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Empowering communities through social design practices: Lessons learned from post-disaster practices in Türkiye

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Abstract
Socially engaged design initiatives play a critical role in empowering disadvantaged and confined social groups by seeking to improve their living conditions. Several social design practices operate in Türkiye, but these efforts have not been sufficiently studied or evaluated regarding their impact on community empowerment. Specifically, there is limited understanding of the actors involved, the nature of stakeholder collaboration, and the openness of design practices to both citizens and experts. This study aims to explore the strengths and weaknesses of existing social design practices in empowering disadvantaged communities, while also outlining key steps to improve future initiatives. The research examines 20 social design initiatives that followed the destructive earthquakes of February 6, 2023, in Türkiye. Findings indicate that 85% of the initiatives focused on developing design solutions for the living areas of disadvantaged people, while 50% aimed to empower residents through design and project implementation. Only three initiatives (15%) collaborated with public organizations, and just as many engaged in crowdsourcing activities. Notably, none of the initiatives included disadvantaged groups in the ideation process. Furthermore, many initiatives acted as design-driven initiators or facilitators rather than as mediators bridging diverse community interests. In response to these gaps, we identify key elements needed for enhanced social design practices that genuinely empower communities.

Keywords
Community engagement, Design empowerment, Post-disaster recovery, Social design, Türkiye.

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1. Introduction

Over the past decade, numerous socially engaged design initiatives have emerged to tackle pressing societal challenges such as the COVID-19 pandemic, climate change, socio-spatial inequalities, and catastrophic events. Many of these initiatives aim to create social impact through design, involving community stakeholders and other actors. Renowned consultancy agencies such as IDEO, Participle, and Think Public have developed frameworks to understand and guide these social projects (Chen et al., 2016).

In both literature and practice, several concepts have been used to describe social design activities, such as socially oriented design, design for social innovation, design activism, transition design, and socially responsible design (Gürdere Akdur, 2023). In this study, we use the term social design (SD) to refer to participatory design efforts that (1) research, (2) generate, and (3) realize new ways to benefit society rather than profit (Armstrong et al., 2014). These initiatives seek to include people who are typically excluded from design processes.

Social design activities aim to fill the agency gaps that public authorities or commercial entities have not addressed by improving living conditions for disadvantaged and marginalized social groups within communities. This is achieved by involving specific groups of citizens and partnering with public and private entities to enact social change (Markussen, 2017). Social design initiatives connect vulnerable community groups with volunteer designers, individuals, and organizations, making these efforts particularly crucial during social, economic, and environmental crises.

This study examines social design initiatives in Türkiye following the February 6, 2023 earthquakes. After these disasters, private, public, and civic organizations engaged in spatial activities in addition to rescue operations. Social design initiatives tackled a range of spatial issues, from micro-scale interventions to temporary shelters and housing settlements, to improve the built environment.

Although some initiatives, such as *NasilBirMimarlik* and *Atölye*, have documented these practices, a comprehensive review is still needed. These social initiatives have not yet been systematically studied or evaluated regarding their impact on vulnerable communities, the roles of the actors involved, the nature of stakeholder collaboration, or the openness of design practices to both citizens and experts. Furthermore, Türkiye lacks local studies on social design practices (Gürdere Akdur, 2019).

In response to these gaps, this study aims to explore the strengths and weaknesses of existing social design practices in empowering disadvantaged community groups. The goal is to outline key steps for improving future initiatives and to identify critical factors for conducting more effective social design practices. With these objectives in mind, this study addresses the following research questions:

- How do post-disaster social architectural design practices in Türkiye empower impacted communities through cooperation?
- What are the approaches and objectives for community empowerment?
- What roles do spatial agencies play in social design practices aimed at post-disaster relief?
- How can these practices be improved to be more resilient and sustainable?

Our analysis began with a thorough examination of the literature to establish fundamental concepts and pivotal discussions surrounding social design. A compendium of 33 spatial initiatives followed. Initial data was gathered from initiative websites, documents, and media outlets. We applied Armstrong et al., (2014) and Markussen (2017)'s social design principles to determine our selection criteria. A number of initiatives were excluded: those that did not use design activities to research, develop, and implement innovative methods for social benefit over commercial gain, or those that did not focus on improving living conditions for disadvantaged community groups. Following this rigorous selection process, 20 social design initiatives that

met our criteria were chosen for further review and analysis.

The following section provides an up-to-date overview of concepts and practices in social design and then delves into the specialized concepts used to analyse the selected cases. Section 3 presents a comprehensive analysis of the 20 selected cases, followed by a critical discussion and identification of key elements for improved social design practices (Section 4). The conclusion discusses the study's findings and outlines directions for future research.

2. Background

2.1 Social design, design for socio-innovation, and design activism

Social design has gained popularity in recent decades, but early work by Papanek (1973) (Socially Responsible Design) and Whiteley (1993) (Design for Society) was among the first to incorporate environmental concerns into design processes. Bill Morrison's Permaculture food growing systems and Schumacher's relocalization movement are also notable early social design practices (Armstrong et al., 2014).

Following the imposition of austerity measures on public activities during the 2008 economic crisis, designers increasingly sought clients from the public sector and NGOs (Chen et al., 2016). Social design began to address complex, large-scale issues like climate change, migration, ageing populations, and inclusivity across various countries (Armstrong et al., 2014). These practices sought spatial solutions for extreme poverty, disease, and post-catastrophe situations—contexts where traditional market and state interventions often failed (Manzini, 2015, p. 64).

Armstrong et al. (2014, p.20) identified three main catalysts for social design:

- Social design excels at addressing large-scale, complex challenges that demand agile, intelligent solutions.
- Social issues often require cross-disciplinary research and design, fostering collaboration and interaction.
- Social design fills the gap left by lagging research in broader fields, contributing to social and public issues not fully addressed by governments, commercial consultancies, design associations, and others.

In recent years, many international social design networks have emerged, with Design for Social Innovation and Sustainability (DESIS) and Designers without Borders being the most prominent (Markussen, 2017). These networks promote social innovation (DESIS Network, n.d.) and offer support to improve community and educational environments (Designers without Borders, n.d.).

In literature, several terms have been used to describe social design, such as socially responsible design, design for social innovation, and design activism. Though all derive from the foundational principles of social design, they exhibit distinct characteristics. Most social design approaches address socio-spatial issues in poor and disadvantaged communities, while design for social innovation focuses primarily on promoting social change towards sustainability. This includes reducing environmental impact and regenerating common goods through meaningful innovations, usually geared towards middle and upper-class groups (Manzini, 2015, p. 64-65). The former aims to stimulate social transformation by sidestepping politics, while the latter adopts a system-oriented approach that is sometimes criticized for lacking holistic or sufficiently radical changes (Gürdere Akdur, 2023).

In the first framework of social design, "social value" is often a small but important qualitative change at a microscale. In contrast, design for social innovation views social value as contributing to the "common good," benefiting society on a larger scale (Markussen, 2017, p. 169). Although both approaches operate within social and environmental contexts, design activism uniquely operates within a political context (Gürdere Akdur, 2023). Markussen (2013, p. 38) defines design activism as activities that "promote social change," "raise awareness about values and beliefs," or "challenge the constraints imposed by mass production and consumerism on daily life."

The Solidary Mobile Housing (SMH) project (De Smet et al., 2022) serves as an example of social design, aiming to enhance the living conditions of homeless individuals in Brussels by innovating, testing, and refining a short-term housing model for disadvantaged communities through participatory and cooperative design.

Similarly, Santiago Cirugeda's Recetas Urbanas («Urban Prescriptions") exemplifies design activism. projects like "Scaffolding" and "Taking the Street" show how citizens can achieve their goals while adhering to legal frameworks. In Seville, Cirugeda transformed dumpsters into children's playgrounds or useful installations, allowing residents to reshape their neighbourhoods temporarily (Markussen, 2013, p.48). This illustrates how design activism can resist established power structures and local regulations by incorporating citizens' desires into design practices.

Today, defining the boundaries of social design and related concepts is increasingly challenging. Due to overlapping objectives, the distinctions between social design, design activism, and design for social innovation have blurred (Chen et al., 2016). Social design has evolved to lean more towards social innovation for problem-solving, while design for social innovation has begun addressing socially sensitive issues, particularly in the post-economic crisis period (Manzini, 2015, p. 65). Designers now frequently initiate and execute projects as "design activists." Given the intermingling of these roles, this study adopts "social design" as an umbrella term that encompasses activities conducted under the broader scope of design for social innovation and design activism.

2.2 Key concepts

In line with the research questions, this paper focuses on four key concepts: Cooperation as a fundamental practice in social design, Spatial Agency and its roles, the Empowerment approach and its objectives, and Civic Involvement in design ideation. The following sections establish a conceptual framework that will be used to evaluate social design cases for disaster relief in Türkiye.

2.2.1 Cooperation as a key practice in social design

As an intersectoral practice, Social Architectural Design activates the quadruple helix by involving academia, government, civil society, and industry (Carayannis & Campbell, 2009). It is characterized by empowerment, inclusion of civic needs, transdisciplinarity, heterogeneity, organizational diversity, social accountability, and reflexivity. Social Architecture utilizes a cooperative approach to generate applied knowledge and innovative solutions to complex social issues. The outcomes of this cooperation—whether architectural products or critical project proposals—represent mode 2 knowledge production, which involves solving real-world problems through stakeholder collaboration to create innovative solutions (Gibbons et al., 1994).

