TRUST IN TRANSITION

FOR A JUST ENERGY TRANSITION IN AMSTERDAM ZUIDOOST

WAGENINGEN
UNIVERSITY & RESEARCH

AMS
AMSTERDAM INSTITUTE FOR
ADVANCED METROPOLITAN SOLUTIONS

TUDelft

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Abstract

This report presents the process and findings of a Living Lab conducted in Amsterdam Zuidoost on the topic of a just and sustainable energy transition, in collaboration with AMS Institute, Energy Lab Zuidoost, and EGK Centre. The Living Lab applied the "three creative diamonds" method of the Integrated Creative Problem Solving (iCPS) approach and a conceptual framework combining energy justice and social network theories to investigate cultural, linguistic, institutional, and other frictions hindering collaboration between residents, local organizations, and people with a key role in communities, and governmental institutions. An exploratory literature review, semi-structured interviews, and fieldwork highlighted the key role of "bridgebuilders": individuals or organizations with extensive social networks connecting local communities and governmental actors, enabling them to act as intermediaries.

These findings led to a reformulation of the research problem toward understanding how strengthening trust between the municipality and bridgebuilders could address underlying injustices in Amsterdam Zuidoost's energy transition and render the process more just. Through co-creation sessions, online meetings, and interviews with bridgebuilders and municipal workers, we developed a database in the form of a website providing structured and accessible information on the current state of the energy transition in Zuidoost, along with a modifiable network map of key stakeholders.

The database aims to support self-sustaining dialogue and collaboration beyond the Living Lab. The report also reflects on the project's replicability across places and transition domains and discusses constraints on scalability.

1. Initiation

As a signatory of the 2015 Paris Agreement, the Netherlands has committed itself to striving for a more sustainable energy system (UNFCCC, 2015) and is currently undergoing a society-wide transition driven by electrification and the gradual phase-out of fossil fuels. However, this sustainable energy transition is often viewed primarily as a matter of technological advancement (Engel-Cox & Jeromin, 2024; Nawaz et al., 2023). It is true that achieving a future in which global warming is restricted to 1.5 °C requires reconfiguring current energy systems and implementing technologies that mitigate or capture GHG emissions. Yet, approaching the transition from the technical perspective alone risks making it socially unsustainable (Nawaz et al., 2023). Because energy systems are inherently socio-technical, they require socio-technical approaches if new technologies and infrastructure are to be implemented in a just manner.

The social dimension, however, is easily overlooked or downplayed (Huttunen et al., 2022; Engel-Cox & Jeromin, 2024). For it to be meaningfully integrated into the sustainable energy transition, citizens' involvement must be strengthened (Nawaz et al., 2023). However, this raises important and tricky questions: how can lay citizens, who often have little knowledge of energy systems, contribute to the effective implementation of necessary infrastructure? And conversely, how can experts integrate citizens into transition processes in ways that ensure just outcomes?

In the Netherlands, the municipality of Amsterdam has attempted to address those questions through its vision of the "humane metropolis," which calls for the co-creation of clean, safe, and green urban environments in which all citizens have a say (Gemeente Amsterdam, 2021). Yet progress towards this goal is not unfolding evenly across the city. Amsterdam Zuidoost – one of the most diverse and multicultural areas in the municipality – faces many challenges in moving towards the socially and technologically sustainable future the humane metropolis envisions. These challenges are multifaceted and complex (Engel-Cox & Jeromin, 2024; Nawaz et al., 2023; van Leeuwen & Singh, 2024; van Leeuwen & Singh, 2025) and understanding them requires first examining what sets Zuidoost apart from the rest of the city.

1.1. Historical Background of Amsterdam Zuidoost

The history of Amsterdam Zuidoost begins in the 1960s, when it was conceived as a utopian post-war district designed for functional, modern urban living, with a strong emphasis on separating residential areas, parks, public spaces, and safe roads (Zahirović & Sterk, 2007). Its distinctive honeycomb-shaped high-rises – designed according to principles of light, air, and space – were intended for middle-class families seeking quality housing (Zahirović & Sterk, 2007). However, these prospective residents did not embrace this vision; repelled by the district's high density and lack of privacy, many opted instead for emerging suburban alternatives such as Almere and Purmerend (Zahirović & Sterk, 2007). As a result, Zuidoost was left with widespread vacancies and rapidly falling rents (Zahirović & Sterk, 2007).

The Zuidoost district is characterized by a multicultural population, with 63.3% of non-Western origins, compared to 35.4% in Amsterdam (GAZO, 2025). This unique demographic make-up is the result of the history of migration. Following Suriname's independence in 1975, many Surinamese migrants settled in the Netherlands and, due to financial constraints, often found housing in more affordable areas such as Zuidoost (Zahirović & Sterk, 2007). To this day, the Surinamese minority remains the biggest ethnic group in Zuidoost, at 33% of its total population (Nabben et al., 2011). In the years that followed, thousands of additional migrants arrived in similar circumstances, including many from Ghana, West Africa and Antilles which constitute two other major groups (Nabben et al., 2011). By the 1980s, the district initially envisioned for the Dutch middle class had instead become known for poverty and criminality; roughly half of its residents were unemployed, and many relied on welfare or informal networks for survival (Zahirović & Sterk, 2007).

The urban renewal in the 1990s and 2000s, a large-scope programme initiated by the municipality and undertaken in collaboration with the social housing corporations, sought to reverse these developments (Zahirović & Sterk, 2007). Many high-rises were demolished or converted into family housing, and new investment flowed into transport and mixed-use developments (Zahirović & Sterk, 2007). Yet the renewal process was also traumatic: many residents were forced out of their homes because

they were deemed "too poor, too black and too criminal" (Zahirović & Sterk, 2007), and many were displaced from the district entirely due to unaffordable relocation costs. Despite the renewal's accomplishments and its human cost, the stigma surrounding Zuidoost persists. Today, the district remains culturally vibrant but socioeconomically fragile, with many residents continuing to face challenges such as debt and precarious employment (Nabben et al., 2011).

These historical and structural realities help explain why implementing the energy transition in a socially just manner is particularly challenging in Amsterdam Zuidoost. They also illustrate why a solely technical approach is insufficient: without attention to longstanding and ongoing injustices, the transition risks reproducing them.

## 1.2. Stakeholders overview, Research Scope and Research Aim

As part of Amsterdam's city-wide energy transition, Zuidoost aims to become energy-neutral by 2040; to achieve this, close collaboration between the municipality and local communities is key (Energielab Zuidoost, n.d.). Such collaboration, however, has proven challenging due to the diversity of stakeholders in the area and the borough's complex sociohistorical legacy described above.

The urgency of understanding local dynamics gave rise to the Living Lab project on which this report is based, initiated by Otas Elum, an energy consultant from the EGK Centre, an NGO active in Zuidoost. EGK aims to strengthen citizens' awareness of and participation in energy transition from the bottom up: through culturally sensitive education, workshops, and local partnerships (EGK Foundation, n.d.). His work is the testament to the importance of residents and communities as the key stakeholders in the energy transition. On the other

hand, as part of the Energy Lab Zuidoost project the second case initiator Gina Gommer represents the more institutional and academic side of the process, even if tuned to the grassroot voices. Therefore, various local communities, local grassroots groups and community leaders, and the institutions (e.g. the municipality, academic institutions) can be distinguished as the three main stakeholder groups.

Figures 1 and Table 1 show a more detailed overview of the different stakeholders identified at the Initiation stage of this Living Lab. This stakeholder analysis served as the basis for our subsequent investigation.

FIGURE 1. DESCRIPTION OF THE DIFFERENT STAKEHOLDER GROUPS AND THEIR KEY REPRESENTATIVES

Note. Own resource.

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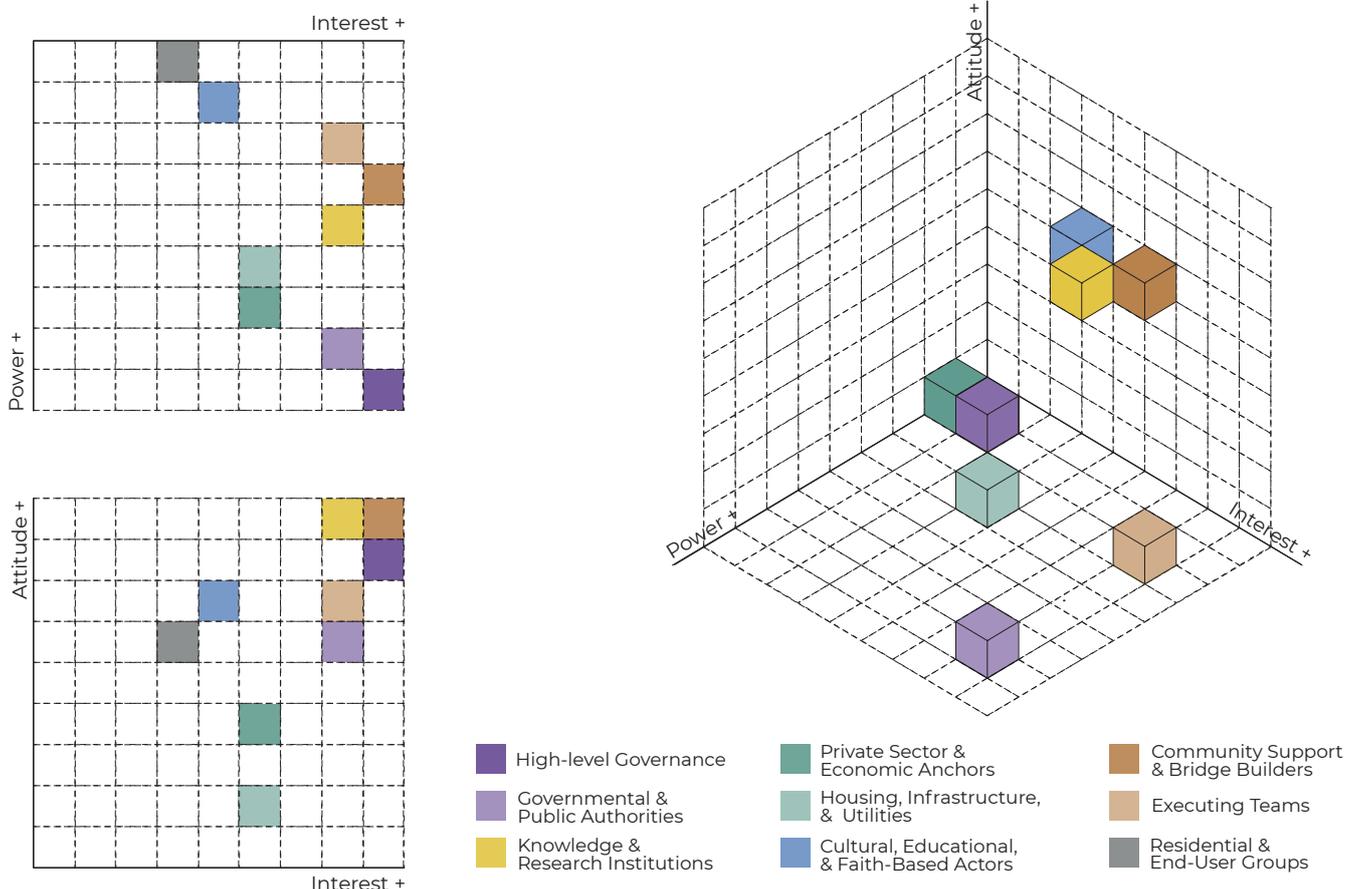
TABLE 1. DESCRIPTION OF THE DIFFERENT STAKEHOLDER GROUPS AND THEIR KEY REPRESENTATIVES

