutions under complexity (Hoppe 2011; Mayer *et al.* 2020). Public institutions were not merely listening to citizens, they were increasingly attempting to co-producing policies with them. However, as many have noted, even these forms of collaboration often maintain institutional control over the definition of the problem and the interpretation of evidence (Sorrentino *et al.* 2018). Institutional structures typically invite participation after agendas are set, limiting transformative potential. This is where citizen science and epistemic power introduces a new logic.

Citizen Science: New tool in participatory governance?

Citizen science has traditionally been defined as the involvement of non-professional volunteers in the production of scientific knowledge, often through data collection in collaboration with professional researchers (Irwin 1995; Bonney *et al.* 2009; Jaeger *et al*. 2023). Early formulations emphasized public engagement with science and the extension of research capacity, while later typologies distinguished between contributory, collaborative, and co-created models of citizen participation (Bonney *et al.* 2009; Haklay 2013). Building on this evolution, more radical and critical approaches to citizen science move beyond participation in data collection and position residents as epistemic authorities with control over problem identification, research design, and interpretation (DiSalvo *et al.* 2012; Chiaravalloti *et al.* 2022). Recent work further clarifies this shift by distinguishing between citizen science and community science, arguing that the latter centers a particular community as the locus of knowledge production and emphasizes collective co-creation, co-ownership, and locally situated expertise rather than universal participation (Silver and Shavit 2025). In this perspective, knowledge is not extracted from citizens but generated by communities, reconfiguring power relations by linking control over knowledge production to control over public agendas and expectations of institutional response.

This shift echoes Lindblom and Cohen's (1979) call for "usable knowledge" in democratic governance, knowledge that emerges from lived experience and can directly inform institutional practice. Citizen-generated data is inherently political because it translates social experience into measurable evidence, forcing institutions to engage with citizens' perspectives as part of their operational reality. The question is therefore not only how knowledge is produced, but how it circulates and gains authority within governance systems – how it is recognised, contested, or resisted by institutions.

In divided and unequal urban contexts such as Jerusalem, these dynamics become especially salient. Data production is inseparable from national struggle and structural inequalities that shape access to services, representation, and resources (Bollens 2012; Allegra *et al.* 2012). Recent studies document the systematic neglect of Palestinian neighbourhoods by municipal authorities, alongside the flexible and often informal ways in which Palestinian residents engage with the municipal political arena (Brenner *et al.* 2026). These conditions raise a central governance puzzle: under what circumstances would municipal institutions be willing to cooperate with and respond to locally generated knowledge, particularly when it originates from marginalised groups? This study addresses this question by treating citizen science less as a participatory method and more as a politics of data. A set of practices through which evidence becomes a medium of negotiation between residents and institutions. The generation and public presentation of data function as acts of claim-making that render

local voices visible. However, the issues articulated through citizen science remain shaped by inequality, with disadvantaged communities more likely to mobilise data around basic safety needs (e.g. fire hazards) and majority groups around higher-order concerns (e.g. sense of safety).

From this perspective, citizen science triggers institutional responses not through formal participation but through the circulation of data as a political object. These responses can be understood along three interrelated dimensions: (1) Cognitive Uptake – Institutions recognise citizen-generated data as credible and valid, accepting it as a legitimate basis for agenda-setting and diagnosis of public problems. (2) Affective Shock – Citizen data exposes institutional vulnerability and legitimacy gaps, generating emotional or reputational responses that compel public acknowledgment. (3) Strategic Alignment – Authorities begin to reposition themselves as collaborators, seeking to co-produce solutions once the data demonstrates both credibility and civic capacity. Together, these dimensions illustrate how citizen-generated knowledge moves through distinct political stages, from being noticed, to being felt, to being acted upon. The politics of data therefore provides an analytical lens to understand how epistemic authority, affective legitimacy, and strategic collaboration interact in processes of participatory institutional change.

2. Research Design and Methods

This study employs a mixed-methods participatory research design that integrates citizen science, process-tracing, and community-level survey analysis to investigate how resident ownership of data may catalyze institutional change in divided urban environments. The research is grounded in a radical participatory epistemology, positioning residents not as subjects of inquiry but as co-producers of governance-relevant knowledge. This methodological choice is consistent with recent scholarship on co-production and collaborative governance (Ansell and Gash 2008; Sorrentino *et al.* 2018), as well as emerging work on citizen science as a transformative institutional practice (Jaeger *et al*. 2023; DiSalvo *et al.* 2012).