This collaboration takes multiple forms, including intersectoral, cross-sectoral, and intrasectoral cooperation, and it can be led by various actors such as academia, civic groups, architectural offices, or the building sector.

Social Architecture as a cooperative endeavour exhibits several key traits. First, it promotes civic engagement and empowerment (Petrescu & Trogal, 2017). By empowering communities and addressing their needs, Social Architecture ensures that architectural solutions are responsive to the social contexts in which they are implemented. Secondly, cooperation in Social Architecture embraces transdisciplinarity, heterogeneity, and organizational diversity. It brings together experts from different fields, sectors, and backgrounds, enabling them to pool their knowledge. Social Architecture initiatives aim to create innovative, holistic solutions to complex social issues by incorporating diverse perspectives (Petrescu & Trogal, 2017).

2.2.2 Spatial design agency and roles

Spatial Agency offers a unique perspective that redefines how we perceive and produce architecture (Awan et al., 2013). This approach goes beyond traditional architecture's

emphasis on aesthetics and building construction, expanding possibilities for both architects and non-architects in alignment with Social Architecture (Lorne, 2017).

Originally, Spatial Agency emerged as a critique of mainstream neoliberal practices in architecture. It suggests moving beyond the purely physical to address spatial challenges, incorporating critical thinking about social resolutions and non-anthropocentric elements (Schneider & Till, 2009). This perspective significantly departs from the traditional notion of the "starchitect" as a solitary genius, instead advocating for a more collaborative approach akin to Social Architecture, where multiple stakeholders engage in dialogue and collective action.

This shift in practice has given rise to numerous new roles, including but not limited to: architects as activists, policy lobbyists, facilitators of public participation, mediators, critical spatial practitioners, boundary object designers, and creative situated practitioners (Romero & Pak, 2021).

The core intent of Spatial Agency aligns with that of Social Architecture: to incite change and improve current conditions. However, the pathways to achieving this goal are diverse, encompassing activities such as activism, education, networking, publication, crafting material goods, and policy formulation—all aimed at empowering others.

In Spatial Agency, architecture is transformed from 'matters of fact' into 'matters of concern' (Latour, 2004). This transformation even extends to 'matters of care' (de La Bellacasa, 2011). In this context, Architecture is not merely a collection of objects governed by rules and methods; it is a matter of concern and care, where the social consequences within interconnected networks hold greater significance than the architectural objects themselves (Schneider & Till, 2009).

2.2.3 Civic involvement in ideation as a *sine qua non* for empowerment in social design

Senbel and Church (2011) identified ideation—generating and articulating ideas about one's living spaces—as the most critical moment in design empowerment. Ideation enables citizens to share their ideas and contribute to concept development. True design empowerment occurs when civic ideas are genuinely incorporated into the broader set of priorities during design decision-making. By fostering civic involvement in ideation, architects can ensure their designs are socially relevant and attuned to the needs of the users (Pak & Verbeke, 2014). Without efforts to include users and civil society in design and planning from the initial stages, a project cannot genuinely be categorized as 'social.'

True empowerment of citizens through architectural design is only achievable when users are involved from the earliest phase of a project. Such early involvement allows them to influence the design, spatial configuration, and programmatic relevance of the built environment (Gün et al., 2020).

2.2.4 Empowerment approach and objectives in social design

As reviewed in the previous sections, social design initiatives adopt diverse approaches and objectives to empowerment. Kesdi's (2020) Design Empowerment Framework (DEF) offers a systematic approach to study these initiatives. DEF emphasizes empowerment as both a process and an outcome, carried out systematically and holistically through participatory methods.

Kesdi and Gunes (2019) outline four main empowerment objectives as desired outcomes of the empowerment process:

- 1. Social awareness: Understanding how infrastructures, policies, and cultural values—such as local heritage and neighbourhood dynamics—affect participants' lives.
- 2. Social integration: Facilitating community connections, networking, building community, and fostering collaboration.
- 3. Daily and professional practices: Enabling participants to develop skills in informal learning, technology use, problem-solving, and action in context.
- 4. Sustainability: Ensuring the continuation of capacity-building practices.

A central objective of Social Architecture is the creation of Social Space, a concept introduced by Henri Lefebvre (1991) in his spatial triad theory. This triad aims to construct social space through the following facets of a conceptual triangle (Kahraman et al., 2018):

- 1. Physical Space: the tangible, concrete architecture and urban environment that we can directly see, touch, and navigate. It is the actual physical space inhabited and interacted with.
- 2. Discursive Space: the abstract space of intellectual understanding or representation, such as maps, plans, or models. It represents how space is conceptualized, planned, and often controlled or regulated.
- 3. Lived Space: the experiential space of inhabitants and users, produced and modified over time through its usage, as well as its associated meanings and emotions. It is space as directly lived, expressed through its images and symbols.

In Social Architecture, these three dimensions of space are considered in an intertwined manner, recognizing that architecture shapes not only physical space but also social relations (lived space), and that it is informed by societal discourses, representations, and models (discursive space). Thus, Social Architecture aims to design spaces that are not only physically functional but also support meaningful social interactions and reflect societal values and needs.

DEF emphasizes three key discursive spaces within the social space triad:

- 1. Physical Thinking Spaces: created using reflective and critical methods to help participants reflect on their challenges, contributions, and opportunities. These spaces are instrumental in developing skills and fostering a shared understanding of problems, processes, and solutions.
- 2. Encountering Spaces: Generated through meetings, workshops, and other gatherings, these spaces facilitate meaningful interactions and dialogue among participants.
- 3. Consultative Spaces: in the final discursive phase, designers consult participants directly, unlike in the earlier stages.

The empowerment goals of Social Design theory and practice extend beyond the abstract notion of spaces. As illustrated by Pak (2016), these goals aim to create dialogic spaces as well as conceive and materialize tangible architectural spaces. Empowerment in social architectural design, as a goal, entails practices that "enable various actors to participate in the intersecting stages of planning and decision-making" (Horelli & Wallin, 2010). On the other hand, empowerment through social design responds to user needs and enables them to construct and reconstruct their living environments (Pak, 2016). This comprehensive approach emphasizes the interconnectedness of social architecture, spatial agency, and design empowerment, aligning closely with principles of civic engagement and empowerment in design.

3. Contextualization and analysis of the social design cases in Türkiye using focus concepts

Turkish society has faced numerous natural disasters, large-scale urban interventions, and socio-spatial disparities, prompting several social design initiatives to address these challenges. One such initiative, *Düzce Umut Atölyesi*, held design and construction workshops with vulnerable communities following an earthquake. Similarly, in 2007, an academic-based initiative called *Gülsuyu-Gülensu Dayanışmacı Planlama Atölyesi* challenged the implementation of a large-scale urban transformation plan affecting nine neighbourhoods. The initiative collaborated with academia, government, and civil society through participatory design workshops (Yalçıntan, 2009). In response to earthquakes, numerous associations and volunteer groups contributed to rebuilding damaged areas (Göcenoğlu & Onan, 2008).

Various other initiatives, such as *Acil Korona Mekanları* and *Atölye İstanbul*, formed research networks and developed social design proposals to address the challenges faced by disadvantaged and marginalized groups during the pandemic (Gürdere Akdur, 2020). Academic conferences also

focused on exploring social design, including the National Design Research Conferences (UTAK) and the XIII International Sinan Symposium, which examined the responsibilities of design in the community. These examples illustrate that Türkiye has a history of engaging in social design to some extent. However, few studies have systematically examined these practices (Gürdere Akdur & Kaymaz, 2019). Therefore, these initiatives must be deconstructed to assess how they empower citizens, the type of collaboration established, their goals, and which actor groups are involved in the ideation process. This study aims to fill these gaps. Before discussing our findings, it is essential to contextualize the critical situation faced in Türkiye.

From a socio-political perspective, Türkiye differs significantly from Western contexts due to several conjunctural elements. Design and planning decisions related to the built environment in Türkiye are typically made by the central government using a "top-down" approach , which has been widely criticized (Şenol Balaban, 2019; Gün et al., 2021). Consequently, a participatory process is often absent in the design of the built environment (Türkün, 2011). This situation has led some civil society groups to organize protest activities with the public (Karaman, 2014). Simultaneously, as illustrated in previous examples, academics and NGOs have taken on social architecture projects and other design activities to empower local communities.

Following the February 6, 2023, earthquake, a similar approach was adopted in Türkiye. In response to the large-scale earthquake, social design initiatives sought to compensate for deficiencies by enhancing the spatial quality of temporary living spaces provided by the state and addressing unmet spatial needs. A similar approach has been observed in previous initiatives, such as the Paper Log Houses produced by Shigeru Ban Architects following the 1999 Gölcük Earthquake, which aimed to address emergency shelter deficits, and in housing design workshops conducted through a participatory approach with contributions from social architecture initiatives like *DepDer* and *Düzce Umut Atolyesi* after the Düzce earthquake in 1999 (Shigeru Ban Architects, n.d.; Düzce Umut Atölyesi, 2017).

Throughout history, Türkiye has been highly susceptible to natural disasters such as earthquakes, floods, and landslides (Table 1). Earthquakes represent the most hazardous catastrophic events in Türkiye. Since 1900, over 144,000 people have died in 114 earthquakes of magnitude greater than 5, directly affecting 23.8 million people (Emergency Events Database, 2023).