Category	Description and Role	Examples of Stakeholders/Entities
High-Level Governance and Strategic Alliances	Top-tier bodies responsible for setting 20-year policy, strategy, and securing large-scale funding. These structures often involve high-level representatives from other categories (the "kingmakers").	Masterplan Alliance Zuidoost, Kernteam (The daily governing body of the Alliance), Doorbraakteams (operationalizing the five ambitions), Masterplan African Community Group (citizen-led organization seeking formal representation).
Governmental and Public Authorities	Entities responsible for administrative, legislative, regulatory, enforcement, and overall planning authority.	Municipality of Amsterdam/Southeast district, Rijk (National Government/Ministeries, notably BZK), Housing Department, Ouder-Amstel, De Ronde Venen (municipalities involved in wind search areas), Police (Hoofdcommissaris Frank Paauw), Openbaar Ministerie (OM), Wethouders/Stadsdeelbestuur.
Knowledge and Research Institutions	Academic and scientific organizations that conduct research, provide expertise, validate grassroots strategies, and accelerate the social energy transition by bringing science and practice together.	AMS Institute (AMS), Urban Energy Institute of TU Delft (TU Delft), UvA, HvA, EnergieLab Zuidoost (Joint initiative of AMS and municipality), International Institute of Inclusive Science (CoCratos), Renowned research institute (involved in CoolTile® development), Student Teams (conducting applied research/validating tacit knowledge).
Community Support and Bridge Builders	Non-profit and local organizations or individuals whose primary function is to build trust, provide advisory services, and facilitate dialogue between institutions and the community, often reaching groups missed by formal communication.	Stichting CoForce (supports initiatives, provides quick access to process funds), Stichting !WOON (advice on renting/energy, trains energy coaches), EGK Center (Otas Elum) / FKCA (uses community networks and visual/voice messages for communication), Hart voor de K-Buurt (HvdK) (leads participation and communication), Local energy commissioners, Green Hub (Groene Hub), Salto radio broadcaster (for energy awareness programs), Stichting Ouder en Kindteams (OKT).
Residential and End-User Groups	The primary beneficiaries and active participants (or non-participants) in the transition, often characterised by socio-spatial vulnerability and energy poverty.	Residents/Bewoners (including 170+ nationalities), Households experiencing energy poverty (over 4,000 households), Owner-occupiers and tenants, Owners' Associations (VvE's) (involved in gas transition/PV/insulation), Housing Cooperative (WoonCoop), Kantershof neighborhood association, Youth/Children (primary Masterplan target group).
Housing, Infrastructure, and Utilities	Organizations managing housing stock, property development, energy distribution, and supply networks. They are essential for renovation efforts and infrastructure development.	Housing Corporations (e.g., Rochdale, Eigen Haard, De Key), Firan (LT Open Heat Networks owner), Vattenfall (collaborator/heat supplier), Liander (knowledge partner in smart grid projects), Equinix and other Data Centers (sources of waste heat), Developers/Investors (CBRE, Dura Vermeer), ESCoops (Energy Service Cooperatives).
Private Sector and Economic/Institutional Anchors	Businesses, large site operators, and employers focused on commercial real estate, economic growth, job creation, and major institutional consumption.	Zuidoost City (economic organization/marketing), Green Business Club Zuidoost, Starting members: ING, CSU, Sinzer/Grand Thornton, ABNAMRO, Randstad Nederland (Dominique Hermans), Johan Cruijff ArenA (Henk Markerink) (site for digester, LIFE project), Amsterdam University Medical Center (AMC) (significant energy user), ZONOVA (Educational sector organization).
Cultural, Educational, and Faith-Based Actors	Institutions that serve as major community hubs, places of worship, or providers of essential educational services, often leveraged for local outreach.	Tahbah Mosque (first energy-neutral mosque), Church communities (De Kandelaar, Mount of Fire), VO/PO Schools, ROC, Taal en Coast op Maat (language/integration school).
Executing/ Implementation Teams	Groups focusing on on-the-ground action, intervention, and immediate repairs related to energy saving, security, or social issues. These are often the "face" of the policy implementation in the neighborhood.	Quick fix brigade, WijkActieTeams Veiligheid (WATV), Buurtteams (working on safety, poverty, debt), Jongerenpunt Zuidoost.

Note. Compiled from open-data sources.

Building upon that, this Living Lab project set off to investigate the dynamics between the residents, local organizations and the governmental institutions during the ongoing energy transition in Zuidoost. Rather than assessing technical measures, it examines the communicative and participatory processes that accompany them. The analysis draws on interviews, field observations, and desk research conducted in collaboration with AMS Institute, the EGK Centre, Energy Lab Zuidoost and Groene Hub. The project acknowledges citizen–government collaboration as a prerequisite for a just energy transition and therefore aligns with the city's Omgevingsvisie 2050 ambition of *samen stadmaken* – working with, rather than for, local communities (Gemeente Amsterdam, 2021).

In this spirit, the research aims to identify different types of frictions (cultural, linguistic, institutional etc.) that hinder collaboration between the residents, local organizations and community leaders, and the governmental institutions in the sustainable energy transition in Zuidoost, and to explore how these frictions can be alleviated to ensure a more inclusive, equitable, and effective transition process.

The report consists of 7 sections. In the Chapter 2 "Plan Development", we explain how the research aim was approached using the Integrated Creative Problem Solving (iCPS) method, which provided structure to the investigation. In the Chapter 3 "Theoretical Framework", we summarize the body of theory used to systematize our investigation. The Chapter 4 "Exploration" describes the initial steps of the research, leading to a clear problem definition and the identification of a solution idea, aligning with Problem Finding and Idea Finding steps of iCPS. The Chapter 5 "Refinement" discusses the iterative process through which this idea was improved and marks the beginning of the Solution Finding step of iCPS. The Chapter 6 "Implementation" outlines how the refined idea was transformed into a usable product designed to address the research aim and the defined problem. In the Chapter 7 "Evaluation" we discuss the way in which the final product ought to be used, its replicability and scalability potential, reflect on the project and its limitations. Finally, in the Chapter 8 "Recommendations for Further Research" we suggest research topics for future investigation, based on interesting issues which emerged during our study that exceeded the scope of this project but demand their own dedicated inquiries.

2. Plan Development

As discussed in the introduction, the issue of just and sustainable energy transition in Amsterdam Zuidoost is broad and complex. As such, there is not a single good approach or solution to it, which makes it an open-ended problem (Heijne & van der Meer, 2019). In turn, this aligns it well with the methodological approach known as Integrated Creative Problem Solving (iCPS), specifically conceived to tackle these kinds of challenges (Heijne & van der Meer, 2019). Central to the iCPS approach is the concept of the three creative diamonds, as illustrated in Figure 2. These diamonds represent the three steps of the Content Finding process in iCPS: defining and/or reframing the problem (Problem Finding), generating and selecting promising ideas (Idea Finding), and exploring and choosing implementation pathways (Solution Finding) (Heijne & van der Meer, 2019).

Each of these steps consists of two phases. In the divergence phase, the aim is to engage with the problem broadly, explore non-obvious avenues of thought, and generate as many different ideas as possible; in contrast, the convergence phase focuses on critically selecting a small number of the most promising options from the broad set generated previously (Heijne & van der Meer, 2019). When visualised, the sequential phases of divergence and convergence resemble the shape of a diamond – hence the origin of the concept's name. Such an approach is well-suited for the investigation of just energy transition in Amsterdam Zuidoost as it ensures plurality by seeking to explore as big a subset of possible ideas as possible and explicitly prescribes that it ought to be done through co-creative efforts (Heijne & van der Meer, 2019).

2.1 Methods

Each step within the three creative diamonds process requires a distinct set of methodological approaches. Therefore, in the following section, the methods employed in this research are presented in accordance with the steps to which they correspond.

Problem Finding
Given the broadness of the research aim – frictions hindering collaboration between the residents, local organization and community leaders, and the

FIGURE 2. THE THREE CREATIVE DIAMONDS OF ICPS
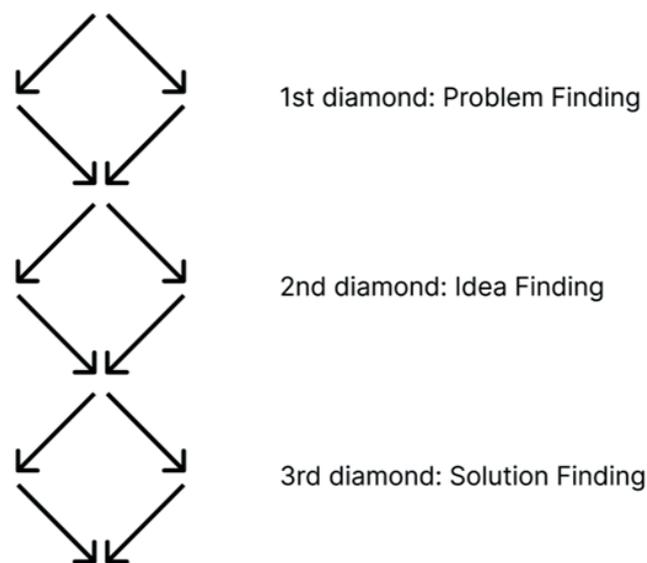
Note. Inspired by Heijne & van der Meer (2019).

governmental institutions in the sustainable energy transition in Zuidoost – and following the logic of the divergence phase, we decided to approach our exploration from several angles by utilizing various methods.

Firstly, we decided to conduct an exploratory literature review to map the existing knowledge on the topic of justice in sustainable transitions and, where possible, in the specific context of Amsterdam Zuidoost. As Webster and Watson (2002) emphasise, exploratory reviews are crucial for developing a theoretically grounded understanding of a topic, particularly in transdisciplinary fields such as sustainability transitions. By synthesising diverse sources, we hoped to identify and gain a structured understanding of the crucial aspects of our research topic. Furthermore, exploratory reviews support the generation of new perspectives – the essence of the divergence phase – which can serve as a foundation for subsequent empirical inquiry (Boell & Cecez-Kecmanovic, 2014).

Secondly, we opted for semi-structured interviews with researchers and key local stakeholders to gather more focused and contextualised knowledge on the sustainable energy transition in Amsterdam Zuidoost. According to Bryman (2016), their strength lies in allowing researchers to probe underlying motivations, experiences, and meanings in a way that more rigidly structured

instruments cannot. The flexible format enables interviewers to follow up on unexpected but relevant themes, which is especially useful when investigating complex socio-technical issues such as just energy transitions. Semi-structured interviews also facilitate rapport-building and encourage participants to articulate their perspectives in their own terms, resulting in richer and more nuanced data (Kvale, 2009). This balance between structure and openness makes semi-structured interviews well-suited for exploratory inquiry and for uncovering context-specific knowledge.

Thirdly, we selected field research as the method for capturing the most intangible and unquantifiable insights, as it allows researchers to study phenomena within their real-world contexts, thus grounding observations and interpretations in the actual social, organisational, or environmental settings (Doerfel & Gibbs, 2014). This is particularly beneficial in the context of sustainable energy transition, where contextual dynamics and local practices can significantly shape outcomes (Huttunen et al., 2022; Engel-Cox & Jeromin, 2024). Fieldwork can also support methodological triangulation, enabling us to corroborate literature and interview data with observations and other contextual evidence (Denzin, 2012). Additionally, being present in the field often reveals implicit routines, power relations, and barriers to change that may remain invisible through literature or interviews alone (Emerson et al., 2011).