Case Selection: Jerusalem as a Governance Laboratory

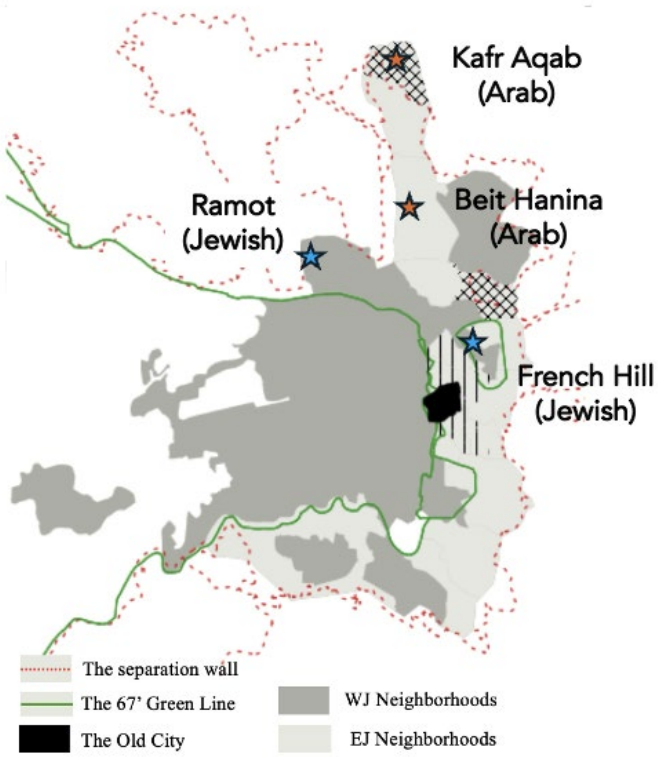
Jerusalem provides a uniquely strategic setting for examining participatory institutional change through citizen-owned knowledge. Unlike cities where participatory instruments operate within stable institutional environments, Jerusalem is characterised by asymmetric power relations, overlapping and often competing authorities, and a governance landscape fragmented across ethnic, religious, and municipal jurisdictions (Bollens 2012; Shlay and Rosen 2015). The city's population is divided between Jewish and Palestinian residents who experience sharply unequal access to services and representation, producing distinct forms of mistrust and civic disengagement (Brenner *et al.* 2023b; Brenner *et al*. 2026). More crucially, Jerusalem stands in the heart of the Israeli-Palestinian conflict (Lehrs *et al.* 2023; Brenner *et al.* 2023a) and suffers from recurring cycles of intergroup violence (Haran-Diman and Miodownik 2022). Hence, safety and security constitute prime local problems, some related to mistrust between the ethnic groups and some related to poor municipal infrastructure and services, especially in the Palestinian neighbourhoods (Brenner *et al.* 2026; Zugayar *et al.* 2021).

Moreover, while the municipality promotes community participation through formal channels in Jewish neighbourhoods, East Jerusalem communities often operate outside or at the margins of official planning frameworks, relying on informal leadership and parallel service systems (Avni *et al.* 2022; Brenner *et al.* 2026). This institutional duality creates an opportunity to compare how citizen-generated data functions in contexts of both relative integration and systematic exclusion.

Rather than treating these divisions as obstacles, this study approaches Jerusalem as a governance laboratory in which institutional responsiveness cannot be assumed but must be activated. The dual-neighbourhood design allows us to observe whether citizen science can alter governance dynamics not through legal mandates or participatory norms, but through the political act of data ownership. In this sense, Jerusalem is not merely a case of a divided city; it is an extreme case that reveals how participatory governance may emerge precisely in contexts of fragmentation.

Four neighbourhoods were selected to reflect variation in institutional access. Two are located in East Jerusalem (Beit Hanina and Kafr Aqab), where Palestinian residents face systematic infrastructural neglect and limited channels of formal representation (Brenner *et al.* 2026). Two are located in West Jerusalem (French Hill and Ramot), Jewish-majority neighbourhoods with established interfaces with municipal institutions. This comparative structure allows for the examination of how citizen science unfolds in contexts with differing baseline levels of institutional legitimacy and capacity.

Figure 1. Map of Participating Neighbourhoods and Jerusalem Borders



Source: Jerusalem Institute for Policy Research (original map)

Project Design

The research is embedded in a community safety framework explicitly designed to address both intergroup tensions and everyday urban safety challenges, such as inadequate infrastructure and fire prevention. Rather than being framed as a research intervention, the project was introduced and implemented as a community safety initiative led by residents in cooperation with institutions. This framing was essential, as it ensured legitimacy among diverse neighbourhoods and positioned residents not as research participants, but as co-owners of a governance process aimed at improving collective safety conditions. Moreover, the project was not designed as a classic citizen science initiative, in the sense of large-scale, volunteer-driven data collection aimed at producing generalizable scientific knowledge. Instead, it adopts a citizen science logic centred on a foundational principle of the field: the generation, ownership, and interpretation of data by residents themselves.

The project leadership included three NGOs:

1) The Israeli Association of Community Councils, representing the community councils, and facilitated access to residents in each neighbourhood.
2) The Jerusalem Intercultural Center, a civil society organisation specialising in intergroup relations, managed fieldwork and mediated the interface between residents, municipal authorities, and policing bodies.
3) The Jerusalem Institute for Policy Research, which provided scientific and analytical support, ensuring methodological rigour and documentation.

At the city level, a steering committee brought together representatives from the municipal administration, policing authorities, community council directors, civil society organisations, and the academic team. Rather than setting the research agenda, this committee functioned as a coordinating and accountability structure, ensuring implementation and collaboration.

At the neighbourhood level, resident-led safety committees were established to identify local safety concerns, co-design data collection instruments, and interpret findings. These committees included local residents, community workers, and active volunteers. Crucially, committee members were not treated as consultees but as investigators with the authority to define what counts as a safety issue in their environment.

Research Design – Process Tracing

To analyze how this resident-generated knowledge translated into concrete policy outcomes, the article

employs process tracing as its primary analytical strategy. Process tracing is a qualitative method designed to uncover the causal mechanisms linking actions, decisions, and interactions to institutional change within a bounded case (Beach and Pedersen 2019). Rather than estimating variable-based effects, the analysis reconstructs the sequence through which participatory knowledge production informed security-related governance. This approach is particularly well- suited to the research question guiding this study: How does citizen science, when structured around resident ownership of data, function as a catalyst for participatory institutional change? The objective is not simply to demonstrate that change occurred, but to explain how and why it emerged.