On February 6, 2023, two major earthquakes, with magnitudes of 7.7 and 7.6, struck Türkiye and Syria. According to an updated UNFPA report released on June 18, 2023, over 50,000 people died and 107,000 were injured in these earthquakes. Three million people were displaced, with 1.6 million living in informal settlements and 800,000 in formal sites (UNFPA, 2023). The Türkiye Earthquakes Recovery and Reconstruction Assessment released by The Presidency of Turkey (2023) documented that these earthquakes were the most hazardous in Türkiye's history, resulting in numerous spatial problems in the affected regions, including:

Table 1. *The authors compiled EM-DAT data on Turkish natural disasters between 1900-2023.*

Disaster Type	The Number of Case	Total Death	Total Affected
Earthquake	114	114.118	23.872.910
Flood	53	1496	1.811.292
Land Slide	14	504	13.671
Mass Movement (Dry)	1	261	1.069
Storm	12	101	14.763
Widfire	5	24	262.238
Total	199	146.504	26.275.943

- 1. Educational activities were suspended until the end of March in the hardest-hit cities, including Adıyaman and Kahramanmaraş.
- 2. Temporary settlements faced limited security and significant challenges in providing basic necessities such as electricity and heating.
- 3. There was an urgent need for educational spaces and playgrounds to support continued learning and socialization, helping to mitigate the psychological impacts of the earthquake.
- 4. Difficulties arose in meeting the spatial needs of disadvantaged groups, including the elderly, refugees, and individuals with disabilities.
- 5. The death of craftsmen and the destruction of commercial units and ateliers resulted in a loss of cultural heritage and severely impacted the local economy.

Additionally, the southeastern region of Türkiye, where the earthquake occurred, is vulnerable to harsh climate conditions, such as extreme heat in summer and floods in winter and spring. These conditions further affect the quality of living spaces, making it essential to provide housing settlements that support accommodation, public infrastructure, and social environments for community groups to socialize and meet their basic needs (UNFPA, 2023). So far, the government's relief-to-recovery strategy has included moving people to formally managed and serviced sites (container cities). Of the 106 organizations providing humanitarian assistance, 57 provide emergency shelter, and 9 facilitate temporary settlements (UN OCHA, 2023). In addition, many civic, public, and private initiatives have contributed to upgrading living conditions in the region through social design strategies. In the next section, we will discuss and analyse the activities of these initiatives in detail from a social design perspective (see Data Analysis).

3.1 General overview of analysed cases

As stated in the Introduction, several selection criteria were established to identify the cases analysed in this study. After applying these criteria, we chose 20 social design initiatives for further review and analysis (Table 2). There is considerable diversity in the framework of evaluation criteria for these initiatives.

The selected initiatives were established between 1992 and 2023. As shown in Figure 1, almost all cases—except for Shigeru Ban Architects & VAN, a Japanese architecture firm—carry out design activities in Türkiye. Notably, 70% of the initiatives (n=14) are in Istanbul. *TeCe Mimarlık* was the earliest initiative, established in 1992, and 30% of the initiatives (n=6), such as *HATAG* and *Acil Tasarım Stüdyosu*, were established after the most recent earthquake.

Volunteer academics and students participated in academic initiatives such as METU Emergency Design Studio and Dokuz Eylül University (DEU). Shigeru Ban Architects & Voluntary Architects' Network (VAN) had already realized several disaster relief projects outside of Türkiye, such as providing tents for vulnerable populations affected by the 2022 Tonga volcanic eruption and tsunami, and developing a temporary community centre after the 2021 tornado in the United States (Shigeru Ban Architects, n.d.). Some of the initiatives, such as *MİMARDER* (Architectural Research Associations),

Table 2. *The analysed social design cases.*

Social Design Cases		
İstanbul Planning Agency (IPA)	Afet Sonrası Ortak Yaşam	Haos Design Architecture
Acil Tasarım Stüdyosu	HATAG	NOI: MiniKo
DEU Faculty of Architecture	Gelecekteki Sen	Piknik works
Herkes için Mimarlık (HİM)	KAF Kolektif	Shigeru Ban Architects & VAN
Mimarlık Araştırmaları Derneği	Suna'nın Kızları	SO? Architecture and Ideas
NEF Foundation	Urban.koop	TeCe Mimarlık
Yer Çizenler Herkes İçin Haritacılık Derneği	Van-Kocaeli Volunteers Platform	

are research-based and have conducted multiple projects on disaster relief. In addition, six private organizations (30%) participated in social design, such as TeCe Architecture, SO? Architecture, and Haos Design, which normally operate as architectural firms but took on additional responsibilities following the earthquake to support vulnerable communities, contributing by developing project proposals and producing design guidelines.

Social design initiatives used various strategies to engage local communities. For example, *Suna'nın Kızları* collaborated with the Ministry of Family and Social Services to build a Child Life Centre in Kahramanmaraş. The Van-Kocaeli Volunteers Platform partnered with the Turkish Ministry of Interior Disaster and Emergency Management Presidency (AFAD) to build nursery and education units in *Adıyaman Altınşehir Container City*. Other initiatives, such as Haos Design and NOI: *Miniko*, directly sent the children's play and activity containers they had prepared, which were produced with donations from individuals, institutions, and associations, to the affected region for immediate use.

KAF Collective travelled to a tent camp in Kahramanmaraş, where they initially provided food services in collaboration with volunteers. Later, they directly built social areas, playgrounds for children, and socialization spaces together with local volunteers (Erkara, 2023). *Yer Çizenler Herkes için Haritacılık Derneği* focused on the need for spatial data in the region, launching an open call for a *Mapathon*. They collected spatial data with volunteers and shared it with local authorities and actors working to improve the spatial conditions in temporary living spaces (Leson et al., 2023). In contrast, *TeCe Architecture, SO? Architecture*, and *PiknikWorks* chose to contribute by making their design proposals open source and sharing them instead of directly interacting with the communities in the area.

3.2 Cooperation in social design

As introduced in Section 2, social design is a cross-sectoral practice that involves at least two actors from academia, government, civil society, and industry, activating the parts of the quadruple helix (Carayannis & Campbell, 2009). This study analyses selected social design initiatives based on organization type, sectoral cooperation, and cooperation type.

To categorize initiatives by organization type, we identified academic, civic, association, private, and public organizations (Table 3). Several sectoral cooperations were developed by these initiatives. Following the conceptual discussion in Section 2, we classified the cooperation relationships based on the quadruple helix

Figure 1. *The distribution of analysed initiatives by time and location.*

Table 3. *The distribution of analysed cases by cooperation types.*

Analyzed Cases	The Type of Organization	Sectoral Cooperation	Cooperation Type
İstanbul Planning Agency (IPA)	Public Organization	Government-Industry	Cross-coop.
Acil Tasarım Stüdyosu	Academic Initiative	Acad. & Ind. & Civ. Soc.	Cross-coop.
Dokuz Eylül Uni (DEU) Faculty of Arch.	Academic Initiative	Academia	Non-coop.
Herkes için Mimarlık (HİM)	Association	Civil Society – Industry	Cross-coop.
Mimarlık Araştırmaları Derneği	Association	Civil Society-Academia	Cross-coop.
NEF Foundation	Association	Civil Society-Industry	Cross-coop.
Yer Çizenler Derneği	Association	Civil Society-Industry	Cross-coop.
Afet Sonrası Ortak Yaşam	Civic Initiative	Civil Society	Intra-coop.
HATAG	Civic Initiative	Civil Society	Intra-coop.
Gelecekteki Sen	Civic Initiative	Civil Society-Industry	Cross-coop.
KAF Kolektif	Civic Initiative	Civil Society	Intra-coop.
Suna'nın Kızları	Civic Initiative	Civ. Soc. – Acad. – Gov.	Cross-coop.
Urban.koop	Civic Initiative	Civil Society – Industry	Cross-coop.
Van-Kocaeli Volunteers Platform	Civic Initiative	Civil Society – Gov.	Cross-coop.
Haos Design Architecture	Private (Arch. Office)	Industry-Civil Society	Cross-coop.
NOI: MiniKo	Private (Arch. Office)	Industry	Non-coop.
Piknik works	Private (Arch. Office)	Industry – Civil Society	Cross-coop.
Shigeru Ban Architects and VAN	Private (Arch. Office)	Ind. – Civ. Soc. – Acad.	Cross-coop.
SO? Architecture and Ideas	Private (Arch. Office)	Industry	Non-coop.
TeCe Mimarlık	Private (Arch. Office)	Industry	Non-coop.

framework. Among the selected social design initiatives, 35% were singular cooperations, such as *HATAG, KAF Kolektif,* and *TeCe Mimarlık*, which did not collaborate with other sectors. Other initiatives cooperated with at least one different sector. For example, *Suna'nın Kızları*, a civic initiative, collaborated with a public organization (Ministry of Family and Social Services), a civic organization (Turkish Philanthropy Funds), and academia (academics) to construct a children's life centre. On the other hand, *Piknik Works*, a private organization, collaborated with the industry sector (TETRA) and a public initiative (*Upcycle Istanbul*) to design and construct different types of toilet units in one of the temporary housing settlements in the region. Table 3 indicates that 3 public organizations (15%) were involved in sectoral cooperations.

Cooperation among initiatives is another important component for classifying cooperations. We identified three types of cooperation in the social design initiatives:

- 1. Cross-sectoral Cooperation: Cooperation between different sectors.
- 2. Intrasectoral Cooperation: Cooperation within the same sector.
- 3. Non-cooperation: No cooperation with other sectors or within the same sector.