Idea and solution finding

The aim of Idea and Solution Finding is to generate useful and innovative options for the identified problems and to establish feasible implementation pathways (Heijne & van der Meer, 2019). For these two steps of the three creative diamonds process, we intended to use one comprehensive and customizable research method: co-creation sessions. Co-creation is particularly valuable in complex, multi-stakeholder contexts – such as the energy transition in Zuidoost – because it brings together diverse forms of expertise – professional, experiential, and contextual – and allows participants to jointly define problems and generate potential solutions (Sanders & Stappers, 2008). This participatory approach fosters mutual learning and helps to reveal insights that may not be accessible through

literature reviews, individual interviews, or even field research. Co-creation sessions are particularly useful in capturing and integrating local knowledge and community perspectives, which is especially important in just transition research, where issues of equity, agency, and lived experience are central (Ren et al., 2023). Moreover, as Steen et al. (2011) argue, co-creative methods enhance both the relevance and legitimacy of research outcomes by involving stakeholders directly in the ideation and decision-making process. We believed that these sessions would therefore provide a structured yet flexible environment for generating, evaluating, refining, and selecting ideas and solutions in alignment with the divergence and convergence phases of the iCPS framework.

3. Theoretical framework

Our group created a comperehensive conceptual framework to aid us at achieving our research aim. This framework combines elements from two sociological theories: social networks and energy justice. The following section explains the key concepts, their interrelations, and their relevance to the focus of this study.

3.1 Energy Justice

Energy justice is a relatively new concept that has evolved from the broader and more established framework of environmental justice (Ren et al., 2023). The importance of energy justice as a distinct dimension of sustainability was amplified by the acceleration of the energy transition and its consequences, e.g. increased energy price volatility or the costly retrofitting of conventional energy systems (Ren et al., 2023). In the most general sense, energy justice can be defined as "the goal of achieving equity in both the social and economic participation in the energy system, while also remediating social, economic, and health burdens on those disproportionately harmed by the energy system" (Ren et al., 2023; p.2). Because of how broad this concept is, it is often divided into distributional, procedural, and recognitional conceptions of energy justice (Ren et al., 2023).

Distributional justice is about the equitable distribution of the benefits and burdens of energy systems. The aim is to prevent situations in which specific populations bear a disproportionate share of environmental, social, or economic costs while also receiving less benefits. (Ren et al., 2023; Jenkins et al., 2016). The concept also accounts for inequalities across classes, genders, and ethnicities (Ren et al., 2023). In this sense, it has to do with the most material aspect of energy justice, focusing on who wins and who loses from the energy transition.

Procedural justice has to do with how to make energy systems more fair and inclusive. It emphasizes participation, meaning that all groups, but especially the marginalized, can access information, consultation opportunities, and can influence decision-making processes (Ren et al., 2023; Jenkins et al., 2016). There also must be transparent institutional structures that allow all the stakeholders to access all relevant information and influence outcomes (Ren et al., 2023). As opposed to distributive justice, procedural justice focuses on the less material aspects such as inclusiveness, influence and legitimacy of the processes through which energy decisions are made, which is important to ensure their acceptance and long-term success.

Recognitional justice is about recognition of diverse identities of those affected by energy policies and practices. It challenges forms of misrecognition that exclude certain groups from fair participation in energy governance (Ren et al., 2023; Fraser, 2008). Generalizing approaches only replicate existing power structures so it is important to better understand the perspectives and customs of the vulnerable. While sometimes considered an extension of procedural justice (Van Bommel & Höffken, 2021), recognitional justice is distinct from it. It stresses the structural and historical roots of inequality, and their link to race, ethnicity, or socio-economic marginalisation (McCauley, 2017). It also stresses the importance of using local expertise, which can help to build trust in the energy transition (McCauley et al., 2013). That is why recognitional justice is the foundation of both procedural and distributional fairness, by making sure that all communities are seen, heard, and respected.

3.2 Social Networks Theory

In the context of sustainability and energy transitions, social network theory can help to explain why some communities are more likely than others to adapt to change well (Giacovelli, 2022). This theory focuses on the nature of relations, both between individuals and communities, within a specific governance context (Woolcock & Narayan, 2000). This framework is useful for analysing how relationships among individuals, groups, and institutions can influence different social outcomes (Woolcock & Narayan, 2000). It does not focus just on actors (nodes) in the network but also on connections (ties) between them. It is nodes and ties together that create social structures (Granovetter, 1973). It is the ties that determine how information, trust, and resources move through a network. The ties within social networks can be categorised into three types: bonding, bridging, and linking (Woolcock and Narayan, 2000; Claridge, 2004).

Bonding ties describe the connections within small and close-knit groups, such as families, neighbourhood associations, or minority communities. These ties build strong norms of reciprocity, mutual support and trust. On the other hand, excessive bonding can also lead to isolation or resistance to external ideas, potentially getting in the way of broader collaboration with people from the outside (Putnam, 2000; Claridge, 2004).

Bridging ties connect people across different groups. They are typically weaker than bonding ties (Granovetter, 1973) but are still very important because they facilitate the flow of information between different groups. In energy transitions, bridging ties let different stakeholders collaborate (e.g. citizens, entrepreneurs, and technical experts) as well as different local communities (e.g. Surinamese and West Africans) who might otherwise not be in touch with each other.

Linking ties are top-down in nature, connecting community actors to institutions with access to resources (Woolcock & Narayan, 2000). They are essential for legitimacy, resource mobilisation, and the scaling of local initiatives. In sustainable energy governance, linking ties decide if community knowledge and needs are seen and whether they are included in formal decision-making processes.

Together, these three tie types create the structure through which trust, information, and resources circulate. Strong bonding ties give stability and solidarity, bridging ties - inclusivity and cooperation, and linking ties – institutional coordination and legitimate action. Analysing these dimensions could let us identify where social relations support or constrain progress.

3.3 Linking Energy Justice and Social Network Theory

The energy transition depends on the structure and quality of social ties, not just technology. When energy systems create different types of injustices, network ties may become weakened or destroyed. That can result in decreased trust, limited information exchange, and a breakdown in cooperation. This ultimately goes against the pursuit of a just and sustainable energy transition. This section discusses several examples of how different types of injustices can affect social networks.

Distributional injustice and fractured bridging ties
Distributional injustice occurs when energy-related benefits and burdens are unevenly distributed across different communities. Such inequalities can erode bridging ties, as disadvantaged communities do not look outward in search for new opportunities to "get ahead" but rather retreat inward and rely on their bonding relations just to "get by" (Ren et al., 2023; Jenkins et al., 2016; McCauley, 2017; Woolcock & Narayan, 2000). Research on community energy initiatives shows that, while strong bonding ties can mobilise local action, the absence of bridging ties constrains the diffusion of renewable technologies and cooperative practices across communities (Giacovelli, 2022).

Procedural injustice and broken linking ties
Procedural injustice arises when decision-making processes are not transparent and do not consider the local contexts. This destroys trust in governing institutions and through that, linking ties between communities and authorities (Ren et al., 2023; Jenkins et al., 2016). When procedural justice is gone, communities will resist or withdraw from collaborative processes. That is why procedural justice can be seen as an adhesive that maintains linking ties critical for coordinated energy transitions.

Recognitional injustice and missing nodes
From the recognitional justice perspective it is important to respect diverse identities, experiences, and values of different communities. When groups are disrespected, they can become disconnected from social networks, which diminishes their voice (Fraser, 2008; Van Bommel & Höffken, 2021). In other words, their bridging and linking ties are either extremely weak or non-existent. Studies

of community energy participation reveal that underrepresented and unorganised groups, such as renters, migrants, or low-income households, are often absent from the social and institutional networks driving the energy transition (Creamer et al., 2018; Brummer, 2018). This lack of recognition can reduce the overall trust in the energy transition projects. That is why recognitional justice is foundational to rebuilding inclusive networks that can sustain the long-term legitimacy and resilience of the energy transition.

3.4 Relation to this research

The combined framework of social network and energy justice theories was developed to allow us to operationalize the concept of barriers in communication: first, as the forms of injustice experienced by residents of Amsterdam Zuidoost; and second, as the types of social ties lacking within the area. The established relationship between social networks and justice enables us to interpret insights about one dimension through evidence from the other. Understanding how injustices can weaken or sever social ties allows for more nuanced analysis and the formulation of practical recommendations on how such ties might be repaired or re-established to support a more just and sustainable energy transition. Integrating the tenets of energy justice with the logics of social networks, therefore, provides a comprehensive theoretical foundation for analysing why the implementation of equitable and sustainable energy transition lags in Amsterdam Zuidoost, and how interventions aiming to correct injustices might rebuild the social ties necessary for the success of the transition.

4.1 Problem finding

Initial inquiry

We began our search for a clear problem statement with a series of meetings with our case initiators, Gina Gommer and Otas Elum, to gain a better understanding of the current state of the sustainable energy transition in Zuidoost. Since the socio-technical challenge of a just energy transition is broad and abstract, we tried to keep an open mind and avoid prematurely narrowing our scope, in the spirit of the divergence approach. This enabled us to approach the novel subject more freely and gave us the flexibility to shift focus when confronted with new insights. In this early stage of problem finding, we relied heavily on in-group brainstorming sessions. Whenever we came up with promising ideas, we shared them with our case initiators, who helped us fine-tune them; this close collaboration also allowed us to build mutual understanding.

This initial back-and-forth helped us identify key local figures who had established ties in Zuidoost and/or with the municipality. These "bridgebuilders", as we refer to them from now on, became an important reference point for the remainder of the problem-finding process since it is in them that we saw a potential to help smooth frictions occurring between the municipality and the residents of Zuidoost. Bridgebuilders are individuals or organizations who command extensive social networks consisting of both strong bonding ties with local communities and linking ties with governmental actors. As such, they can fulfil the role of "translators" between the experiential reality of Zuidoost residents and the world of institutions and academia.

Literature review

By the time we finished the initial inquiry, we had already begun the exploratory literature review across three overlapping themes: the sustainable energy transition; science communication and citizen participation; and the socio-economic and demographic context of Amsterdam Zuidoost. Overall, ten papers were reviewed: one solely on science communication and citizen participation, two on science communication and citizen participation in energy projects, and seven on science communication and citizen participation in energy projects in the context of Amsterdam Zuidoost. Reviewing these papers allowed us to identify the types of injustices faced by residents of Zuidoost, as well as the types of social ties that are weak or missing in the borough. These findings are discussed in more detail below.

Generally, citizen participation in energy projects tends to be low (Huttunen et al., 2022), while communicating energy-related issues to the public remains a challenge (Engel-Cox & Jeromin, 2024). This is despite the common acknowledgment that both meaningful citizen participation and effective communication are prerequisites for the success and sustainability of the energy transition (Huttunen et al., 2022; Engel-Cox & Jeromin, 2024). The reasons for these challenges are manifold: many energy transition projects still choose top-down, expert-led, and objective-oriented approaches (Huttunen et al., 2022); treat citizens' participation instrumentally (e.g. as a means of weakening opposition to pre-drafted projects) (Huttunen et al., 2022); implement participation in a patchy or ineffective way (Huttunen et al., 2022); or struggle to explain complex energy-related issues – whether because of the high complexity, overreliance on technical jargon, existing public preconceptions, or an inability to choose the right means and channels of communication (Engel-Cox & Jeromin, 2024). These problems represent instances of procedural and recognitional injustices: there are often few or no institutional guidelines and guardrails to ensure meaningful citizen participation, and there is a lack of acknowledgement and/or understanding of diverse audiences, all of whom have different communication styles and varying contextual knowledge, both crucial for the effective implementation of energy transition efforts at the local level (Huttunen et al., 2022; Engel-Cox & Jeromin, 2024).

Many of the aforementioned problems hold true for Amsterdam Zuidoost as well. On the municipality's side, energy-related projects in the area continue to struggle with internalizing participation in a meaningful way (van Leeuwen & Singh, 2024; van Leeuwen & Singh, 2025; Nawaz et al., 2023). These processes remain largely expert-led, driven mainly by professionals focused on the technical dimensions of the transition, while the social side – including participation – is often treated as an afterthought

(van Leeuwen & Singh, 2024; van Leeuwen & Singh, 2025). Moreover, the municipality's actions are frequently constrained by its bureaucratic structure, ineffective coordination between its departments and subsidiaries, and fragmented energy governance (Nawaz et al., 2023; Ricci et al., 2025). On top of this, the municipality tends to rely on a surface-level understanding of Zuidoost residents and often operates on assumptions that have little to do with their actual hopes and concerns (van Leeuwen & Singh, 2024; van Leeuwen & Singh, 2025; Nawaz et al., 2023).