To achieve this, the analysis draws on a rich evidence base that includes documentary records (meeting transcripts, emails, policy memos), citizen-generated outputs (survey findings, interviews, problem rankings), and observed institutional responses (participatory observations). Through this material, the process tracing method identifies distinct stages in the participatory governance pathway.

The analysis outlines the process and focus on the authorities' responses to the data gathered in the survey. The survey instrument was not conceived by experts; rather, it was co-produced in partnership with neighbourhood committees through an iterative, dialogical process. In these sessions, residents collectively defined what constituted 'safety' in their environment, determined the appropriate language for describing risks, and identified which issues required institutional action. Each neighbourhood committee selected the safety issue most relevant to its local context and generated locally grounded survey questions to address it, ensuring that the instrument reflected the lived realities of residents rather than externally imposed categories. A total of 647 residents completed the survey (387 in East Jerusalem and 260 in West Jerusalem), with recruitment conducted through direct resident networks, community WhatsApp groups, and face-to-face engagement facilitated by neighbourhood committees. Surveys were administered in Arabic and Hebrew using language-specific terminology to preserve conceptual integrity.

While the final survey covered several shared domains, such as perceived safety, exposure to safety incidents, spatial identification of hazards, collective efficacy, willingness to engage in safety initiatives, trust in public institutions, and preferred channels for problem-solving, the relative weighting and framing of these domains differed across neighbourhoods in accordance with resident-defined priorities. Methodologically, this design reflects established approaches in participatory and citizen science research that privilege problem definition by participants. At the same time, the inclusion of common items (e.g. trust) enabled a comparative view across neighbourhoods and across the city's East-West divide.

The scientific procedures of survey construction, pilot testing, statistical processing, and data validation followed standard social science practices and ensured internal consistency and interpretive reliability. Given the technical skills required for statistical analysis and validation, these stages were conducted by the research team, while remaining grounded in resident-defined problem framings and priorities. Moreover, participation in the survey was mediated through community councils, and neighbourhood-based networks, resulting in greater participation by residents with higher levels of connections to the connections. However, demographic measures, including connection with the community council, present a diverse and representative sample.

That said, these procedures are not the primary focus of this article. The paper provides a technical account of survey development, but it mainly focuses on institutional responsiveness to resident-owned findings through a process-tracing analysis. From this perspective, even if the survey reflects the perspectives of more civically engaged residents, this does not undermine the analysis of institutional responsiveness at the centre of the paper.

Lastly, ethical safeguards were implemented throughout the process. Participation was voluntary, informed consent was obtained, and data were anonymized. Given the sensitivity of safety-related discussions, particular care was taken to ensure that participants were not exposed to political or legal risk. Rather than treating researcher positionality as a limitation, the study embraced an explicitly facilitative role. The researchers served as enablers of resident inquiry, providing methodological support and help needed to direct agenda-setting or data interpretation.

3. Findings

This section examines how resident-generated data functioned as a catalyst for participatory institutional change across two neighbourhoods: French Hill in West Jerusalem and Beit Hanina in East Jerusalem. The findings unfold in two stages. The first traces the process in both neighbourhoods, showing how residents used citizen science to redefine the terms of engagement with municipal and policing authorities. The second interprets the figures produced by residents, analysing how the

presentation of data triggered distinct institutional responses.

Rather than treating these figures as statistical outputs, the analysis approaches them as epistemic and political instruments through which residents asserted authority over the definition of public problems and reoriented the governance agenda. These reactions are examined through three mechanisms: (1) cognitive uptake, (2) affective shock and reputational defence, and (3) strategic alignment, which together explain how citizen-generated knowledge progressed from acknowledgment to operationalisation within institutional practice.

Two Case Studies: West and East

A. French Hill

The French Hill case began in a context of entrenched distrust toward municipal authorities and persistent scepticism regarding the police. As one resident stated in the opening meeting, *"We have reported these safety problems for years, and nothing has changed. Why should this time be any different?"* His remark reflected a long history of tense discussions between residents, the municipality, and the police concerning what Jewish residents identified as the neighbourhood's main safety issue – the presence of Arab residents from nearby areas in their public spaces, particularly in parks and commercial centres. This perceived "problem" often intertwined concerns about crime and harassment with deeper intergroup fears. In routine times, it was expressed as anxiety over public order; during periods of heightened tension, such as the ongoing war following October 7, it became framed as fear of nationalist or terror-related attacks. This ongoing sense of insecurity translated into a broader feeling of neglect, shaping residents' initial scepticism and creating an unfavourable starting point for any attempt at collaborative governance with the authorities.

Despite repeated attempts to establish a structured framework for cooperation, regular and institutionalized coordination between the authorities and the community had not yet developed. The municipality remained formally supportive but organizationally distant, while operational engagement occurred primarily through ad hoc interactions with the police. As a result, the second meeting took place only between community representatives and the local police officer. In this meeting, community members shared initial interview findings indicating that safety concerns were concentrated around certain parks.

Rather than questioning the validity of the findings, the police officer requested that the details be forwarded for further investigation, noting, *"We will check this with the municipality's legal advisor."* Although this response appeared procedural, it marked the first instance in which institutional actors treated citizen-generated data as legitimate and actionable. However, it also showed that the three most-valuable players – municipality, police, community – are not sitting together.

In this phase, the community committee, supported by local NGOs, worked independently to define its safety agenda. Through residents' interviews and internal discussions, members identified recurring fears, particularly walking through certain streets at night, reckless motorcycle driving, and loud disturbances. They decided to focus the project on "fear of walking at night," framing it as a shared community concern rather than an individual experience. This choice led to the design of a local initiative to mark and promote "safe pathways" and visible zones of safety in public spaces. To broaden participation, the committee drafted questions for dissemination via WhatsApp, inviting residents to share their experiences. These activities represented an autonomous stage of citizen science: residents were not only collecting data but actively shaping the local research and action strategy before institutional actors became involved.