Out of the 20 initiatives, 13 (65%) engaged in cross-sectoral cooperation. Three initiatives (15%), such as *HATAG* and *KAF Kolektif*, developed intrasectoral cooperation. The remaining four initiatives (20%), such as *NOI: MiniKo*, did not establish any cooperation with different sectors or within the same sector.

3.3 Design agency and roles in social design

Various actors actively participate in social design activities, with their agencies and roles varying significantly. After analysing the selected cases, we identified nine types of actors involved in these practices: academic initiatives, civic initiatives, associations, chambers, industries (companies), volunteer students, volunteer citizens, private organizations, and public organizations.

Associations are prominent social design actors in Türkiye, being organized as legal entities under the Ministry of the Interior Affairs. Civic or academic initiatives, however, are not part of any official entity and are thus classified independently. Among the organizations, some, like SO? Architecture and TeCe Mimarlık, conducted activities as solo practices, while others, such as Haos Architecture, involved volunteer citizens. Volunteer students and civic initiatives were also engaged by Shigeru Ban Architects (Table 4).

Table 4. *The distribution of selected cases by involved design agency and roles.*

The Involved Actors/Collaborators	Academic Initiative	Civic Initiative	Assoc.	Chambers	Industry (Company)	Volunteer Students	Volunteer Citizens	Private (Incl. Arch. Offices)	Public Organiz.
İstanbul Planning Agency								●	●
Acil Tasarım Stüdyosu	●		●	●	●				
DEU Faculty of Architec.	●					●			
Herkes için Mimarlık (HİM)			●			●	●	●	
MİMARDER	●		●						
NEF Foundation			●		●			●	
Yer Çizenler Derneği		●	●				●		
Afet Sonrası Ortak Yaşam		●	●						
HATAG		●							
Gelecekteki Sen		●				●			
KAF Kolektif		●	●						
Suna'nın Kızları	●	●							●
Urban.koop		●	●				●	●	
Van-Kocaeli Volunteers		●							●
Haos Design Architecture							●	●	
NOI: MiniKo								●	
Piknik works		●			●			●	
Shigeru Ban Architects &VAN		●				●		●	
SO? Architecture and Ideas								●	
TeCe Mimarlık								●	

Social design organizations vary by the roles they take in the process. Romero and Pak (2021) classify these roles as activists, policy lobbyists, experts facilitating public participation, mediators and facilitators for design empowerment, critical spatial practitioners, boundary object designers, and creative situated practitioners. However, given that these social design activities took place during a post-disaster period, it was not possible to access all of the on-site data necessary to classify these organizations fully, nor the unique conditions under which they operated. Therefore, based on available data and social design literature, we developed higher -level categories to evaluate the roles of social design organizations:

- 1. Design-Driven Initiators: These actors identify themselves as central to the design process. They operate with limited process-driven practices, meaning the involvement of different actors during the design phase does not necessarily affect the design output.
- 2. Facilitator-Initiators: These actors strive to involve every relevant stakeholder throughout the design process. The contributions of involved actors shape the design outputs (Gürdere-Akdur, 2023).
- 3. Mediators: These actors work to bridge gaps between stakeholders, facilitating communication and ensuring that community needs are integrated into the design process.

Some social design organizations also play roles as design activists, promoting social change, raising awareness of values and beliefs, and questioning the constraints posed by spatial problems that people encounter in their daily lives (Markussen, 2013, p.38).

For instance, *NOI: Miniko*, *TeCe Mimarlık,* and *DEU Faculty of Architecture* functioned as "design-driven initiators." *MİMARDER* organized a competition for temporary housing settlements to promote social change, raise awareness, and highlight problems in these areas as design activists. While some organizations can be categorized based on a singular role, others exhibit blurred roles throughout the process. For example, *Herkes için Mimarlık* not only promoted change and raised awareness as a design activist but also carried out activities as a facilitator.

3.4 Civic ideation

A critical component of social design practices is the involvement of community ideas in the early design process. The strength of social design

activities lies in enabling various stakeholder groups—such as experts, volunteer citizens, and individuals directly affected by the challenges—to participate in the ideation process, thereby facilitating participatory design knowledge creation.

In this study, this group includes vulnerable people directly affected by the earthquakes. Empowerment of these individuals through early involvement provides social accountability and ensures responsiveness to the needs and desires of disadvantaged groups. As such, social design organizations can be more sensitive and adaptive to social contexts.

By considering the unique circumstances of these cases, we specified three ideation types for classifying ideation activities in "social design carried out in societal challenges":

- 1. Crowdsourcing: Aggregating ideas from a broad audience or "huge crowd" (Brabham, 2010, p. 1125).
- 2. Expertsourcing: Involving individuals who have a certain level of expertise and can contribute qualified ideas to the field (Gün, 2019).
- 3. Citizensourcing: Collecting ideas, desires, expectations, and needs from individuals about their living environment and incorporating these contributions directly into design practices in a reflexive manner.

Based on data from released documents, initiative websites, and media outlets, we classified the selected cases by their ideation participation strategy. Crowdsourcing platforms like JotForm matched 2,500 survivor housing requests with 4,500 available properties (Stokel-Walker, 2023). Impacted inhabitants also used social media to report housing needs. However, such initiatives often did not address specific requirements related to social and spatial programs.

Among the selected cases, only three initiatives (15%) carried out crowdsourcing activities, while 35% (n=7) engaged in expertsourcing by involving specific skilled groups in the ideation process (Table 5). Only two organizations, *Herkes için Mimarlık* and *Yer Çizenler Herkes için Haritacılık Derneği*, conducted both crowdsourcing and expertsourcing activities. Im-

Table 5. *The distribution of social design cases by the type of ideation.*

Analyzed Cases	Civic Involvement in Ideation (Crowdsourcing)	Idea Sourcing from Specific Skilled Groups (Expertsourcing)
İstanbul Planning Agency (IPA)		
Acil Tasarım Stüdyosu (Urgent Design Studio)		●
DEU Faculty of Architecture		
Herkes için Mimarlık (HİM)	●	●
Mimarlık Araştırmaları Derneği (MİMARDER)		●
NEF Foundation		
Yer Çizenler Herkes İçin Haritacılık Derneği	●	●
Afet Sonrası Ortak Yaşam ve Topluluk Alanları		●
HATAG		
Gelecekteki Sen		
KAF Kolektif		●
Suna'nın Kızları		
Urban.koop		●
Van-Kocaeli Volunteers Platform		
Haos Design Architecture	●	
NOI: MiniKo		
Piknik works		
Shigeru Ban Architects & VAN		
SO? Architecture and Ideas		
TeCe Mimarlık		

portantly, none of the initiatives involved disadvantaged citizen groups in ideation or provided two-way communication channels for affected inhabitants to express their spatial needs and desires to improve neighborhood quality.

These findings reveal a lack of effective communication and collaboration between social design actors and vulnerable communities. Government agencies have tended to centralize disaster response efforts rather than adopting an open, civic approach. Due to the absence of citizensourcing strategies that enable two-way communication between citizens and designers, social design initiatives have been unable to sustain long-term engagement. Consequently, it has been impossible to monitor user reactions to design proposals, assess satisfaction, or gather meaningful feedback. As such, these initiatives often remained one-off, short-term practices without the long-term sustainability required for incremental and evolutionary design development.

3.5 Empowerment objectives

Previous researchers have studied social design initiatives with a focus on empowerment (Gürdere Akdur & Kaygan, 2019; Kesdi & Güneş, 2019). Gürdere Akdur and Kaygan (2019, p.62) identified five objectives that social design initiatives pursue:

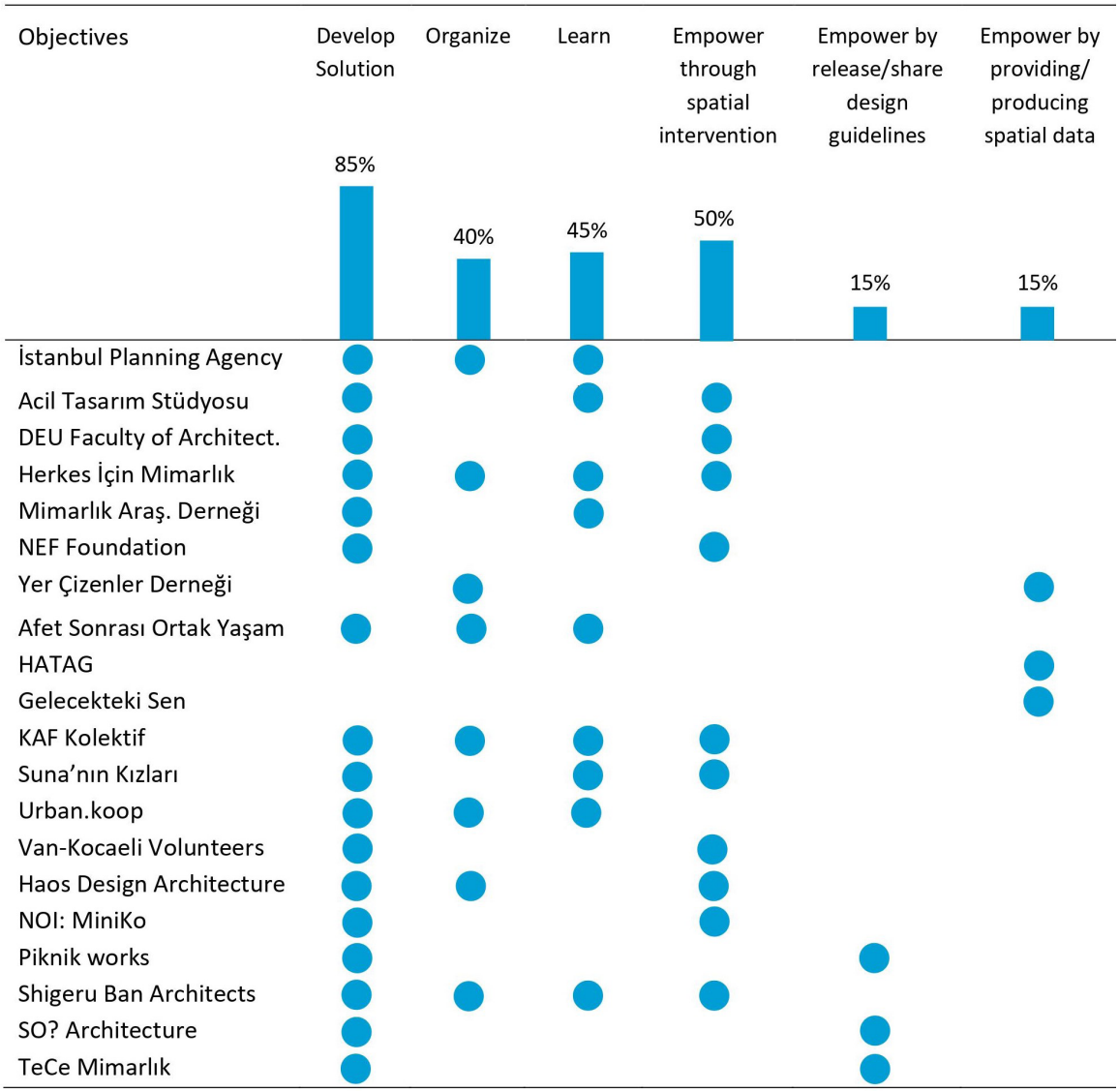
- 1. Develop solutions: Opening debates to find solutions to societal challenges.
- 2. Make Visible: Raising awareness of problems and enhancing the visibility of issues, values, or practices.
- 3. Organize: Mobilizing people to advocate for their rights and become involved in the social, political, and economic processes that shape their lives.
- 4. Empower: Supporting individuals in various ways to increase their agency.
- 5. Learn: Facilitating mutual learning through research and acquiring social design experience.

Kesdi and Güneş (2019, p. 303) also listed the empowerment objectives of social design initiatives. Although these objectives can effectively categorize social design activities based on citizen empowerment, they are not fully applicable to extreme conditions, such as post-earthquake situations. Our analysis revealed that these cases require a new set of objective classifications for more precise evaluation. Thus, we identified six objectives by merging those proposed by previous studies with findings from our analysis:

- 1. Empowerment in developing design proposals: Involving communities in creating design solutions to address their needs.
- 2. Empowerment in organizing: Mobilizing and organizing people to address challenges collectively.
- 3. Empowerment in Learning: Providing opportunities for mutual learning, knowledge exchange, and design experience.
- 4. Empowerment through spatial intervention: Improving spatial conditions through direct interventions in the built environment.
- 5. Empowerment by co-creating design guidelines: Collaborating with stakeholders to develop guidelines that improve spatial quality and resilience.
- 6. Empowerment by providing spatial data: Collecting and sharing spatial data to ensure the effective provision of necessary spatial services to disadvantaged communities.

The most common objective among the analysed initiatives was developing solutions for living areas of disadvantaged people, with 85% of the initiatives pursuing this aim. Half of the initiatives (50%, n=10) empowered people through design by implementing projects that directly addressed their needs. Additionally, 45% (n=9) provided a social design environment for research and experience sharing. SO? Architecture and *TeCe Mimarlık* empowered vulnerable community groups by releasing design guidelines aimed at improving the quality of temporary settlements. Three initiatives (15%) indirectly empowered citizens by providing or producing spatial data to enhance spatial services (Table 6). For instance, *Yer Çizenler Derneği* organized a *Mapathon* that involved 9,000 volunteers in collecting and updating

Table 6. *The distribution of analysed cases by empowerment objectives.*



spatial data. This activity assisted humanitarian organizations and civil societies in coordinating their responses, and local authorities used the data to support the spatial needs of temporary settlements (Leson et al., 2023).

3.6 Reflection on objectives and community engagement in post-disaster cooperation

The approaches outlined in the cooperation overview table represent a wide spectrum of intents, revealing that disaster response is never merely about rebuilding what was destroyed. Each organization operates under a distinct impulse, shaped by their positions on community agency, and the role of design in fostering societal transformation.

Using Table 7, several insights are revealed about how diverse cooperative strategies address post-disaster needs through empowerment, community engagement, and adaptive resilience.

Multiplicity of objectives and the human condition

The objectives guiding these post-disaster cooperatives reveal a multiplicity of intent, reflecting the complexity of human response to catastrophe. Organisations such as *Acil Tasarım Stüdyosu* and *Gelecekteki Sen* pursued the pragmatic needs of space and shelter—a response to the rupture that disaster represents. In contrast, KAF Kolektif and HATAG sought to empower the very communities affected, embracing the notion of communities as self-actualizing entities. Through fostering local resilience, they aimed to restore agency to those rendered passive

Table 7. *Overview of post-disaster cooperative strategies and community outreach methods.*

Organization Name	Reason or Basis for Cooperation	Community Outreach Methods
Acil Tasarım Stüdyosu	To address urgent, complex spatial challenges in post-disaster contexts, initiate effective emergency response through interdisciplinary expertise.	Conducted interdisciplinary workshops and collaborative design sessions with community members to ensure local needs were directly embedded into practical design solutions.
Afet Sonrası Ortak Yaşam	To mobilize civil society for localized community resilience, initiate tailored support for social needs post-disaster.	Created community gathering spaces and support hubs for resource sharing, providing immediate relief with a focus on well-being and local cultural adaptation.
DEU Faculty of Architecture	To apply a research-driven approach in addressing architectural and spatial needs, maintain academic rigor for informing broader rebuilding strategies.	Conducted academic-led surveys and independent field studies to gather insights on spatial and housing needs, focusing on informing future policy and academic outputs.
Gelecekteki Sen	To design adaptive housing solutions catering to displaced populations, ensure climate resilience and local cultural adaptation.	Established temporary structures and organized workshops in affected areas, involving community members in both planning and the effective use of these spaces.
Haos Design Architecture	To fast-track housing and infrastructure solutions, leverage industry networks for efficient and sustainable response.	Organized community-inclusive on-site construction activities, teaching sustainable building practices to local residents, encouraging participatory rebuilding.
HATAG	To empower communities to independently address disaster challenges, foster local resilience through civil society.	Coordinated volunteer efforts and community forums for collective assessment, ensuring rapid response to immediate local needs, emphasizing skills transfer.
Herkes İçin Mimarlık (HİM)	To leverage professional skills and resources to meet urgent spatial needs, integrate community feedback for enhanced design outcomes.	Engaged community members through public workshops, gathering local insights and using them to create disaster-resilient structures tailored to community needs.
İstanbul Planning Agency (IPA)	To mobilize large-scale infrastructure improvements in disaster zones, integrate government and industry resources effectively.	Conducted comprehensive community feedback loops and surveys to ensure urban planning initiatives were aligned with on-the-ground community priorities.
KAF Kolektif	To strengthen local social structures and cultural continuity during disaster response, engage civil society effectively.	Created social spaces and support centers within temporary settlements, fostering cultural activities that contributed to community cohesion and well-being.
MİMARDER	To develop community-driven design solutions, connect civil society and academia for knowledge-based action.	Organized community-academic dialogues and forums, utilizing participatory approaches to collaboratively develop and implement responsive designs.
NEF Foundation	To deploy essential resources efficiently, combine civil society and industry expertise for rapid shelter construction.	Coordinated directly with local leaders to distribute essential materials and conducted community-led building projects to facilitate rapid shelter construction.
NOI: MiniKo	To provide specialized child-friendly environments, create play and learning spaces addressing the psychological needs of children in disaster areas.	Distributed portable play containers to community spaces and collaborated with local volunteers to establish supervised child activities, prioritizing child development.
Piknik Works	To provide accessible sanitation and temporary shelters, collaborate across industry and civil society for practical, inclusive solutions.	Conducted training sessions on the safe use and maintenance of sanitation facilities, engaging local volunteers to ensure sustainable usage.
Shigeru Ban Architects	To implement scalable shelter solutions, collaborate across academia, industry, and civil society for modular adaptability.	Trained residents in construction techniques, fostering adaptability and local ownership of housing solutions for ongoing community resilience.
SO? Architecture and Ideas	To create open-source temporary shelter designs, provide widely replicable solutions for diverse needs in post-disaster contexts.	Distributed detailed design guidelines online, enabling other organizations and communities to easily adopt and adapt these shelter models.
Suna'nın Kızları	To establish safe educational environments, combine support from civil society, academia, and government to aid children impacted by disasters.	Established learning and play zones with local educators, involving parents and volunteers in ongoing programming to support children's well-being and education.
TeCe Mimarlık	To create rapid, accessible design solutions for immediate disaster relief, focus on low-cost, high-impact materials for community implementation.	Provided communities with open-source design materials, empowering them to implement improvements to temporary shelters with available local resources.
Urban.koop	To address immediate and long-term shelter needs, integrate civil society and industry for sustainable housing solutions.	Involved community members in cooperative construction projects, emphasizing sustainable techniques and ensuring ongoing local maintenance and adaptability.
Van-Kocaeli Volunteers Platform	To leverage shared disaster response experience, partner civil society and government for culturally sensitive community support.	Created community centers providing essential services, educational activities, and psychosocial support, ensuring direct outreach to families and children.
Yer Çizenler Derneği	To enhance resource allocation efficiency, produce critical spatial data in collaboration with civil society and industry.	Organized digital mapathons and trained community members in data collection techniques, enhancing real-time mapping and the effective distribution of resources.

by the overwhelming force of the disasters. This diversity of objectives serves as a testament to the necessity of complex responses, where survival, autonomy, and community continuity must interlace to transform a mere subsistence into meaningful recovery.