On the residents' side, the main issue appears to be a pervasive lack of trust toward outsiders, including the municipality and researchers (van Leeuwen & Singh, 2024; van Leeuwen & Singh, 2025; Nawaz et al., 2023; van Gent, 2022; Karalaiou, 2024; Francisco, 2022). At the most fundamental level, this distrust stems from a long history of deprivation, neglect, and structural problems that have plagued the borough since its inception in the 1960s (Zahirović & Sterk, 2007). Additionally, low income levels, low educational attainment, deteriorating housing stock, and limited procedural and energy-related knowledge further contribute to residents' heightened vulnerability to energy poverty (van Gent, 2022; van Leeuwen & Singh, 2024; Nawaz et al., 2023; Karalaiou, 2024; Francisco, 2022), underscoring the strong link between trust and just energy transition.

Another factor feeding into this distrust is the widespread participation fatigue present in the borough (van Leeuwen & Singh, 2024; van Leeuwen & Singh, 2025; Karalaiou, 2024). Many residents who previously engaged in municipal projects or research reported that they struggled to see any tangible results from their contributions - this has led to disappointment, disillusionment, and ultimately a loss of trust and interest in participating further (van Leeuwen & Singh, 2024; van Leeuwen & Singh, 2025; Karalaiou, 2024). The other common transgression committed by researchers is invasion of "safe spaces" which are meant exclusively for the community members – such intrusions only deepen citizens' resentment towards outsiders (van Leeuwen & Singh, 2024; van Gent, 2022). These findings highlight the need for more context-sensitive and ethical research approaches in Zuidoost.

Beyond that, participation levels remain low partly because the energy transition is a highly abstract concept for most Zuidoost residents (van Leeuwen & Singh, 2024; van Leeuwen & Singh, 2025; Karalaiou, 2024). Many locals face more immediate and pressing concerns in their everyday lives, leaving little capacity to engage with energy transition efforts (van Leeuwen & Singh, 2024; van Leeuwen & Singh, 2025). This challenge is compounded by limited knowledge and a lack of understanding about how the transition affects residents and what actions they can take (et al., 2023; Karalaiou, 2024; van Gent, 2022), which is only made worse by the widespread use of jargon and technical terminology that is inaccessible to laypeople (van Leeuwen & Singh, 2024; van Leeuwen & Singh, 2025; Nawaz et al., 2023; van Gent, 2022; Karalaiou, 2024; Francisco, 2022). The communication should, therefore, be made more accessible by the means of simple, visual messages (van Leeuwen & Singh, 2025; van Gent, 2022; Engel-Cox & Jeromin, 2024). When combined with additional barriers to participation – such as cultural and linguistic differences (Francisco, 2022; Karalaiou, 2024; van Gent, 2022) and the high proportion of rental housing that limits tenants' agency (van Gent, 2022) – it is hardly surprising that participation levels in Zuidoost remain low.

In summary, the literature review has revealed many injustices spanning all three types. The distributive injustices concern the low-income levels, low educational attainment, deteriorating housing conditions, and the prevalence of precarious forms of tenure in Amsterdam Zuidoost. The procedural injustices include the persistence of top-down, expert-led approaches and the municipality's limited commitment to meaningful participatory processes. The recognitional injustices manifest in practices of data extractivism that lead to participation fatigue, a lack of understanding of local communities' needs and priorities, the use of alienating jargon and abstract concepts, and the insufficient recognition of residents as "local experts." All these injustices fuel residents' distrust toward the municipality and might make the formation of linking ties significantly more difficult. Moreover, while residents' subsistence-related struggles may strengthen bonding ties within specific communities, they also could restrict the emergence of bridging ties which are crucial in a context as diverse as Amsterdam Zuidoost.

Semi-structured interviews

Literature can only get one so far in understanding such a socially complex phenomenon as the just energy transition in Amsterdam Zuidoost. Therefore, in order to gain more nuanced insights, we conducted semi-structured interviews with researchers who had studied local energy-related issues and key local figures (a pastor, a teacher, a local politician, and two NGO workers) who are intimately familiar with local concerns, communication practices, and social dynamics. In total, ten interviews were conducted. In the following section, we discuss the key interview findings relating to the forms of injustices and the nature of social ties in Amsterdam Zuidoost.

Firstly, one of the recurring themes was the complexity and abstractness of the energy transition. Energy transition projects tend to be communicated in technical and economic terms that do not align with residents' subjective realities, which makes such messaging difficult to relate to. Abhigyan Singh (personal communication, 2025) described how the energy transition becomes inaccessible when it is presented in technical terms rather than through concrete, everyday experiences such as high electricity, gas, or heating bills. In his work in Venserpolder, Abhigyan used LEGO blocks to enable residents to express their ideas of what the future of their neighbourhood might look like in a playful, tangible way. This simple method made two-way communication on the difficult topic of the energy transition much more approachable, highlighting the problem of the gap between institutional communication and people's subjective realities.

Another interviewee, Patrick Dorder from Zuidoost TV (personal communication, 2025), shared a different outlook on how to communicate effectively with residents. He emphasised that people are more likely to engage with familiar faces, relatable stories, and locally produced content rather than with dry letters from the distant municipality. Zuidoost TV addresses this issue primarily by reaching residents through Facebook, where sketches and short videos on topics such as financial stress help spread understanding among Zuidoost residents about the reasons for their struggles and how they might counteract them.

Kaylee Montsanto (personal communication, 2025) also described how social media and digital communicators can be used to address locals more effectively. In her account, many West African parents who want to stay in touch with each other use WhatsApp because of its simple chats, voice notes, and translation features. As she pointed out, this shows that the effectiveness of communication can be improved when the chosen communication channels match people's communication styles and preferences.

On the other hand, Pastor Koney (personal communication, 2025) stressed the significance of injustice-fuelled distrust, which hampers communication in Zuidoost. In his perception, one of the major distrust-driving injustices is the unequal access to financial resources, such as subsidies. He mentioned that there had been no convincing justification provided for why a nearby mosque received a substantial subsidy while his church did not, which created a strong sense of injustice among his congregation. He also pointed out that residents in Zuidoost often feel that the neighbourhood is not fully integrated into the city and is instead treated like a separate, distant island, which only contributes further to scepticism toward externally imposed initiatives. Ultimately, he stressed that building trust requires ongoing presence, consistency, and authentic engagement rather than short-term projects or one-off meetings, which had characterised many previous efforts in the area.

Another issue brought up by many interviewees is that Zuidoost residents are more concerned with immediate social and economic issues than with the distant and hard-to-grasp energy transition. Ara Heuvel (personal communication, 2025) mentioned that people often have limited time and mental capacity due to their daily, mundane struggles – which, in combination with language barriers and distrust toward the government, results in low participation. He also remarked that the way the municipality operates can make it challenging to work together with residents who fulfil the bridgebuilder role.

Aman Walia and Marcel Meuldijk from the Groene Hub (personal communication, 2025) said that people become interested only when they see clear

benefits, such as lower bills or greater comfort in their homes. Both also stressed the importance of lowering the threshold for participation as much as possible and anticipating residents' concerns by addressing them pre-emptively. Alisa van Gent (personal communication, 2025) likewise explained that basic needs, as well as a sense of safety and stability, come first for many households. Several interviewees also noted that residents already practice forms of sustainability through repairing, sharing, and helping one another. These everyday actions are rarely recognised as manifestations of sustainable lifestyles, but they reflect a strong sense of responsibility and care within the community.

Taken together, the interviews showed a recipe for effective communication in Zuidoost that would rely on cultural understanding, consistent presence, and long-term relationships. Furthermore, it became clear that communication about the energy transition must connect with residents' daily lives and come from trusted people. There also appear to be systemic issues – particularly in the way bridgebuilders and the municipality collaborate – that make the pursuit of meaningful solutions more challenging. In short, the interviews made it clear to us that communication about the energy transition is closely linked to broader feelings of fairness, recognition, and belonging, and reaffirmed the conclusion drawn from the literature review that injustices must be addressed in order to rebuild trust, the bedrock of any effective communication. However, it also seems that, to do so, the current framework of the municipality–bridgebuilder partnership may need to be reconsidered so that the pursuit of a just energy transition does not get lost in the maze of bureaucracy and local politics.

Field research

While semi-structured interviews gave us more contextualized insights, our interviewees, most of them researchers or bridgebuilders, were hardly typical Zuidoost residents. The purpose of the field research was to counterbalance that bias by immersing ourselves in the local context and gathering information directly through observations of and conversations with the people of Zuidoost. Our fieldwork included carrying out voluntary work for the Groene Hub, several visits to a local place of worship, Charity's House, attending a recurring community sewing workshop, participating in the Igbo League's event and the opening of an exhibition at the local art gallery, and organizing a group meeting with young people of the West African descendance.

From the get-go, we were able to verify that the lack of trust and participation fatigue, which we had previously only read and heard about, were indeed commonplace. This immediately highlighted the difficulty of our fieldwork approach: since so much research has already been conducted in the borough, residents often feel treated like mere study subjects rather than actual people. We also learned early on that the moment you truly engage with a community, you become – in some sense – part of it. Such recognition grants researchers greater access to information and data but also places on them a responsibility to reciprocate for the trust shown. Unfortunately, many researchers in the past failed to do so and simply left the communities after collecting data, or at least that is the perception widely shared by the people we spoke to. This has created feelings of distrust, frustration, and even cynicism, and navigating relations with people affected by such participation fatigue proved to be the most challenging aspect of the fieldwork. Our voluntary work for the Groene Hub was one of our attempts to address that issue – we wanted to give something to the community before getting anything out. This approach proved successful, as the Groene Hub remained one of our closest partners throughout the remainder of our research.

Aside from this trust-building component, volunteering for the Groene Hub also provided us with several useful insights. For example, the distrust and suspicion could be observed directly during the door-to-door visits meant to convince people to allow the installation of energy-saving devices. Even if residents opened the door, they were often sceptical of the Groene Hub's intentions and required a great deal of convincing before agreeing to make an appointment. It was instructive to witness how every conversation began with reassuring residents that they would not have to pay anything, as experience had shown that financial anxiety was one of the main reasons people declined help. This observation confirmed what Aman and Marcel had emphasized in their interviews: the importance of addressing residents' potential concerns pre-emptively. Another notable strategy used by the Groene Hub was bringing along a green shopping basket filled with energy-saving items. This made communication easier, as residents could directly see what was being offered. This also reinforced the significance of visual, simple messaging, which we had already encountered in the literature review and interviews. Moreover, our door-to-door visits made the problem of language barriers highly visible, as many people – often elderly – spoke neither Dutch nor English. Even though we had learned about language issues from the literature and interviews, the direct experience of trying to communicate with someone with whom we shared no common language made the gravity of the problem far more palpable. It also revealed the degree of social isolation experienced by such individuals. Without a shared language, the potential to form bridging and linking social ties is effectively non-existent, precluding meaningful participation altogether.