In the fourth meeting, held between the community committee and the municipality, without police participation, residents presented their emerging plan and shared preliminary insights drawn from discussions. The municipality responded with openness and support, expressing recognition of the residents' initiative. One municipal representative remarked, "*We would like to include the police in meetings of this type in the future.*" This statement marked a symbolic reversal of authority: rather than inviting residents into a municipal framework, the municipality sought inclusion within the community-led process. At this stage, the epistemic hierarchy had begun to shift.

The process culminated in the first full Community Safety Table, where, for the first time in a long time, all institutional actors sat together around resident-owned data. The meeting included representatives from the police, the municipality, the community council, and local NGOs. Crucially, the discussion was structured around the findings of the community safety survey, which had been designed, administered, and interpreted by the residents themselves. This transformed the meeting dynamic: rather than reporting to authorities, the residents presented empirical evidence that guided the agenda. Institutional representatives no longer questioned the data's validity but requested access to it - *"The police asked to receive the full community safety survey results from June."*

The survey enabled a coordinated and constructive discussion on issues such as road safety, lighting, public events, and intergroup tensions in public parks. Each authority responded to the data with specific commitments: the police agreed to conduct additional enforcement operations and update mapping of hazardous areas; municipal officials proposed integrating ideas into their operational routines. What made this meeting distinctive was not the number of participants but the epistemic configuration: residents owned the knowledge that structured institutional dialogue. As one community worker reflected afterward, *"They came to the table because we had the data."* Since then and until the end of 2025 three more round tables took place. By December the neighbourhood disseminated a full-year plan for 2026.

B. Beit Hanina

The Beit Hanina process began in a markedly different institutional atmosphere from that of French Hill. While Palestinian neighbourhoods in Jerusalem typically face chronic inequality in service provision and limited access to municipal resources, community leaders in Beit Hanina approached this initiative with notable optimism. They viewed the process as an opportunity to establish a constructive partnership with authorities rather than a site of confrontation. In the opening meetings, community leaders, rather than residents, identified two major safety concerns: road safety and fire prevention, ultimately prioritising the latter. This early act of selection reflected both a pragmatic and strategic orientation. It signalled confidence in their ability to influence local governance while deliberately choosing an area of intervention that enabled cooperation with less politically charged institutions, such as the fire department and emergency services, rather than the police or the municipality.

Governance in East Jerusalem relies heavily on community leadership and local councils, which act as mediators between residents and the state (Brenner *et al.* 2024; Avni *et al.* 2022). Residents generally refrain from direct engagement with municipal or policing authorities, and as a result, participatory initiatives are rare and difficult to sustain. Much of the decision-making occurs through personal relationships, informal negotiations, and face-to-face meetings rather than institutionalised procedures. This deeply embedded mode of governance proved resistant to change, and in practice in the project, it remains the same.

In the months that followed, the Beit Hanina leadership continued to advance the project without conducting resident-led research or community engagement. Instead, they held internal meetings and one-on-one discussions with municipal officials. In one instance, the community council director approached the municipal business licensing department to request enforcement of fire-hazard regulations in local shops. His request was declined with the explanation that enforcement in East Jerusalem was "too difficult." Frustrated by the lack of progress, the council reconvened to reassess strategy and met independently with the fire department to explore new avenues for collaboration. Although communication channels widened, implementation remained stalled. The relevant authorities were not yet sitting together at the same table, but rather receiving updates about the process separately.

As the process stagnated, a facilitator intervened to reorient the initiative. The turning point came in September, when the community finished the community research, and presented their results. The data revealed low feelings of safety at night, high exposure to road hazards, and exceptionally low trust in the municipality's responsiveness. These results reshaped the governance dynamic. The first full Community Safety Table convened in Beit Hanina brought together all key actors, community leaders, the municipality, the police, and NGOs, around a single dataset owned and interpreted by the community. For the first time, the municipal agenda was structured entirely around citizen-generated evidence, and officials acknowledged the need to formulate an action plan based on resident-defined priorities.

The Beit Hanina case demonstrates how resident-generated data reshaped the dynamics of engagement between the community and the authorities, even when participation was mediated through leadership rather than broad citizen involvement. The survey, designed and conducted primarily by community leaders, nonetheless marked a significant epistemic shift. For the first time ever, local actors produced their own evidence and demanded that institutions respond to it. Institutional reactions ranged from defensive to cooperative, revealing both the fragility and the potential of such hybrid forms of citizen science. In the fragmented governance landscape of East Jerusalem, this process did not dissolve existing asymmetries of power, but it momentarily inverted them, granting community leaders the authority to define the problem and compel institutional recognition.

In contrast to the Israeli neighbourhood, a second roundtable did not take place. Although project leadership had defined this as a goal, local leaders found the process increasingly contested and difficult to sustain. As the council manager

explained, the survey surfaced multiple competing priorities, making agreement inherently fragile: *"There were so many issues… the challenge was deciding what comes first."* Importantly, the survey did succeed in convening the authorities and creating an initial space of engagement. At the same time, it generated a distinct, downward-facing layer of institutional response, compelling the council itself to engage with residents. As the manager noted, residents interpreted participation as a promise of follow-up and repeatedly asked, *"There was a survey, so what's next?"* For participants, the significance of the process lay less in the results than in the expectation of an institutional response to their collective voice.