The restoration of the social fabric

Yet, survival alone is insufficient for the human spirit, which seeks not just existence but flourishing. Herein lies the true significance of objectives that reach beyond the material, such as those pursued by KAF Kolektif and Afet Sonrası Ortak Yaşam. These organizations sought to weave back together the fragile threads of culture, identity, and belonging—threads that are often the first to fray in moments of profound disruption. Suna'nın Kızları addressed the needs of the youngest among us, those whose future is most vulnerable in the wake of disaster. To create spaces of learning and play is to assert that the prefigurative possibility remains and the continuity of social bonds are as critical to recovery as bricks and mortar.

The praxis of engagement and human agency

Involving communities in the process of rebuilding, as seen in the work of Herkes İçin Mimarlık (HİM) and Piknik Works can be understood as an engaged reclaiming of agency. The workshop, the planning meeting, and the hands-on training session are arenas for empowerment and recovery of this agency. When individuals contribute to the reshaping of their environments, they transcend the role of passive recipients of aid; they become co-authors of their futures. This collaborative act involves dialogue, the questioning of assumptions, and the collective pursuit of a shared vision, which ultimately leads to an architecture of resilience, both physical and metaphysical.

Open knowledge and collective empowerment

The sharing of open-source designs and the participatory mapping of disaster zones represent an ethos of knowledge as a commons—a rejection of proprietary barriers in favour of communal flourishing. This approach, exemplified by SO? Architecture, TeCe Mimarlık, and Yer Çizenler Derneği, emphasizes the power of the collective to know, to act, and to be liberated through that knowledge. In a world increasingly defined by the enclosure of information, such practices stand as acts of resistance. To share knowledge openly is to acknowledge that the resilience of one community contributes to the resilience of all, forming a web of interdependence that disaster may fray, but cannot destroy.

Thus, these cooperatives, through their objectives and engagement methods, undertake more than reconstruction; they endeavour to restore meaning, agency, and interconnection in the face of disruption. They remind us that true resilience lies not solely in the rebuilding of physical structures but in the cultivation of empowered, self-aware communities that recognize their own power to shape, adapt, and thrive.

Integrated outreach strategies

The combination of community outreach methods—from participatory workshops and direct construction engagement to cultural continuity initiatives and open-source knowledge sharing—suggests that social design initiatives aim at long-term resilience to a certain extent. NEF Foundation and Urban.koop exemplified this by integrating civil society and industry expertise to deploy resources efficiently and sustain cooperative construction projects. By fostering active community participation and shared ownership, these methods help build a more resilient and interconnected social fabric.

In conclusion, the diversity of intentions and methods illustrated in the table is ultimately a reflection of the richness of human response to crisis. Cooperation here is not monolithic but multifaceted, a complex interwoven practice of place-based solidarity, shared knowledge, and temporal bridging. Each organization embodies a distinct philosophical orientation towards what it means to recover, rebuild, and ultimately flourish. Whether

through the civic ideation actions that reaffirms autonomy, or the open sharing of knowledge that empowers, these cooperative efforts represent a praxis that is community centred and transformative.

3.7 Reflection on long-term sustainability in post-disaster social design

The analysis of the 20 social design initiatives reveals critical patterns regarding their ability to sustain long-term impact. Several key findings emerged from examining their operational timeframes and sustainability approaches:

First, the temporal distribution of initiatives shows that 30% (n=6) were established specifically in response to the February 2023 earthquakes, including HATAG and Acil Tasarım Stüdyosu. This reactive formation pattern, while demonstrating quick mobilization, also highlights potential challenges for long-term engagement since these organizations lack pre-existing operational frameworks and established networks.

The data shows that only 15% of initiatives (3 out of 20) developed frameworks for continuous monitoring and assessment of their interventions. For instance, Herkes İçin Mimarlık implemented systematic documentation of their spatial interventions, enabling iterative improvements. However, the majority of initiatives (85%) operated without formal mechanisms to track the evolution and impact of their design solutions over time.

A significant finding relates to funding models. 65% of the analysed initiatives relied on one-time donations or project-based funding, rather than establishing sustainable financial frameworks. This funding pattern directly impacted their ability to maintain consistent presence and continue spatial improvements in affected areas. The NEF Foundation stands out as an exception, having developed a mixed funding model combining institutional support with ongoing community contributions.

The analysis also revealed that organizations with pre-existing presence in disaster response, such as Shigeru Ban Architects & VAN (established in 1992), demonstrated more sophisticated approaches to sustainability. Their previous experiences in post-disaster contexts informed systematic methodologies for long-term community engagement and spatial intervention.

3.8 Contextual constraints on social design implementation

The analysis identified several distinctive contextual constraints that significantly shaped how social design initiatives operated in post-earthquake Türkiye:

Centralized governance structure

The data shows that only 15% of initiatives (n=3) established formal cooperation with public organizations, despite the government's central role in disaster response. This low level of public-private collaboration reflects the "top-down" approach to built environment decisions in Türkiye, where design and planning activities are predominantly controlled by central government authorities. This centralization created barriers for social design initiatives seeking to implement community-led solutions.

Limited participatory design tradition

The analysis reveals a broader contextual challenge where participatory processes in built environment design are not traditionally practiced. This is evidenced by the complete absence of citizensourcing in all 20 analysed initiatives, suggesting deeply rooted institutional and cultural barriers to community engagement in spatial design decisions.

Economic constraints

The scale of the February 2023 earthquakes, affecting over 3 million displaced people and requiring extensive reconstruction estimated to take at least five years, placed enormous strain on available resources. This economic context forced many initiatives (65%) to rely on short-term, project-based funding rather than sustainable financial models. The analysis shows that only private organizations with established funding

streams, such as architectural firms like SO? Architecture and TeCe Mimarlık, could maintain consistent operations.

Spatial access and security limitations

Among the analysed initiatives, 85% focused on developing design solutions, but only 50% successfully implemented them in affected areas. This implementation gap stems from strict controls over access to official temporary settlement areas and security conditions that limited direct spatial intervention opportunities. The data shows that initiatives with formal public sector partnerships, like Suna'nın Kızları's collaboration with the Ministry of Family and Social Services, achieved higher implementation rates.

Regional environmental challenges

The initiatives operating in southeastern Türkiye faced significant environmental constraints. The analysis reveals that temporary settlements required continuous upgrading due to extreme heat in summer and flood risks in winter and spring. Only 35% of design proposals specifically addressed these climate adaptation needs, indicating how environmental factors constrained design possibilities and implementation timelines.

Socio-political response patterns

The analysis identified a strong disaster solidarity culture in Türkiye, evidenced by the country's position as one of the world's most generous in humanitarian aid. However, this cultural strength paradoxically contributed to a focus on immediate relief rather than long-term social design solutions. Of the analysed initiatives, 70% prioritized rapid response over sustainable community engagement.

Infrastructure and resource limitations

The post-earthquake assessment revealed critical gaps in educational facilities, basic necessities like electricity and heating systems, and specialized spaces for vulnerable groups including elderly, refugees, and disabled people. These infrastructure deficits created competing priorities for limited resources, constraining the scope of social design interventions. The analysis shows that initiatives often had to choose between addressing immediate basic needs and implementing more comprehensive social design solutions.

Civil society organization constraints

While civil society organizations demonstrated higher rates of cross-sectoral cooperation (all four analysed associations established cross-sectoral partnerships) compared to private and academic organizations, they faced significant operational constraints. The need to work within official disaster response frameworks, led by AFAD, limited their ability to implement independent social design initiatives, particularly in formal temporary settlement areas.

These multilayered contextual constraints created a complex operating environment where social design initiatives had to navigate between formal disaster response structures, resource limitations, environmental challenges, and institutional barriers while attempting to serve affected communities. The findings suggest that successful social design implementation requires strategies that can work within these constraints while building longer-term capacity for community engagement and sustainable intervention.

4. Critical discussion

In this section, following the research questions set out in the introduction, we critically discuss how social design practices can be improved to be more resilient and sustainable. Our study revealed that although a wide variety of social design initiatives attempted to empower impacted communities, many experienced drawbacks in implementing effective practices.

Some initiatives acted independently, failing to develop cross-sectoral cooperation, and their collaboration with public organizations was very limited (Table 3). Social design initiatives were often involved as design-driven initiators or facilitators, rather than taking on the role of mediators who can

bridge different community interests by directly engaging with community groups (Section 3.2).