Another major component of our fieldwork was our visits to Charity's House, a place of worship that supports around fifteen different congregations. Our decision to inquire into local religious communities was based on the suspicion that religious leaders could fulfil the role of bridgebuilders, owing to their recognizability and extensive social networks. By engaging with them, we hoped to gain a better understanding of the situation and mindsets of Zuidoost residents. In total, we attended three services: a revival service at a Pentecostal church and two youth services at the Presbyterian Church of Ghana. One service used a mix of Ghanaian languages and English while the youth service was held in English with a Dutch translation, further underscoring local linguistic diversity. It was

remarkable that, even though we were complete strangers, service-goers made sure to make us feel welcome. This somewhat contradicted our earlier notion of widespread distrust toward outsiders. We suspect that being introduced to the congregations by their leaders may have given us legitimacy in the eyes of members, highlighting the importance of such figures and their bridgebuilding potential. Each service was well attended, with youth and elderly alike, and filled with moments of music, singing, dancing, and active participation. The atmosphere was one of familiarity and kinship, indicating strong bonding ties among the sermon-goers. Another noteworthy observation was that the sermons were not solely focused on worship, ritual, or moral guidance, but also addressed practical topics such as local politics. At the end of one service, a politician was invited to speak about the upcoming elections and the importance of voting – a message later reiterated by the pastor. This somehow confirmed our assumption about local religious leaders' bridge-building potential, proving that they were also willing to engage in the bread and butter of their communities.

The third main activity we took part in during our field research were the sewing sessions organized at the Groene Hub for local women. Initially, the women were suspicious of our presence and even slightly hostile, which fit with the accounts of the sanctity of "safe spaces" in the literature. However, it did not take long for them to warm up to us which further corroborated our suspicion that being introduced into a community by a trusted person alleviates the sense of intrusion and distrust. Once they felt comfortable enough with our presence, the women shared their experiences and emphasized the importance of such initiatives in the neighbourhood. The focus on the community was palpable, and the participating women seemed to feel heard and recognised. As Astrid emphasised, such a sense of authenticity encourages people to open and strengthens mutual trust.

As mentioned, we also attended the Igbo Union's end-of-the-year party—an event filled with dining, dancing, and celebration. The gathering was very well attended and lively, once again making the strength of local bonding ties extremely apparent. During the event, the case initiator introduced us to important members of the Igbo Union. This helped us gain a better understanding of cultural differences between Northwestern European and West African contexts. We learned about the importance of maintaining relationships and how introducing us, as outsiders, to key members of the Igbo Union was essential for Otas Elum to honour and respect the relationships he holds with those present.

Furthermore, we were present at the opening of a photography exhibition at a local art gallery, to which we had been invited by one of the members of "Haart voor K-buurt", a local community organization. The theme of the exhibition was related to Zuidoost and its diversity, so we considered it a good opportunity to better understand the context we were studying and, potentially, make new connections. This proved to be a good idea – at the exhibition we got to know a local politician who later participated in our co-creation session. This also underscored the value of informal settings for creating the bridging ties necessary for wide-scoped collaboration in Zuidoost.

Finally, we organized a group meeting with young adults whom we had gotten in touch with during our excursions to the Charity House. The attendees were of West African descent and mostly around twenty years old. Participants described a strong sense of identity connected to the Ghanaian community they were part of and, for some, to the church. Although they reported having diverse friendships, they admitted to feeling most at ease with peers who shared similar cultural backgrounds, pointing at the strength of the bonding ties in the Ghanaian community but also hinting that those might potentially limit the outward-looking bridging ties that these young people form. Communication barriers were frequently mentioned, particularly regarding official letters from the municipality. Many parents of the attendees had reportedly struggled to understand written Dutch and English and relied on their children or extended family members to interpret information about bills, rent, and energy costs. Participants noted that communication had been temporarily more transparent during the COVID-19 pandemic, but that this improvement did not persist. For practical issues, most participants reported coping by searching for information online or contacting institutions directly. According to the

group, trusted figures within the community could play a crucial role in explaining official documents and facilitating communication with institutions. Another recurring theme in the discussion was the experience of injustice. Participants shared that, as Black young people, they often feel pressure to work harder than others to be taken seriously. One law and finance student mentioned avoiding work environments such as the Zuidas due to anticipated discrimination and a lack of peers. Moreover, several participants described adapting to white Dutch norms as necessary for acceptance. Housing pressures and neighbourhood change also shaped their experiences. Rising costs, family displacement, and moves to surrounding municipalities such as Almere, Purmerend, and Lelystad were common topics. Several young adults expressed uncertainty about whether they wanted to remain in Zuidoost, describing how gentrification made the neighbourhood feel less like home. This meeting showed that topics such as injustice, racism, and poverty are deeply felt and more on the attendees' minds than issues like the energy transition, which were barely mentioned in the conversation. Furthermore, it was notable what had been said about the key figures and their essential roles within their community.

Overall, the field research proved very fruitful. It allowed us to corroborate much of the data collected through the literature review and interviews – for example, the importance of visual communication, the difficulties created by language barriers, and the significance of "safe spaces." Moreover, it made very apparent that key local figures – the bridgebuilders – have a crucial role to play in reaching local communities in an effective and just manner. Bridgebuilders can lend outsiders, such as researchers or municipal workers, the legitimacy needed to bridge the gaps created by long-standing resentment and distrust.

Problem definition

Building on the research aim outlined in the Initiation section – to identify different types of frictions (cultural, linguistic, institutional etc.) that hinder collaboration between the residents, local organizations and community leaders, and the governmental institutions in the sustainable energy transition in Zuidoost – we deployed three problem-finding methods – literature review, semi-structured interviews, and field research – in search of a clear problem definition. Considered separately, each of these methods followed a logic of divergence: we sought to absorb as much information as possible. Convergence occurred through the triangulation of findings across the methods, which enabled us to identify the most frequently recurring themes and to better understand the connections between the various problems present in the borough.

Distrust emerged as by far the most fundamental and pervasive friction. It characterizes not only the relationship between residents and outsiders, but also the relationships between bridgebuilders and the municipality, as well as between the bridgebuilders themselves. This distrust, on the one hand, appears to be fuelled by the many injustices identified in this section and, on the other, precludes the development of context-sensitive solutions, which in turn generates even more distrust and resentment. This relationship, which we dubbed "the vicious cycle of dysfunction," is shown in Figure 2.

To break this cycle, we concluded that trust must be built between residents and the municipality – something that cannot be achieved without addressing the underlying injustices. However, the problem-finding process also highlighted the importance of bridgebuilders as crucial links between government and grassroots. Therefore, we decided to focus on them and their troubled relationships with the municipality, both as a proxy for the broader municipality–resident relationship and as a significant issue in and of itself.

Ultimately, our problem definition is:

How can strengthening trust between the municipality and bridgebuilders help break the "vicious cycle of dysfunction" by addressing underlying injustices in Amsterdam Zuidoost's energy transition?
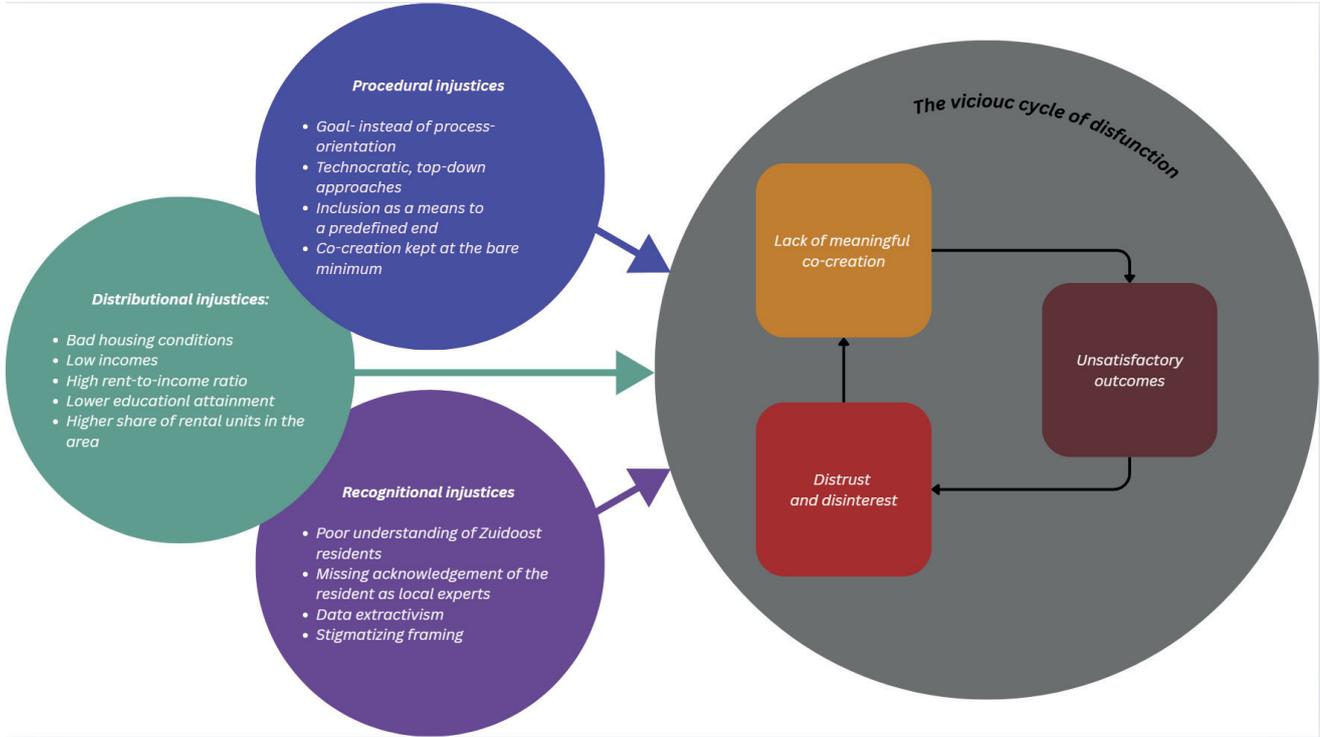
FIGURE 3 . THE VICIOUS CYCLE OF DISFUNCTION AND EXAMPLES OF INJUSTICES FOUND IN AMSTERDAM ZUIDOOST WHICH CONTRIBUTE TO IT.

Co-creation sessions

Having specified the problem definition, it became clear that our first co-creation session should include representatives of both the bridgebuilders and the municipality. Ultimately, the session was attended by three municipal employees and five different bridgebuilders, including a pastor, a local politician, and several individuals who had founded neighbourhood initiatives (NGOs and foundations).

We opened the session with a brief presentation on our Problem Finding process, the insights we had gained, and the problem definition we had formulated. The presentation served a dual purpose: to ensure that all participants were familiar with the project and its progress, and to spark initial discussion. In this regard, it was immediately effective: participants began asking questions and exchanging ideas during the presentation itself. We were genuinely surprised to see this level of eagerness continue throughout the session. On the one hand, it reaffirmed the relevance of our findings; on the other, it made moderating the discussion difficult and forced us to abandon our pre-planned structure. Despite the clear tensions, we chose to let the conversation unfold organically, suspecting that participants had not had an opportunity to express their views in such a setting for quite some time. Those tensions seemed to have stemmed from a sense of being unheard, coupled with perceptions of marginalization and discrimination. In particular, the pastor expressed deep frustration at his continuous but fruitless efforts to initiate change and secure support for his community, the failure of which he experienced as acutely painful. For the municipal representatives present, this appeared to be the first direct confrontation with the lived consequences of their policies and decisions. Notably, they showed limited awareness of the broader and often harmful effects the institutional choices they co-shape can produce. Notwithstanding the initial discomfort caused by the honesty and display of emotions, the discussion appeared to have a liberating effect. The feedback we received after the session confirmed this suspicion: several attendees noted how rare it was to speak openly, in a neutral environment, with other relevant stakeholders – whether bridgebuilders or municipal workers. One municipal participant reflected on how seldom he or his colleagues

"get on the ground," which hampers their understanding of the people they are supposed to serve.

During the session we also asked participants, in groups, to sketch network maps showing key stakeholders in Zuidoost and how they relate to one another. Remarkably, what was intended as a simple warm-up activity proved unexpectedly difficult. This difficulty revealed how little clarity there is about who is connected to whom, how municipal processes function, and how stakeholder relationships in Zuidoost are structured. Such a lack of understanding ultimately hinders collaboration and prevents it from becoming genuinely meaningful.