The Politics of Data

The presentation of citizen-generated findings marked the pivotal moment when residents and community leaders transitioned from participants to epistemic actors, compelling institutions to respond. This chapter present several figures of the resident-led survey. Each figure represented a distinct dimension of resident experience - safety, trust, problem prioritisation, and willingness to engage. Collectively, the figures did not merely describe conditions and attitudes they help explain and reflect institutional reactions.

These reactions varied in form and forum. Some unfolded directly in community meetings, where officials were confronted with residents' interpretations of data. Others occurred indirectly, through presentations led by NGOs to municipal representatives, often without residents present. Across these spaces, the data circulated as both evidence and provocation forcing institutions to acknowledge, contest, or adapt to citizen-defined realities. Analytically, these institutional responses can be grouped into three interrelated mechanisms: cognitive uptake, affective shock and reputational defence, and strategic alignment.

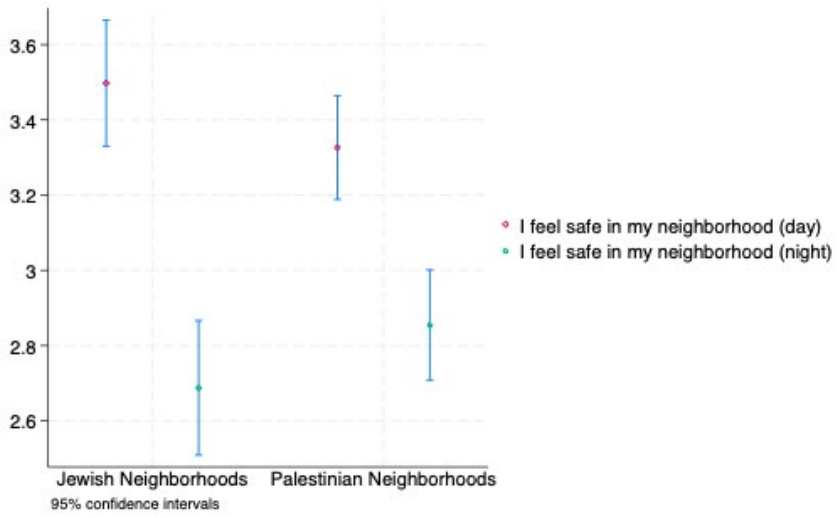
Cognitive Uptake

Cognitive uptake refers to the moment in which institutions internalise citizen-generated knowledge as relevant, credible, and actionable, regardless of whether they agree with its implications. Unlike forms of participation that are merely symbolic or consultative, cognitive uptake signals a deeper shift in the epistemic hierarchy of governance. It occurs when institutional actors recognise that residents are not simply expressing opinions, but are producing valid knowledge about the public realm.

In this study, cognitive uptake was observed when municipal and policing authorities responded to resident-generated data not with dismissal or deflection, but with acknowledgement of its legitimacy as a basis for decision-making. The presentation of safety perceptions (Figure 2) did not lead officials to question the methodology or sampling. Instead, they accepted the results as a reflection of lived public reality. Notably, the mean scores indicated moderate to high levels of perceived safety in most neighbourhoods, including Palestinian neighbourhoods where institutional distrust was otherwise high. This pattern signalled to authorities that residents were not exaggerating or using the survey to advance grievances, but providing a measured account of their everyday conditions.

A similar dynamic emerged with the presentation

Figure 2. Resident Perceptions of Safety (Day and Night) in Jewish and Palestinian Neighbourhoods



Source: Jerusalem Institute for Policy Research, 2025 (original survey)

of exposure data (Figure 3). Rather than reporting extreme or sensationalised exposure to threats, most respondents indicated low to moderate direct exposure to the problems they had identified as most relevant. This restrained pattern further reinforced institutional confidence in the reliability of the data. A municipal representative reflected: *"This is very balanced. People are not inflating the situation. They are describing it as it is. It is similiar to our [the municipality] knowledge on the issue."*

Together, Figures 2 and 3 triggered the first mechanism of institutional change – cognitive uptake. By demonstrating that residents' findings were balanced and methodologically sound, the data instilled confidence among institutional actors that the community-led process could yield reliable insights. Officials began to treat the information as a credible reflection of public reality rather than a political statement. Moreover, the Researchers helped answering any questions about the validity and representation of the data providing more confidence. This shift did not fundamentally transform the hierarchy of governance, but it opened a space of mutual confidence in which resident-generated evidence could be considered legitimate and actionable. Cognitive uptake, in this context, refers to the emergence of trust in the quality and intentions behind citizen-led data production and the first building block in the politics of data.

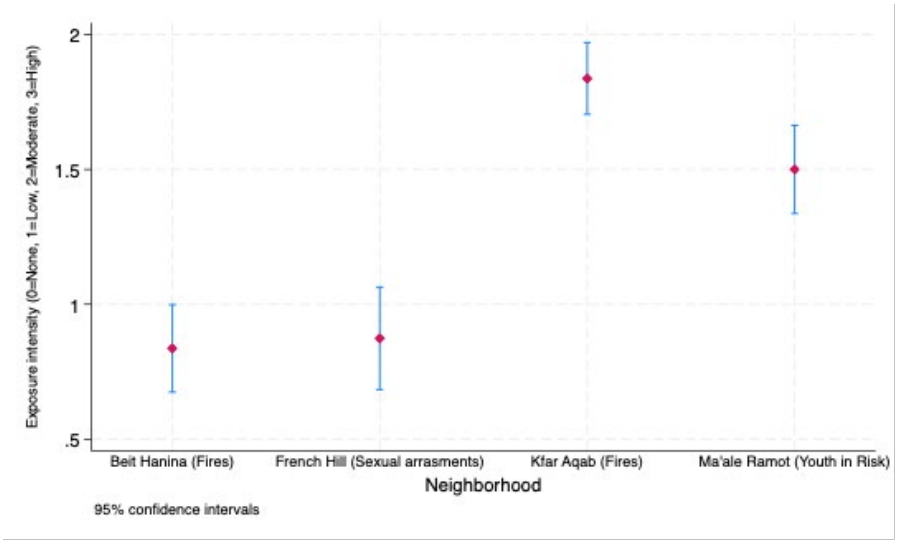
Affective Shock and Reputational Defence