To obtain meaningful and comprehensive results, we cross-examined whether any interesting patterns emerged concerning the types of organizations, cooperation strategies, idea generation, and empowerment objectives. Our study reveals that two of the analysed platforms, which engaged in both crowdsourcing and expertsourcing, were both associations. Examining other types of organizations, it was found that civil society organizations were more likely to be involved in a participatory social design process compared to academic organizations (one out of two initiatives) and private organizations (only one out of six initiatives).

Similarly, when analysing the initiatives by organization type, we found a significant difference in sectoral cooperation. All four associations analysed in the study established cross-sectoral cooperation. Among civic initiatives, 4 out of 7 established cross-sectoral cooperation, while 3 developed intra-sectoral cooperation. In contrast, only half of the private and academic organizations established cross-sectoral cooperation, while the remaining half did not engage in any sectoral cooperation (non-cooperation). These results suggest that civic organizations (associations and civic initiatives) are significantly more likely than private and academic organizations to conduct a participatory process and establish cooperation.

We also examined whether there was a significant difference in empowerment objectives by organization type. No significant difference was found in empowerment objectives such as "develop solutions," "organize," and "empower through spatial intervention" across different organization types. However, the objective of "empower by releasing/sharing design guidelines" was achieved exclusively by private organizations, while the objective of "empower by providing/producing spatial data" was achieved only by civic organizations.

Although user participation is one of the most critical factors for empowering communities through social design practices, none of the analysed initiatives involved impacted inhabitants or disadvantaged groups in the ideation process. Furthermore, none of them provided two-way communication channels to enable feedback loops through which disadvantaged citizens could express their specific spatial needs and desires. Crowdsourcing and expertsourcing activities were also limited (Table 5). Due to the lack of strategies for ensuring long-term sustainability, initiatives often conducted only one-off, short-term practices. This limitation reduces the impact of these initiatives and hampers the ability to achieve continuous, long-term improvements in the spatial quality of vulnerable communities.

These findings highlight the clear need to establish a proactive, cross-sectoral social design innovation ecosystem that goes beyond disconnected, one-off responses. Such an ecosystem could help address the real needs and desires of impacted and vulnerable populations in the long term, in a reflective manner, while facilitating meaningful collaboration with relevant authorities, creative industries, and civil society.

After synthesizing the knowledge from our literature review and our findings, we identified three key interrelated factors for better social design practices to empower communities and foster disaster resilience (Figure 2):

- 1. Intersectorality for Collaborative Design and Operation: Emphasizing collaboration across sectors to pool resources and expertise effectively.
- 2. User-driven and socially situated design actions: Ensuring that design processes are informed by the needs and context of the users themselves.
- 3. Long-Term Sustainability: Prioritizing enduring solutions that can evolve and adapt over time, ensuring lasting improvements for vulnerable communities.

Intersectorality for collaborative design/operations

Social design practices inherently involve complex tasks, requiring the

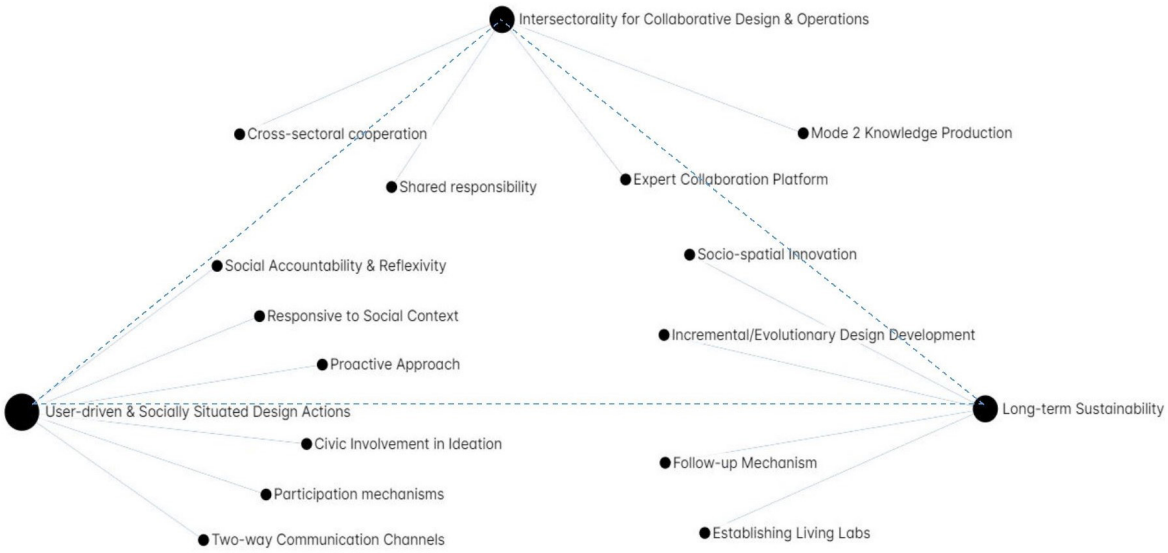


Figure 2. *The Triad of key success factors for better social design practices.*

management of multiple stakeholders throughout the design process and proposal development, as well as the integration of various fields of expertise into intricate design workflows. Additionally, there are often no clearly defined user or client groups for collaboration in these practices (Dorst, 2019, p. 119). In Türkiye, a wide variety of cooperative efforts were established by social design initiatives after the recent earthquake. However, as shown in Table 3, cross-sectoral cooperation was limited, and none of the initiatives engaged all elements of the intersectional quadruple helix (academia, industry, civil society, and government). Despite the involvement of governmental organizations such as Türkiye Disaster and Emergency Management Authority (AFAD) in managing the region, only two initiatives (10%) collaborated with them on social design practices. Moreover, Collaboration among social design initiatives was also limited. Only *KAF Kolektif* and Acil Tasarım Stüdyosu- Shigeru Ban Architects established partnerships with other practices.

In the context of Mode 2 knowledge production, as outlined by Gibbons et al. (1994), which focuses on addressing real-world problems and devising innovative solutions, it is essential for different stakeholders to collaborate and foster effective cross-sectoral cooperation. Sharing responsibilities during the analysis process and defining and achieving goals can prevent miscommunication and speculation through an open and transparent communication environment. To achieve this, existing organizational and management structures must be carefully considered.

In Türkiye, all major decisions related to post-disaster reconstruction and rehabilitation are made by the central government and coordinated by its official unit (AFAD). Furthermore, carrying out social design practices during societal crises is inherently challenging due to the sensitive and fragile nature of these situations. This underscores the necessity of collaborating with public organizations to obtain first-hand information, effectively address civic needs, and implement impactful social design practices on-site. Additionally, decision-making on complex spatial challenges requires a collaboration framework that brings together experts from various disciplines. A central pillar of the social design ecosystem could be an expert collaboration platform (Gün et al., 2021), which would allow stakeholders from different sectors to collaborate and share their expertise. Such an approach can yield holistic, transdisciplinary, inclusive, and socially accountable design solutions to complex social and spatial issues.

User-driven and socially situated design actions

Previous studies reported that the involvement of locals in social design

practices in Türkiye was insufficient, highlighting a need for effective collaboration with local communities (Gürdere Akdur & Kaygan, 2019). The findings of our analysis align with these observations. Traditional social design practices, which aim to address complex societal challenges, often deliver basic and rudimentary spatial interventions due to difficulties in efficiently identifying user groups and their specific needs (Dorst, 2019).

In our study, we identified three types of ideation involvement as evidence of bottom-up design empowerment: crowdsourcing, expertsourcing, and citizensourcing. As noted earlier, crowdsourcing (15%) and expertsourcing (35%) in ideation were limited, and none of the initiatives specifically targeted local groups (impacted and vulnerable people) in their design practices. Furthermore, none of the social design initiatives established two-way communication channels to facilitate feedback loops with vulnerable people. We found no evidence of mechanisms that enabled impacted inhabitants to share their spatial needs with the initiatives, nor any agile response to such demands.

Our study also found that social design initiatives were predominantly reactive, rather than proactive, in addressing issues and finding solutions. The absence of communication channels allowing impacted residents to participate in and make decisions about their living environments is contrary to the goals of social design and may exclude target groups and overlook their needs.

Disaster solidarity culture is quite prevalent in Türkiye. According to the Global Humanitarian Assistance Report, Türkiye is one of the world's most generous countries in providing humanitarian aid (Urquhart et al., 2022). Following the disaster, a substantial number of resources and other humanitarian aid were collected by the government and NGOs. Although ICT-based platforms were established to organize and distribute these aids to vulnerable people —such as *İhtiyaç Haritası*, *Afet Haritası*, *Bir Kira Bir Yuva,* and *Jotform*—none of the NGOs or governmental units established a spatial design empowerment platform that matched the desires and needs of impacted people living in low-quality post-disaster environments. Therefore, there is also a need for a platform that matches volunteers, willing to provide financial or spatial expertise, with the specific needs of vulnerable communities.

As mentioned in previous sections, a project cannot genuinely be termed "social" if it fails to incorporate input from both users and civil society in the early design and planning phases. Social design initiatives must ensure that their designs are socially relevant and contextualized within users' needs. To address these shortcomings, it is recommended that both digital and traditional participation methods be utilized to bridge connections between individuals and collaborative entities. Digital participation platforms might particularly benefit from sophisticated geolocation and tracking systems that categorize, prioritize, and empower citizen needs based on diverse criteria (Pak et al., 2017). Such an approach not only addresses the specific spatial needs of different target groups (e.g., by age, ethnicity, gender, or other disadvantaged characteristics) but also anticipates spatial requirements that may change due to seasonal shifts or population fluctuations. By adopting this approach, social design initiatives can proactively respond to evolving needs, enhancing social accountability and ensuring that design solutions are responsive to the social context.