In the end, the co-creation session generated several valuable insights, which are presented below. First, there was disagreement about how the value created by bridgebuilders should be measured. Bridgebuilders expressed frustration with current performance quantification methods, such as KPIs, which they felt could not capture the full scope of their positive impact. Municipal representatives, while sympathetic, maintained that such metrics are necessary to ensure accountability and prevent malversation.

Second, subsidies emerged as both a blessing and a curse. Although they provide bridgebuilders with essential resources for achieving their goals, they also reinforce existing power structures in Zuidoost. Some established bridgebuilders have developed effective lobbying channels within the municipality, making it difficult for newcomers to compete for scarce resources. This imbalance highlights the critical importance of linking ties but also their negative potential to stifle development in the absence of transparency and proper checks and balances designed to level the playing field. Participants noted that poor relationships with key municipal figures can lead to subtle discrimination or even exclusion. Third, distrust and unfamiliarity also characterize relationships among bridgebuilders themselves. The competition for resources and entrenched power structures, described by one attendee as "almost sectarian", undermines trust, dampens motivation, and hinders the spread of new solutions. Regrettably, the bridgebuilders tend to compete rather than collaborate with each other, both for resources and for the recognition of their commu-

nunities. As was observed, this is deeply counterproductive: meaningful change depends not on individual prominence, but on sustained collaboration.

Series of online meetings with bridge builders and municipality workers

Following the success of the first co-creation session, we hoped to keep the momentum going. That is why we attempted to follow it up with a second co-creation session expanded by the bridgebuilders and municipality workers we had learned about during the first one. However, despite our best efforts, we failed to organise the session, chiefly due to the time unavailability of the invitees. On three occasions, we were forced to cancel an already planned session due to last-minute withdrawals and a low expected turnout. While disappointing, we saw our unsuccessful struggle as a source of valuable insights into the structural constraints that both bridgebuilders and municipal workers experience when it comes to taking up actions that go beyond their typical responsibilities. Generally, the people we reached out to expressed interest in participating and often offered to pass on our invitation to their colleagues, but most of the time, they could not take part in our planned sessions because of their busy schedules. Moreover, one of the bridgebuilders told us that, to paraphrase, bridgebuilders and pioneers in Zuidoost are often overworked due to a lack of structural support, which in turn compromises the continuity of their efforts. This remark reaffirmed our conviction that a new modus operandi needs to be developed if a just and sustainable energy transition in Zuidoost is to become a reality.

Since we could not organise a proper co-creation session, we decided to settle for a series of online meetings with a handful of particularly engaged attendees of our first co-creation session. During those meetings, we let go of the semi-structured interview set-up, but rather chose to create a more interactive environment for brainstorming with these bridgebuilders, researchers, and municipal workers about what could be a useful outcome that this Living Lab could feasibly yield, given the resource and time constraints we faced. Over the course of these conversations, we converged on the conclusion that the plenary discussions, or, in other words, the dialogue, just like the one that

took place during the first co-creation session, are necessary to continue beyond the limited timeframe of this Living Lab. For that to happen, both municipal workers and bridgebuilders would need to proactively seek out such opportunities to talk through their differences, coordinate efforts, and, most importantly, build trust and mutual understanding.

Idea definition

Taking all of that into consideration and acknowledging the importance of continuing the dialogue, we were able to narrow down our focus to a single idea that showed the most promise in helping us address the problem we had defined earlier. In sum, we decided to create the beginning of a database with structured and accessible information and data regarding the current state of the sustainable energy transition in Zuidoost and all the varied projects and initiatives going on. This is with the aim of ensuring whoever takes up this collaboration-building project after us succeeds. This rough idea took a more concrete shape through the process of refinement, which is discussed in the next section. The refinement process also marks the beginning of the third and final step in the iCPS method, namely Solution Finding.

PICTURES 1 & 2. PICTURES FROM FIRST CO-CREATION SES-

PICTURES 3 & 4. PICTURES FROM FIRST CO-CREATI-

5. Refinement / Solution Finding

To find a way to turn our idea into a tangible product, we conducted a series of interviews with bridge builders and municipal workers. Some of these constituted a continuation of the meetings we had already been holding during the Idea Finding process, as discussed in the previous section. It was during those meetings that we arrived at the idea of creating an open-source database. Moreover, through conversations with our collaborators, we realised that the greatest value our Living Lab had already created lay in the network of connections we had established with various stakeholders. By providing an overview of these different people and organisations, we could create a useful tool for anyone wishing to facilitate collaborative endeavours in Zuidoost.

In addition to continuing this series of online meetings, we also met in person with a couple of bridge builders we had become acquainted with while attempting to organise the second co-creation session.

Firstly, we spoke with Prospect Eleven, a successful company that positions itself as a sparring partner for the municipality. They described their mission as ensuring that residents' underlying needs are reflected in new plans and processes. During a two-hour brainstorming session with Angelo Bromet, one of its co-founders, we learned more about their way of working and discussed our idea of creating a stakeholder overview. He pointed out that although many bridge builders operate in isolation, each within their own silo, this is not necessarily problematic for Amsterdam Zuidoost. According to him, the primary value of bridge builders lies in their unique capacity to act as intermediaries between the municipality and specific subsets of residents, as they possess an intimate understanding of their communities. In a borough as culturally and socially diverse as Amsterdam Zuidoost, even when municipal actors and residents nominally share a language, meaning is often distorted or lost altogether due to cultural differences. He emphasised that the municipality frequently fails to probe the underlying why behind residents' responses and consequently misinterprets them. When policy and regional development decisions are based on such misreadings, the consequences can be severe. Bridge builders play a crucial role in mitigating this risk,

as they are better equipped to grasp the implicit meanings and underlying motivations behind residents' statements. In this sense, they function as translators rather than mere intermediaries. He further noted that this mismatch between municipal institutions and residents is largely inevitable and should not be understood as a matter of institutional failure or negligence. Sustained embeddedness in a community is difficult to maintain, and alienation is an almost unavoidable outcome for those operating within formal governance roles.

Secondly, we brainstormed with Rosa Spruit, a PhD researcher at the Groene Hub who studies the dynamics between multi-level governance and local citizen initiatives. She reflected on our draft stakeholder overview and noted that it clearly illustrates the power imbalance between municipal actors and residents, an imbalance that must be acknowledged. Additionally, she introduced us to intermediary theory, building on Bromet's feedback regarding the existence of different types of bridge builders, each with distinct roles and forms of added value. Lastly, she rightly pointed out that the stakeholder landscape resembles a living organism rather than a static diagram, as relationships and positions constantly change and evolve. This helped us recognise our mistake in approaching bridge builders as a relatively homogeneous group. Substantial variation exists in their motivations (why), practices (how), and activities (what). These insights compelled us to reconsider our approach to visualising the stakeholder overview in a way that better captures this diversity of roles and prompted us to explore ways in which we could make it interactive, to account for its "living organism" quality as mentioned by Rosa.

6. Implementation / Solution Definition

Having internalized the feedback received during the refinement stage, we decided to create a website that fulfils the role of the ideated database. Our aim is to bring together what already exists rather than create something entirely new and, at the same time, address the need for an accessible online overview of essential information pertaining to the local context of Zuidoost. The website is also an attempt to bring the hidden local knowledge to the fore. Free access alone, however, is not enough: knowledge must also be presented in a simple and comprehensible manner. To this end, we created a short video summarizing the process and main insights gained from this Living Lab.

Another outcome of the refinement and solution-finding phase was the recognition of the need for a clearer overview of the social network of relevant actors in Zuidoost. With Zuidoost's big diversity in social groups, naturally, there are a lot of people who fulfil a bridgebuilder role, for example, by translating municipal information to be understood and used by the residents of their community. So a great deal is happening in the borough, but often in a fragmented way: local people may know one another, yet different groups (the municipality, NGOs, bridgebuilders, etc.) have limited knowledge of each other as well as of the broader social and power structures in the district. For this reason, the ideated stakeholder overview took the form of a network map that shows connections between stakeholders and distinguishes them by the roles they fulfil and the type and degree of power they hold. In the map we focused on organizations rather than the individuals fulfilling the role of bridgebuilders since the latter are more likely to get in and out of the picture, while the former are less volatile and more likely to remain relevant, even despite significant staff turn-overs over time. Of course, we acknowledge that is the individuals who give those impersonal organizations a human face and therefore build trust with the residents. However, our experience with this living Lab showed that most of the bridgebuilders are associated with some organizations. Our map does, therefore, allow users to seek them out, if not directly, while remaining legible and not overly chaotic, as displayed in Figure 5-7. The vision for the network map is that it is interactive, and that bridgebuilders and municipal actors can add their work, organisation, or department to the map, as

well as draw connections where they are happening. So, the map can be then updated as to represent the actual situation as accessibly as possible. As specified in our Idea Definition, we aim to lay the foundations for future efforts to improve collaboration between bridgebuilders and the municipality. Our network map, therefore, makes no claim to completeness – rather, it is designed to be a living, ever-changing monitor of current relationships between key stakeholders in Zuidoost.

Network map more in detail

As discussed, the network map visualizes the various bridge builders, municipal agencies, institutions, and different resident groups. Actors in the inner circle possess greater influence in terms of financial resources—referred to during one of our brainstorming sessions as "money power", as well as decision-making power regarding policies, subsidies, and projects. The outer circle, by contrast, holds greater influence through proximity to residents, knowledge of their circumstances, and the ability to affect them; this form of influence is described as "people power."

The network can also be understood through the metaphor of sand and glass. The inner circle, where the municipality is positioned, resembles the molecular structure of sand: its structure is dense and crystalline, formed by stable and well-defined institutional grains. This high degree of order makes the inner circle relatively rigid and less adaptable; its arrangements are largely fixed and slow to change. The outer circle, by contrast, owes its transparency to its amorphous and fluid nature, just like glass. Yet this apparent clarity comes with limitations. From the perspective of the municipality, the outer circle is more difficult to coordinate and to fully comprehend, as its actors continuously shift, adapt, and reconfigure at a much faster pace than those in the inner circle.

By indicating the relationships between different actors and grouping them within the grey bubbles, the map shows who is reaching whom and in which layer. It visualizes an otherwise intangible network of communication and collaboration. When more municipal departments are added to the map in the future, it will become easier for bridgebuilders to connect with the appropriate departments.

Conversely, before initiating a new project, the municipality can reach out to specific bridge builders or other intermediaries, as the map helps identify whom they should engage with first. Because bridge builders function as translators for specific resident groups, the network map reveals which groups have access to such intermediaries – and, through them, to the municipality – and which do not. This also allows resident or social groups that do not yet have a clear point of contact to be added to the outer ring of the map.

Given that our project focuses on the social side of the energy transition, we have chosen, alongside more general groups, to incorporate resident groups that highlight those who are more vulnerable to energy poverty or are affected differently by the transition. The distinction between these groups is based on prior research by Nawaz et al. (2023, pp. 71–76) and is defined as follows:

Group 1: Caretakers, retirees, and students.
This group is characterized by residence in shared housing, the presence of young children in the household, full-time student status, and the provision of unpaid care.

Group 2: Social and middle-sector tenants.
These residents typically experience relatively high energy consumption in relation to income, live in social housing or the private "middle" rental sector, and are frequently overlooked by subsidy policies.

Group 3: Residents of inefficient buildings.
This group is characterized by poor indoor environmental quality (e.g., mould and cold), high energy bills, limited access to renewable energy sources such as solar panels, outdated heating systems, and consequently low energy efficiency labels (E, F, or G).

Group 4: Single parents and the elderly.
Members of this group often lack the financial capacity to invest in housing renovations and have a heightened need for thermal comfort. Women are frequently heads of households, and individuals aged 75 and older often live alone.

