

From Listening to Co-Production: Participatory Tools as Social and Economic Infrastructure in Bangkok

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Abstract

This article examines how participatory tools can move beyond consultation to function as forms of co-production in urban design in Bangkok, Thailand. Drawing on participatory design, co-production, design justice, and debates on social infrastructure, it argues that participatory tools are not neutral mechanisms for collecting opinion but socio-technical infrastructures that mediate recognition, legibility, translation, and public value. The study is based on a qualitative case analysis of a Bangkok-based participatory design initiative that combined in-person workshops, digital interface development, dashboard-based aggregation, cross-community comparison, and longer-term public dissemination. Rather than treating these project materials as passive records, the article reads them as mediating artifacts through which community knowledge was reformulated into institutionally actionable forms. The findings show, first, that workshop participation expanded recognition beyond the narrow logic of consultation; second, that interface design increased the legibility of community-generated knowledge while also filtering meaning; third, that the dashboard

system created continuity by storing and recirculating participatory outputs across engagements; fourth, that a shared output framework enabled comparison across communities without collapsing local specificity; and fifth, that the initiative generated both social and economic value over time through trust-building, stewardship, better fit between intervention and need, and broader public circulation. The article concludes that the democratic promise of participatory design lies not in listening alone, but in building procedural, visual, and institutional conditions through which communities can shape decisions, redistribute recognition, and participate substantively in the making of the city.

Keywords: participatory design, co-production, Bangkok, public value, social infrastructure

Introduction

Participation is frequently invoked in urban governance as an indicator of democratic legitimacy. Yet participation does not necessarily redistribute power. In many planning and design settings, residents are invited to speak, but not to co-author decisions; their contributions are acknowledged, yet ultimately absorbed into pre-structured systems of consultation. The problem is therefore not simply whether participation occurs, but what forms it takes, whose knowledge it recognizes, and whether it can shape outcomes rather than merely decorate process.

This problem is especially acute in urban design. Design decisions often privilege technical expertise, measurable outputs, and administratively legible categories over lived experience, tacit practice, and situated memory. As Arnstein (1969) argued, participation can range from tokenistic consultation to genuine redistribution of power. Later scholarship in

participatory design, co-creation, and design justice has further shown that methods, tools, and interfaces are never neutral, because they shape whose knowledge counts and in what form that knowledge becomes actionable (Ehn, 1993; Sanders & Stappers, 2008; Costanza-Chock, 2020). Participation, in this sense, is not merely a matter of inclusion in process. It is a struggle over recognition, representation, mediation, and authority.

These questions are particularly urgent in Bangkok. Neighborhood spaces in Bangkok often function not only as formally designated public spaces but as infrastructures of care, repair, exchange, and everyday coexistence. Knowledge about such spaces is rarely exhausted by formal planning categories. It is often embedded in routine use, social practice, maintenance, memory, and informal forms of stewardship. At the same time, digital participation is increasingly valued for its scalability, visibility, and administrative utility. The central challenge is therefore not whether analog participation or digital participation is preferable in the abstract, but how these modes can be brought into productive relation without erasing the complexity of community life.

Although existing scholarship has examined community engagement, co-creation, and participatory urbanism, fewer studies have analyzed participatory tools as infrastructures of translation that mediate movement between community expression, design representation, and institutional decision-making across analog and digital formats. This gap matters in rapidly urbanizing contexts such as Bangkok, where everyday knowledge frequently exceeds the categories through which institutions read public input.

This article argues that participatory tools should be understood as social and economic infrastructure. They do not simply gather opinions. Rather, they shape who

becomes visible as a legitimate contributor, what kinds of knowledge can circulate, how local concerns are translated into design propositions, and how public value is defined. The article therefore asks five related questions: Who is recognized through participatory tools? What forms of knowledge become legible? What is lost when voice is translated into data? How do participatory processes shape not only design quality but public value? And under what conditions can participatory design move from consultation to co-production?

To address these questions, the article examines a Bangkok-based participatory design initiative as a case through which participation can be analyzed not as a single event but as a broader socio-technical system. The study traces the movement from in-person workshops to digital interfaces, from community-generated proposals to dashboard-based aggregation, and from local outputs to cross-community comparison and longer-term public circulation. In doing so, it reframes participatory design as a field in which democracy is enacted through the material and procedural design of collaboration itself.