Long-term sustainability

Social design initiatives have reported several barriers to effectively implementing practices, including difficulties in securing funding, a lack of trust and effective communication, and insufficient long-term collaboration among actors, as well as challenges concerning the long-term sustainability of processes (Gürdere Akdur, 2023). Although the basic necessities of vulnerable individuals living in temporary settlements are being met by the government, official reports (The Presidency of Türkiye, 2023) indicate that there is still an ongoing need for spatial facilities, such

as child-centric environments (learning centres, playgrounds), and spatial interventions to address the needs of disadvantaged groups, including the elderly, refugees, disabled individuals, and craftsmen in need of workspace.

Due to the scale of the earthquake damage and losses, the rebuilding and recovery of the disaster zone is estimated to take a minimum of five years. This means that residents affected by the earthquake will be required to live in temporary settlements for an extended period. Furthermore, harsh climatic conditions pose additional challenges for large parts of the disaster zone. Thus, temporary settlements must be continuously upgraded to help vulnerable individuals adapt to their new living conditions. Consequently, long-term social design activities are essential to meet the ongoing social and spatial needs of these communities.

Our analysis also identified another negative consequence of insufficient communication and collaboration between social design actors and vulnerable communities. Government authorities have aimed to centralize disaster relief efforts rather than adopting an open civic approach. This challenge has prevented social design initiatives from conducting long-term, incremental, and evolutionary design activities. Instead, they have been limited to implementing one-off, short-term practices.

Another significant gap observed is the absence of follow-up mechanisms within social design initiatives. Such mechanisms would facilitate the monitoring of design proposal implementations by local communities, assess user satisfaction, and—if deemed necessary—update existing designs or generate new design ideas. Furthermore, there is a discernible need for the development of enduring, sustainable social design strategies that are based on direct communication with citizens and progressively implemented on-site, reflecting a responsive and agile approach.

For optimal outcomes, it is imperative to reconceptualize the traditional understanding of social design. By merging it with the principles of social innovation, thereby transforming it into an open framework. Within such a framework, numerous small, diverse, and participatory social design projects could work collaboratively towards a broader vision and achieve sustainable long-term objectives, as articulated by Manzini and Rizzo (2011, p. 199). In conclusion, we propose the establishment of a 'social design platform' to address the gaps identified in this study. The key capacities of such a platform could be summarized as follows:

- 1. Facilitate spatial production processes: Draw from ongoing site explorations to foster communication among a diverse range of stakeholders—including local inhabitants, public and private entities, and civic initiatives—and integrate broader networks.
- 2. Encourage collaborative development of ideas: Allow for pre-implementation testing with genuine stakeholders to mitigate potential risks in spatial production. This can be accomplished through spatial experiments or pilot studies involving real contributors in the spatial production process.
- 3. Advocate for a Data-Informed, Systematic Approach: Promote a systematic and data-informed approach to spatial production to ensure long -term sustainability.

5. Conclusion

This study aimed to understand the role and impact of social design practices in empowering communities, especially in the context of post-disaster relief efforts. It involved an in-depth analysis of various social design initiatives, their methodologies, and their efficacy in addressing community needs.

The case studies and practices examined in this research highlight a paradigm shift towards the integration of social design in disaster relief. While many initiatives have succeeded in improving living conditions for disadvantaged groups, they have struggled to implement successful participatory design practices. Additionally, the absence of strategies that support long-term sustainability has meant that these initiatives are often limited to one-off, short-term interventions.

This limitation may be due to the fragile and sensitive nature of post-disaster contexts, as well as the lack of clearly identified user groups to involve in social design practices. Through the lens of participatory design and social empowerment, design communities in Türkiye have demonstrated a degree of resilience in the aftermath of catastrophic events. Focusing on the research questions introduced in the study, the conclusions drawn from the key findings can be summarized as follows:

- 1. Limitations in Execution for Social Empowerment: A wide variety of social design initiatives aimed to facilitate social empowerment through design, but they fell short in their execution. None established feedback loops—an essential mechanism for genuine community empowerment. Additionally, they lacked effective cross-sectoral and civic cooperation, leading to limited engagement with public organizations and reducing overall impact.
- 2. Lack of Mediatory Roles: Many social design initiatives functioned as design-driven initiators or facilitators, rather than mediators who could bridge diverse community interests. Limited direct communication with community groups hindered these initiatives from truly understanding and addressing community needs.
- 3. Key Factors for Enhancing Social Design Practices: The study identified three key factors and related sub-factors for enhancing social design practices to empower communities: a) collaborative design across sectors. b) user-focused and socially-contextualized design strategies. c) long-term sustainability.
- 4. Need for a Proactive Cross-Sectoral Social Design Framework: Integrating these elements, a proactive and inclusive cross-sectoral social design framework is required to ensure sustained and coordinated responses rather than isolated reactions. Such an ecosystem can address the genuine needs of affected individuals by fostering collaboration with key stakeholders, including authorities, creative sectors, and civil society.

The limitations of this study primarily lie in the scope of the research, which focused on specific case studies and may not fully capture broader trends or practices in other regions or contexts. Furthermore, we did not have access to on-site and post-occupation data. Future research directions include overcoming the barriers to effective cross-sectoral cooperation for disaster relief and developing strategies for genuine community engagement and empowerment. The proposed ecosystem and the success factors framework are currently being further developed as part of an international research project proposal.

5.1 Constraints, objectives and community agency in long-term and sustainable post-disaster response

The spatio-temporal and dialectical relationship between immediate disaster response and structural transformation emerges as a fundamental theoretical consideration from our analysis. The empirical evidence demonstrates how this tension manifests in divergent organizational approaches: while instrumentalist interventions addressed urgent spatial requirements, organisations pursuing transformative agendas engaged in reconstructing communities together with temporary shelters. This duality suggests a theoretical framework wherein social design in post-disaster contexts must necessarily operate across community engaged and multiple temporal modalities while maintaining internal coherence - a finding that extends beyond mere practical considerations to challenge existing conceptualisations of disaster response methodologies.

Our examination of contextual constraints reveals the implications of institutional structures on social design outcomes. The disparity between design conceptualization and implementation in the revised cases indicates not merely operational inefficiency but rather points to fundamental structural contradictions between centralised governance mechanisms and partici-

patory design aspirations. This finding suggests the necessity of reconceptualizing institutional frameworks to better accommodate the inherent tensions between bureaucratic imperatives and community-driven design processes.

The experiential dimensions of community engagement emerged as a crucial theoretical consideration. The transformation of pragmatic activities - workshops, training sessions, participatory planning - into what we might characterize as spaces of **ontological reconstruction**. The idea of "ontological reconstruction" here refers to reshaping people's fundamental understanding of their world and their place within it. These community activities, when framed as spaces of ontological reconstruction, imply that participants are not just learning or contributing—they are collectively transforming their social reality and fostering a sense of belonging that is more profound and redefined in the aftermath of disruption. This reconceptualization of social design as engaged and living praxis rather than merely spatial intervention offers new perspectives on post-disaster community rehabilitation paradigms.

Perhaps most significantly, the emergence of knowledge democratization practices, exemplified by several initiatives' commitment to open-source methodologies, suggests a paradigmatic shift in disaster response epistemology. This evolution from proprietary to commons-based knowledge frameworks represents not merely a tactical adjustment but rather a fundamental reconceptualization of how design knowledge is created, disseminated, and implemented in crisis contexts.

The examination of organizational objectives reveals a more nuanced reality than simple binary distinctions between immediate response and long-term transformation. Organizations like *KAF Kolektif* and *Afet Sonrası Ortak Yaşam* demonstrated how objectives evolve through practice, beginning with immediate humanitarian response before expanding into broader social fabric reconstruction. This evolutionary pattern suggests that objectives in post-disaster social design should be understood not as fixed endpoints but as dynamic frameworks that respond to emerging community needs and institutional possibilities.

The analysis of community agency presents particularly significant theoretical implications. The transformation of practical interventions into spaces of agency reconstruction - as demonstrated by Herkes İçin Mimarlık (HİM) and Piknik Works - suggests that effective social design must conceptualize community engagement not merely as a methodology but as a socio-spatially bridging intervention. This finding challenges traditional frameworks that position community participation as simply a means to better design outcomes.

Reflecting on Lefebvre's (1991) spatial triad and Markussen's (2017) insights on social innovation, the reviewed cases underscore that spatial design, physical, discursive, and lived spaces merge to facilitate a profound rearticulation of communal identity and agency. Physical spaces, though initially focused on tangible needs, embed resilience within their form, aligning with a broader socio-spatial continuity that connects immediate function to enduring meaning. Discursive spaces, as illustrated in DEF's conceptualization (Kesdi, 2019), transform spatial practices from a technical exercise into an ontological practice. Here, community members, through structured stages of reflection and open-source collaboration, collectively redefine their relationship to place. This synthesis of knowledge and agency repositions post-disaster recovery as an iterative, community-driven re-creation of space, embedding shared meaning and resilience at the heart of the rebuilding process. Future research trajectories can potentially address these theoretical implications by experimenting with hybrid methodologies that can effectively navigate the complex interplay between the agencies of post-disaster spatial practices, immediate crisis response and sustained social transformation.

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