If cognitive uptake marks the moment when institutions accept citizen-generated data as credible, affective shock represents the moment when that data challenges the institution's public legitimacy. Whereas the first mechanism is analytical, this second mechanism is emotional and reputational. It captures how institutions feel compelled to respond when confronted with evidence that not only diagnoses governance problems but places responsibility, implicitly or explicitly, on institutional actors.

The presentation of trust (Figure 4) generated an immediate affective response. In Beit Hanina, where the police scored notably low, the police representative reacted by personalising the data: *"I take this very personally. I have worked very hard in last two years to build connections here."* Later in the meeting, he asks to add trust-building as one of the main goals of the process. Importantly, this response did not dispute the validity of the data. Instead, it reflected institutional discomfort at being evaluated by residents on the basis of citizen-owned evidence. This affective reaction demonstrated that the data had reached beyond the cognitive and into the domain of institutional legitimacy. The police officer's emotional response illustrates that citizen-generated data does not merely inform institutions, it confronts them.

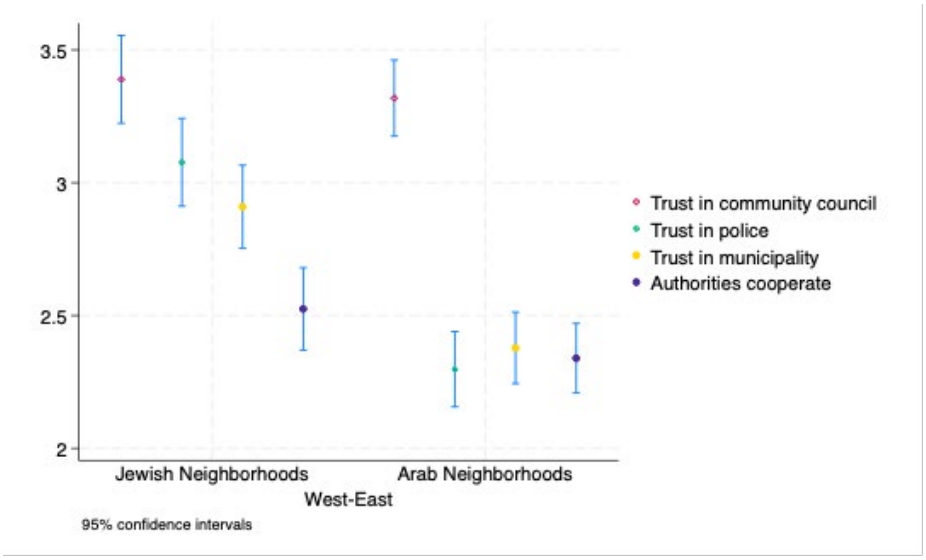
A similar reaction unfolded during the presentation of the top safety problems identified by each neighbourhood. In the French Hill, residents ranked Break-ins as their highest concerns. One municipal official, upon seeing these results, responded with visible concern: *"I don't agree with these results! People will think we are in Chicago – we are not in Chicago!"* This statement not only contested the accuracy of the findings; rather, it revealed reputational anxiety. The concern was not only whether residents had misreported reality, but also about the implications

Figure 3. Resident-Reported Exposure Intensity to Key Safety Problems, by Neighbourhood



Source: Jerusalem Institute for Policy Research, 2025 (original survey)

Figure 4. Levels of Trust in Local Institutions (Municipality, Police, Community Council) and Institutional Cooperation



Source: Jerusalem Institute for Policy Research, 2025 (original survey)

Table 1. Top Four Safety Problems by Neighbourhood (Resident Prioritisation Table)

Neighbourhood	1st Priority	2nd Priority	3rd Priority	4th Priority
French Hill	Break-ins to vehicles/homes	Road safety concerns	Nationalist-motivated crime	Public order disturbances
Ma'ale Ramat	Presence of minority labourers at construction sites	Youth loitering in public parks	Break-ins to vehicles/ homes	Road safety concerns
Beit Hanina	Road safety concerns	Public order disturbances	Stray dogs	Poor infrastructure
Kafr Aqab	Public order disturbances	Poor infrastructure	Break-ins to homes	Home squatting/ intrusion

Source: Jerusalem Institute for Policy Research, 2025 (original survey)

of that reality becoming publicly visible. The figure threatened the institution's image of competence and control, creating pressure to mitigate reputational risk through action.