Group 5: Disconnected low-income households.
This group is characterized by low income, limited interest in the energy transition, low levels of participation in local policymaking, and low satisfaction with municipal communication. They may also accept high financial risks, for example by lacking insurance coverage.

Group 6: Precarious families.
These households often spend more time at home and therefore have greater heating needs. They are frequently dependent on governmental support, experience unemployment or part-time employment due to care responsibilities, and have limited control over or choice in their daily lives.

Finally, it is important to note that, despite recognizing the heterogeneity of bridge builders, we chose to focus primarily on the different categories of residents they engage with. While analytically defensible, this approach captures only a limited dimension of the value bridge builders contribute to Amsterdam Zuidoost; their forms of differentiation are considerably more extensive. This limitation is largely due to time constraints, which prevented a more comprehensive analysis of the distinct types of bridge builders and their respective roles. We therefore argue that this heterogeneity warrants systematic examination in future research, as further elaborated in the section "Recommendations for Future Research."

FIGURE 5 . THE NETWORK MAP ROADMAP

29

(KNOWLEDGE) INSTITUTIONS

BRIDGE BUILDERS

RESIDENTS

PEOPLE POWER   MONEY POWER
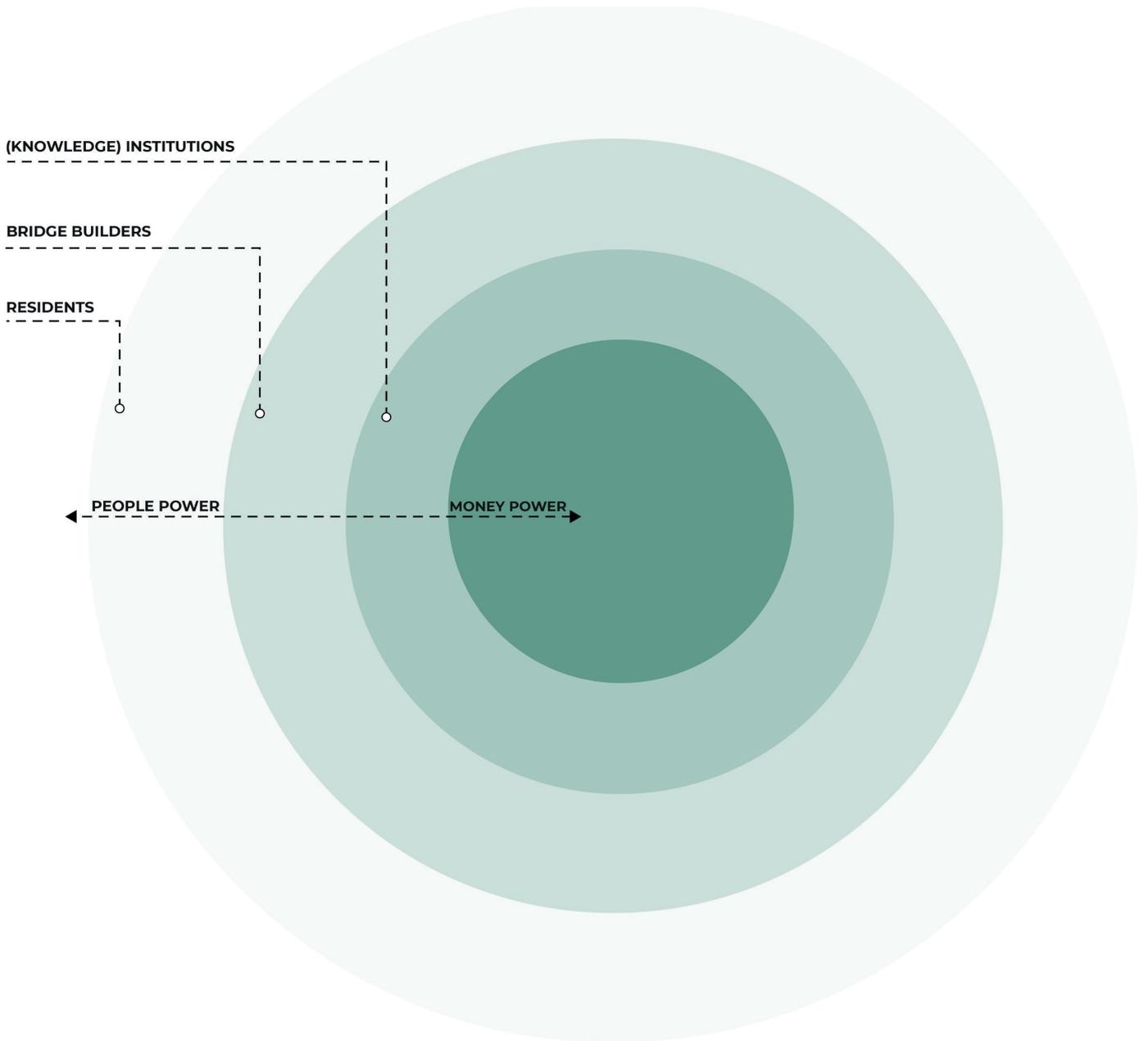
How we show a recurring collaboration between the organsations/ parties

FIGURE 6 . THE NETWORK MAP RELATIONSHIP VISUALISATION

29

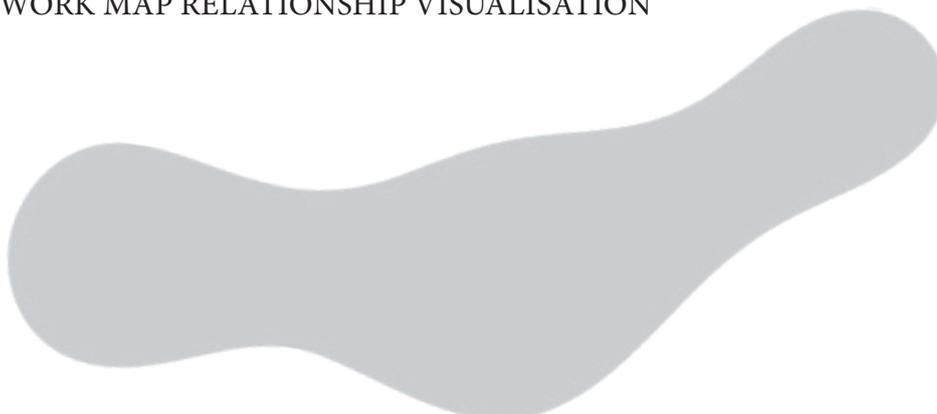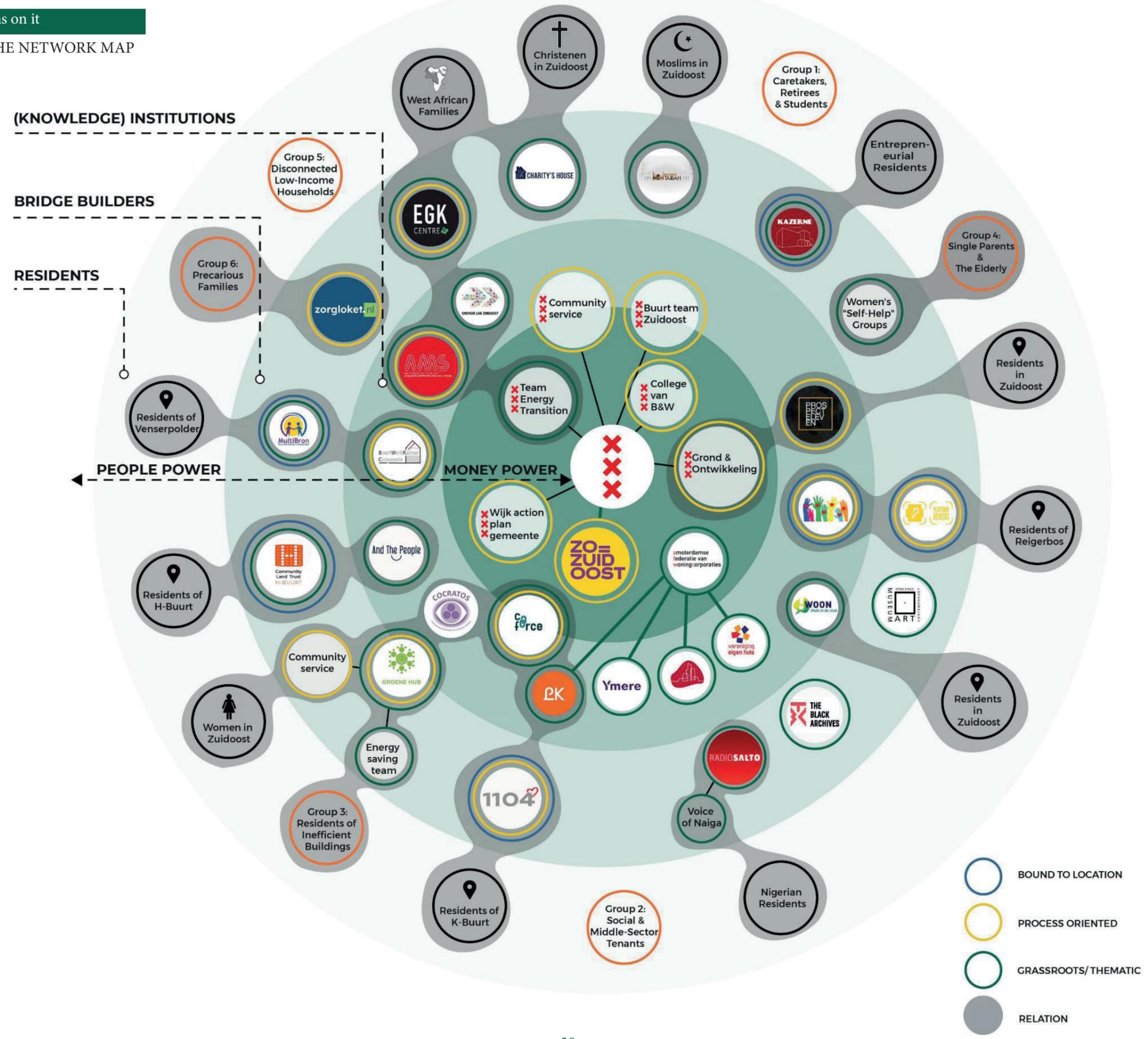FIGURE 7 . THE NETWORK MAP

(KNOWLEDGE) INSTITUTIONS

BRIDGE BUILDERS

RESIDENTS

Group 5: Disconnected Low-Income Households

Group 6: Precarious Families

West African Families

Christenen in Zuidoost

Moslims in Zuidoost

Group 1: Caretakers, Retirees & Students

Entrepreneurial Residents

CHARITY'S HOUSE

EGK CENTRE

KAZERNE

Group 4: Single Parents & The Elderly

Women's "Self-Help" Groups

zorgloket.nl

Community service

Buurt team Zuidoost

College van B&W

Residents in Zuidoost

AMS

Team Energy Transition

PROSPECT ELEVEN

Residents of Venserpolder

MultiBron

BuurtWerkKamer Coöperatie

Grond & Ontwikkeling

PEOPLE POWER

MONEY POWER

Wijk action plan gemeente

Residents of Reigerbos

And The People

Community Land Trust H-Buurt

ZO ZUID OOST

amsterdamse federatie van woningcorporaties

WOON

MUSEUM ART

Residents of H-Buurt

COCRATOS

co force

Community service

GROENE HUB

vereniging eigen huis

Ymere

Residents in Zuidoost

Women in Zuidoost

Energy saving team

£K

THE BLACK ARCHIVES

1104

RADIOSALTO

Voice of Naiga

Group 3: Residents of Inefficient Buildings

Residents of K-Buurt

Group 2: Social & Middle-Sector Tenants

Nigerian Residents

BOUND TO LOCATION

PROCESS ORIENTED

GRASSROOTS/ THEMATIC

RELATION

30

7.   Evaluation

7.1 The final product use

Our research showed that, although the initial impulse may come from the top, actual change ultimately takes place at the grassroots level. That is why we envisioned our website as a scaffolding on which this change can lean and grow: an environment in which actors can see and find one another, and in which government can gain insight into what is happening on the ground.