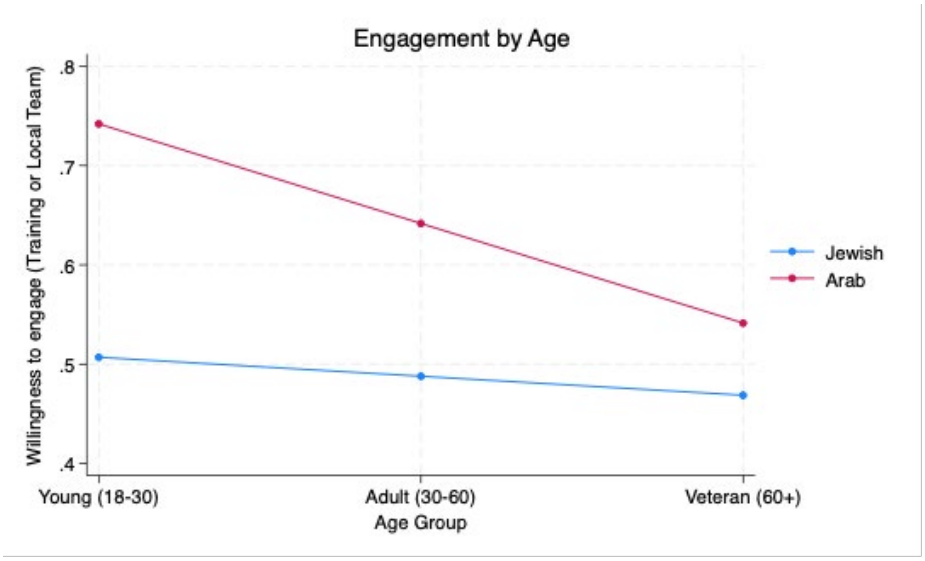
These reactions constitute what we define as affective shock and reputational defence. A mechanism in which institutions emotionally register the implications of citizen-generated data, leading to adaptive behaviour not because they are persuaded scientifically, but because they are compelled politically. This mechanism is crucial in the transition from knowledge acceptance to behavioural response. It marks the moment when institutional actors move from acknowledging data to recognising that inaction in the face of this data carries reputational cost. This affective pressure is a key driver in the subsequent shift toward collaborative engagement.

Strategic Alignment

If cognitive uptake reflected recognition of citizen knowledge, and affective shock exposed vulnerability to citizen judgment, then strategic alignment represents the moment when institutions recalibrated their actions in response to the opportunities revealed by citizen-generated data. This mechanism is not defensive, it is forward-looking. It captures when institutional actors begin to position themselves in alignment with citizens to co-produce solutions.

Unlike the previous figures, which focused on diagnostic insights, Figure 5 was explicitly strategic in nature. During the analysis stage, residents, with support from the research team, consciously chose to move beyond descriptive statistics to present a correlation between age groups and willingness to engage in local safety initiatives. It was the only

Figure 5. Willingness to Engage in Safety Initiatives by Age Group and Neighbourhood



Source: Jerusalem Institute for Policy Research, 2025 (original survey)

second-level analysis introduced in the presentation. This analytical choice was deliberate. It framed citizen participation not as a general aspiration, but as a targeted resource that could be mobilised through policy.

The figure revealed a clear pattern. In both Jewish and Palestinian neighbourhoods, younger residents were significantly more willing to participate in safety initiatives than older adults, with Palestinian youth exhibiting particularly high levels of willingness. When presented, this finding shifted the tone of the discussion. Rather than responding emotionally or defensively, institutional actors responded strategically. One municipal representative stated: *"This shows real potential. We must find a way to work with these young residents."* Another official even propose a practical option*: "I have an idea, we already have an emergency program for youth in East Jerusalem schools perhaps we can develop this cooperation."* The figure reframed residents not as a source of complaints, but as an asset with mobilizable capacity. Authorities began to ask practical questions: *"What kind of teams can be built with this age group?"* and *"Can we co-develop youth-led safety initiatives?"*

This moment signified the onset of institutional activation through strategic alignment. Whereas earlier figures forced institutions to recognise problems framed by residents, this figure encouraged institutions to join residents in designing solutions. Engagement was not interpreted as compliance, but as leverage. Evidence that residents possessed latent organisational capacity that institutions could not afford to ignore. The presentation of willingness-to-engage data therefore functioned as a pivot point. It transitioned the governance dynamic from reactive accommodation to proactive collaboration.

Through this mechanism, citizen-owned knowledge moved from challenging institutional legitimacy to structuring institutional action. In short, residents demonstrated that they were not merely subjects of governance, they can be partners in its production.

This mapping demonstrates that resident-generated data does not merely inform institutions; it activates them, beginning with epistemic recognition, passing through relational disruption, and culminating in strategic collaboration.

The findings of this study reveal that institutional change did not emerge from participation alone, nor from the mere inclusion of residents in consultative processes. Rather, transformation occurred through a distinct mechanism-based sequence initiated when residents assumed epistemic ownership over the definition, measurement, and interpretation of public safety. The citizen science process functioned as a governance intervention precisely because residents produced knowledge that institutions could not ignore, challenge, or easily reframe.

4. Discussion

The findings of this study contribute to ongoing debates in participatory governance by demonstrating that institutional responsiveness is not merely a function of state openness or citizen mobilisation, but is fundamentally shaped by the ownership of public knowledge. The citizen-generated figures presented through the community safety process were not simply diagnostic tools; they functioned as political instruments. This challenges

Table 2. Summary Mechanism Mapping

Mechanism	Exemplar Figure	Type of Response	Nature of Change
Cognitive Uptake	Figure 2: Perceived Safety. Figure 3: Exposure Intensity	Acceptance of citizen-generated data as credible and valid	Institutions begin to treat resident knowledge as authoritative, shifting the epistemic basis of agenda-setting
Affective Shock / Reputational Defence	Figure 4: Trust in Institutions. Table 1: Top Four Safety Problems	Emotional reactions signalling institutional vulnerability and concern for legitimacy	Institutions recognise that citizen data has reputational and political implications, creating pressure to respond
Strategic Alignment	Figure 5: Willingness to Engage	Recognition of residents as governance partners and co-producers of solutions	Institutions reorient behaviour to collaborate with citizens, moving from defensive postures to proactive co-production

Source: Jerusalem Institute for Policy Research, 2025 (original survey)

long-standing assumptions in the literature that participation primarily operates through deliberative inclusion or stakeholder representation (Klijn and Koppenjan 2002). Instead, the study finds that participation becomes institutionally consequential when it enables citizens to generate, interpret, and deploy knowledge.

This insight extends early conceptions of the "interactive state" (Akkerman *et al.* 2004), which emphasised participation as a corrective to the hierarchical logic of state decision-making. While those frameworks recognised the value of engagement, they typically assumed that institutions retain control over agenda-setting and the interpretation of knowledge. The findings here indicate that when residents collectively own the means of knowledge production, they acquire new forms of epistemic authority that compel institutional actors to respond. Similar dynamics are identified in collaborative governance literature (Ansell and Gash 2008), which highlights the importance of trust-building and shared problem definition. However, rather than resulting from institutional goodwill or facilitated consensus, the processes observed in this study show that collaboration emerged only after residents asserted data ownership, thereby redefining the terms on which institutions could engage.

In this sense, the study advances recent scholarship on co-production and generative participation, which argues that participatory processes can actively produce new institutional capacities rather than merely advising existing ones (Sorrentino *et al.* 2018). The resident-generated figures did not serve to inform authorities in a consultative manner; they initiated new governance dynamics by imposing a citizen-defined agenda. The shift from participation to co-production was not procedural but epistemic. It occurred when citizens became recognised as authoritative knowledge actors. This finding is further supported by the literature on citizen science, which has increasingly been conceptualised as a political practice capable of redistributing power within governance systems (Jaeger *et al.* 2023; DiSalvo *et al.* 2012).

The findings also contribute to broader debates on legitimacy and institutional adaptation. Classical theories of legitimacy emphasise citizens' perceptions of institutional performance and procedural fairness as key determinants of trust (Lindblom and Cohen 1979; Brenner *et al.* 2026). However, the processes observed here suggest a more reciprocal dynamic. Institutions themselves sought legitimacy through engagement with citizen-generated knowledge. Rather than legitimacy being granted to institutions by citizens, it was co-produced through the recognition of resident-led data as credible and politically salient. When the findings were presented, institutional representatives responded not only with analytical attention but with affective acknowledgment – expressing recognition, vulnerability, and eventually alignment with the residents' agenda.

This dynamic supports emerging arguments in governance research that institutions increasingly depend on participatory knowledge infrastructures to sustain authority and responsiveness in complex, fragmented contexts (Hoppe 2011; Mayer *et al.* 2020). In Jerusalem's divided urban environment, where trust and cooperation are unevenly distributed, legitimacy was not a precondition for participation but an outcome (even if limited) of citizen-led knowledge production.

The variation observed between French Hill and Beit Hanina further illustrates that participatory institutional change is not determined by initial levels of trust or integration. In contexts like Beit Hanina, where institutional responsiveness has historically been limited, citizen-owned knowledge

nevertheless initiated mechanisms of cooperation. This counters deterministic perspectives that frame divided or marginalised urban environments solely as barriers to participatory governance (Yiftachel 2016; Bollens 2012). At the same time, the forms of cooperation that emerged were shaped by structural asymmetries, including the types of issues communities prioritised and the ease with which institutional coordination mechanisms, such as round tables, could be established. However, these constraints also heightened the political significance of data ownership, as residents used knowledge production to assert their right to define the governance agenda. In both cases, the decisive moment was the same – the initiation of resident-owned data collection.

At the same time, the effectiveness of these participatory processes remains contingent on broader contextual conditions. Periods of heightened political tension, security escalation, or shifts in municipal priorities can narrow institutional openness and disrupt emerging forms of collaboration (Brenner *et al*. 2023a). In such moments, citizen-generated data may retain its value, but its capacity to translate into change becomes more fragile. This underscores that participatory institutional change is neither guaranteed nor linear: it operates within, and remains exposed to, the broader dynamics of conflict that shape governance in divided cities.

Despite its contributions, the process examined here also reveals important limitations and dependencies. Citizen science requires the coordination of multiple actors, community councils, NGOs, researchers, funders, and residents. Each actor with his own mandates, resources, and time constraints. This multi-actor configuration makes the process inherently demanding, both financially and logistically. Sustaining collaboration over time requires facilitation, trust-building, and iterative engagement, all of which are costly and difficult to institutionalise within short project cycles or rigid frameworks. Furthermore, the data produced by residents is inherently local and context-bound. Sampling through community networks, while effective for mobilisation, introduces potential selection biases and limits the generalisability of results beyond the specific neighbourhoods studied. The findings should therefore not be interpreted as representative of the wider city but as grounded insights into situated governance dynamics.

Ultimately, the very constraints of this process underscore its strength. By generating data that was both embedded in community realities and independent of institutional control, the initiative redefined what counts as credible public knowledge in a divided city. Its significance lies not in methodological precision but in its ability to reshape relationships between residents and authorities. In Jerusalem, where governance is often fragmented and trust uneven, citizen science and epistemic power presents itself as a practical and legitimate tool for advancing collaborative governance.

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