A great deal of valuable work is already taking place in Amsterdam Zuidoost, and much continues to emerge. For this reason, our aim was not to introduce new external interventions, but rather to help consolidate the initiatives already in place. In isolation, individual initiatives have limited impact; their strength emerges through connection. Accordingly, the project does not propose new undertakings but assembles existing ones into a coherent database in the form of a website.

Any actor relevant to the energy transition in Amsterdam Zuidoost has the option to use the resources available on the website and fill in a form to be added to the network map. We hope that, in this way, the network map will grow organically and become increasingly valuable with each new addition. This visibility is intended to enable better coordination between government actors and bridge builders, allowing them to build meaningfully on one another's work.

As part of the website, we also share the lessons we learned through our experience of conducting this Living Lab: the challenges we encountered, the factors we had to consider, as well as the mistakes and the right choices we made. This should not be treated as a blueprint for similar future projects, but rather as a time-saving guideline. We hope that the knowledge we have gained and shared will be built upon, refined, and expanded by future researchers and practitioners.

All in all, we hope that together the database, the video, and the network map will serve as a practical toolkit for those wishing to support ongoing conversations, recognise the crucial role of bridge builders, strengthen the currently fragmented social structure, and generally improve communication and build trust in Amsterdam Zuidoost. Ultimately,

by helping to create new, stronger, and more sustainable social links based on partnership and parity, these tools may contribute to making the sustainable energy transition in Zuidoost more open, collaborative, and, by extension, more just.

As stated above, the network map is inherently dynamic, and change is not a question of 'if' but rather of 'when'. Because of this, we added forms on the website and asked if the EGK Centre could manage the continuation. They agreed to take primary responsibility for keeping this active and for developing the network map. Thus, the forms that people can fill in are sent to the EGK centre, where they can be edited. Since, for this report, we made the network in Illustrator and adding new things to it is a hassle, we are transferring the network map to MIRO.

7.2 Replicability and scalability

Our project's replicability lies in its method: multi-vectoral exploration of the social ties and injustices present in an area, creating connections with relevant actors, bringing them together with the aim of building trust and collaboration, and creating tools that allow this momentum to become self-sustaining. Even though the exact path this method took us on was dictated by the specificities of the context of Zuidoost, the method itself was conceived prior to our deeper exploration of the borough. Owing to that, it should also be applicable to different neighbourhoods with similar general characteristics – underprivileged and distrustful of authorities, but also diverse and youthful. This feature defines its replicability across places. Furthermore, various socio-technical transitions differ from one another in their technical aspects, while the related social problems are often similar, stemming from the same root of the pre-existing injustices. Our Living Lab's focus on the social aspect of the sustainable energy transition, therefore, has rendered our approach – aimed at understanding the ties and power structures between municipal institutions, local communities, and different bridge builders, building trust and improving collaboration between them – suitable for justice-oriented projects in other socio-technical transitions, for example, the food or communication transition. This feature defines its replicability across transition domains.

As for scalability, it is inherent to the nature of our product. The website database, in general, and the network map, in particular, are designed to grow through contributions from a continuously expanding user base. This dynamic provides the project with a scale-up impetus, albeit to a certain limit. Realistically, this process could effectively encompass the entirety of Amsterdam Zuidoost, but we have doubts about how well it could be scaled up to higher administrative levels, such as the entirety of Amsterdam, particularly if it were to be done in a centralised or uniform manner. The reason for this is that the core objective of fostering closer collaboration between bridge builders and the municipality is to ensure solutions that are responsive to a specific local context. Beyond a certain spatial or administrative scale, the focus of collaborative efforts becomes too differentiated. Therefore, while our project's scalability may be limited, this limitation stems directly from its commitment to accounting for local idiosyncrasies and resisting one-size-fits-all solutions; rather than pursuing vertical expansion, its potential for growth lies in parallel, locally embedded applications of the same method.

7.3 Theoretical contribution

This project makes several theoretical contributions. First, the Exploration phase produced a detailed and structured account of the types of injustices common in Amsterdam Zuidoost. Moreover, it demonstrated the empirical usefulness of combining energy justice theory with social network theory in the investigation of the social aspects of energy transitions. The concept of the "vicious circle of dysfunction" that we developed (Figure 4) would be incomplete if either of these theoretical strands were absent from our conceptual framework: without the justice perspective, it would not be possible to explain the distrust that fuels the cycle, while the absence of a social network lens would have made it far more difficult to link existing injustices to the ineffectiveness of energy transition efforts in Zuidoost.

This conceptualization reveals how structural injustices manifest in everyday interactions, governance practices, and institutional responses. The analysis demonstrates that failures in collaboration are not incidental but are rooted in historically and structurally produced inequalities that shape power relations, recognition, and access to resources. In doing so, the project contributes to a more situated understanding of justice—one that foregrounds relational dynamics and highlights the role of intermediaries, such as bridge builders, in mediating, translating, and at times contesting institutional logics, while connecting different forms of injustice to practical realities in Amsterdam Zuidoost.

7.4 Limitations

The main constraint this Living Lab project faced was the very short timeframe dedicated to it. A project of such complexity and scale requires much more time for the exploration phase alone, not to mention the trust- and collaboration-building process, which is inherently time-consuming. This temporal constraint is the main reason why we opted to frame our final product the way we did, that is, as a start-kit of sorts, which can be used to continue the trust- and collaboration-building process beyond this Living Lab's deadline.

The second biggest constraint was the lack of resources, both financial and human. In our opinion, the already immensely challenging topic of a just sustainable energy transition in Amsterdam Zuidoost is nearly insurmountable for a team of five students with little to no experience with similar undertakings and in command of a three-digit budget. These limitations were felt particularly acutely during the organization of co-creation sessions: our budgetary constraints severely limited our options with respect to where these sessions could take place, rendering us dependent on the availability of a few venues where we could host them free of charge. Another phase of the project during which our team's limited manpower let itself be known was the field research – there is only so much ground that a group of five can cover in an area as large as Amsterdam Zuidoost. Moreover, since the organization of the co-creation sessions ran in parallel with work on other deliverables, we could not dedicate as much time to them as we would have liked, which may have negatively impacted the sessions' quality and the comprehensiveness of the

invitees' lists. This is not to diminish the outcomes of our investigation, but rather to stress that the work we initiated should be carried on by a larger team of professionals with the proper expertise and financial backing.

8. Recommendations for Further Research

Throughout our Living Lab, we encountered many themes and issues that, although highly relevant and thought-provoking, did not fully align with the expectations of the Case Initiators or fell outside the scope of our Problem Definition. We therefore highlight some of these topics here as recommendations for further research.

Firstly, one of the most strongly debated topics during the co-creation session concerned the value generated by bridgebuilders and how it might be measured in a way that better reflects the full scope of their positive impacts. We hope that the products developed through this Living Lab will support continued brainstorming on better solutions to this problem. However, it would be prudent for this important and contentious issue to be explicitly investigated. The coordination of new co-creation sessions – in the spirit of collaboration that this Living Lab sought to instil – should be central to such a study, as our results clearly show that any legitimate solution to this problem requires co-creating new and innovative ideas.

Secondly, the existence of similar "cycles of dysfunction" in different areas could serve as a hypothesis to test in future research. Such studies could be conducted, for example, in Rotterdam Bospolder Tussendijken, Nijmegen-Dukenburg, or Gemert, all of which share similar socio-economic characteristics with Amsterdam Zuidoost and were also the subject of other Living Labs focused on ensuring justice of the local energy transition efforts (Ricci et al., 2025). Such research could further corroborate the usefulness of the concept in approaching the social aspects of the energy transition.

Thirdly, we recommend a more thorough investigation into how bridgebuilders differ from one another. As mentioned in the Implementation chapter, our categorization of bridgebuilders was based on the differences in the resident groups they work with, but bridgebuilders differ between one another in other ways, for example in terms of their approach, resources or particular focus within the energy transition. Such insights could make coordination efforts between different stakeholders more effective by allowing a more merit-based division of tasks and resources.

Declaration on AI use

The authors declare that AI tools were used in the preparation of this report in accordance with the Amsterdam Living Lab (YMS 703-24) Course Guide and UNESCO's ChatGPT and artificial intelligence in higher education: Quick start guide (Sabzalieva & Valentini, 2023). AI tools were used solely for editorial purposes, including the identification and correction of spelling, grammatical, and stylistic errors.

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Appendix A - Group reflection

At the beginning of the project, and throughout its early stages, each of us was dealing with personal challenges. This made our collaboration, especially during the first month of the course, quite difficult and often marked by tension. Due to these circumstances, we struggled to dedicate the time and effort to the Living Lab that our case, Just Sustainable Energy Transition, demanded. Initially, we felt that we might not be a good match as a group, and frequent discussions and disagreements created a tense atmosphere. This was further exacerbated by the fact that for four out of five group members, this topic had been their fifth choice; the initial sense of disappointment negatively impacted our eagerness to start the project in the right way. On top of all this, we were missing one of our teammates during the first month, putting us at a significant disadvantage at a crucial stage of the project. It was not until October, when our missing teammate rejoined us, that the group atmosphere, which had been steadily deteriorating up to that point, began to improve. We believe this teammate was able to reinvigorate the team with fresh energy after the rest of us had nearly succumbed to defeat. This showed us the value of opening up for external opinions and fresh perspectives, as it was precisely what we needed at that critical junction.

Having caught this second wind, we decided to establish general guidelines to govern our further collaboration. The most important of these were to clearly communicate the time each of us could dedicate to the project, identify our individual strengths within the group, and make a conscious effort to understand one another and find common ground. These ground rules helped create greater transparency and eliminated much of the earlier tension, which we came to realize had largely stemmed from poor communication, compounded by the adversities our group faced from the outset.

Our academic coach, Jasmine Zhang, and the case initiators, Otas Elum and Gina Gommer, were extremely supportive and were, to a large extent, the reason we were able to push through the initial difficulties. Otas and Gina were also actively engaged during the exploration and refinement phases of our Living Lab, helping us shape the final product into what it ultimately became. They additionally helped us gain perspective on our progress: Jasmine pointed out that we were often overly critical of our own work, while Otas and Gina were consistently ready to reassure us of its value. These affirmations played an important role in helping us persevere.

It was during the final month of the project, when we were working intensively on all required deliverables, that our team truly came into its own. Each of us found a role and set of deliverables that suited our strengths and interests, while the trust we had been building since October allowed us to refrain from micromanaging one another. In addition to our primary responsibilities, we also took on secondary tasks to support each other. For some of us, this provided an opportunity to step outside our comfort zones and practice skills we had not previously developed or to take on tasks we had initially felt hesitant about. In this way, we ensured that our deliverables met a high standard while also creating valuable learning moments.

The Living Lab experience highlighted for all of us the importance of communication, a theme that was also central to the challenges we addressed in our case. Drawing parallels between the troubled collaboration among stakeholders in Zuidoost and our own team dynamics provided several insightful reflections. One such parallel concerned the tensions surrounding the quantifiability of the positive impact of bridge builders. Just as the bridge builders faced constraints, we felt that the design of the Living Lab course itself, and particularly its limited time frame, did not fully allow us to develop the best possible solution for our case. At the same time, much like the municipality's emphasis on accountability, we had to acknowledge that sometimes "done" is better than "perfect" and focus on delivering a product that was feasible given the limitations we faced. In the end, we believe we were able to achieve precisely that.