Method

Research Design

This study adopts a qualitative embedded case-study design to examine how participatory tools operated as systems of translation between community knowledge, design representation, and institutional decision-making in Bangkok. The case is appropriate because it makes visible multiple stages of participation within a single initiative: workshop-based engagement, digital interface development, dashboard aggregation, cross-community comparison, and longer-term public dissemination. Rather than treating participation as a

one-time event, the study analyzes it as an evolving infrastructure through which voice becomes visible, comparable, and actionable.

The purpose of the study is interpretive and critical rather than statistical. It does not aim to measure participation in terms of attendance alone, nor does it claim population-level generalizability. Instead, it asks how participation is staged, documented, translated, aggregated, and circulated, and what these processes reveal about recognition, legibility, co-production, and public value.

Case and Dataset

The empirical material consists of project-generated materials from a Bangkok-based participatory design initiative that engaged approximately 30 communities across 10 districts and involved more than 1,000 participants over time. The article does not treat those materials as neutral evidence of participation; rather, it reads them as mediating artifacts through which community voice was translated into forms that could circulate between residents, designers, facilitators, and institutions.

The dataset includes five categories of material:

1. **Workshop documentation**, including records of in-person participatory sessions, visual exercises, requirement-setting activities, and photographs of community engagement.
2. **Interface mock-ups**, showing how workshop inputs were converted into prompts, spatial options, and interactive visual representations.

3. **Dashboard visualizations and storage-loop materials**, showing how community-generated outputs were captured, categorized, stored, retrieved, and displayed across engagements.
4. **Cross-community output boards**, showing recurring visual formats, object libraries, and proposal sets across multiple communities and districts.
5. **A longitudinal project timeline**, showing the development of the initiative from 2019 to 2026 through workshops, exhibitions, recognitions, collaborative events, prototype development, and policy-facing dissemination.

These materials were selected because, taken together, they capture the full participation chain: from community expression, to design translation, to digital aggregation, to cross-site comparison, and finally to broader public and institutional circulation.

Material Selection

The study uses purposive selection rather than statistical sampling. Materials were included when they documented one or more of the following: direct interaction between residents and facilitators; the translation of workshop input into design requirements or prompts; the visualization, storage, or retrieval of community-generated proposals; cross-community comparison through shared formats; or evidence of continuity beyond the immediate workshop setting.

The purpose of this selection strategy was analytical relevance. The study sought materials that could illuminate not only that participation occurred, but how it was mediated and what consequences followed from that mediation.

Documentation of Workshops and Participatory Sessions

The manuscript is most accurately described as an analysis of **workshop-based participatory documentation** rather than a transcript-driven interview study. The available materials show that community participation was documented through shared workshop settings in which residents, facilitators, and designers engaged in discussion, collective reflection, visual engagement, requirement-setting, and iterative proposal development. In these settings, participants did not merely respond to fixed design options; they contributed to the shaping of possible futures through narration, selection, revision, and spatial imagination.

The workshop materials indicate that participation generated not only functional concerns, but also knowledge related to atmosphere, comfort, social use, shared memory, maintenance, and long-term care. This is important because it broadens the meaning of relevant design evidence beyond preference polling or single-issue consultation.

Analytical Procedure

The analysis proceeded in four stages. **First**, the study organized the corpus according to the major components of the participatory system: in-person workshops, analog and spatial forms of expression, interface environments, dashboard-based aggregation, cross-community comparison, and longitudinal dissemination.

Second, the materials were examined through descriptive visual-content analysis. At this stage, the study identified what was visibly present in each material: stated requirements, categories of need, workshop interaction, design prompts, interface outputs, dashboard structures, repeated object fields, and signs of circulation across communities and over time.

Third, the descriptive observations were interpreted through an interdisciplinary framework combining participatory design, co-production, design justice, and public value. This interpretive stage allowed the analysis to move beyond the descriptive question of whether participation occurred toward the critical question of what participation produced socially, politically, and economically.

Fourth, the study synthesized findings across media and time in order to develop a conceptual argument about participatory tools as infrastructure. Here, infrastructure refers not only to physical or digital systems, but also to the social and procedural conditions that enable recognition, coordination, translation, and collective action.

This method does not claim statistical generalizability. Instead, it offers an analytically rich account of how participatory design operates in practice and how it can be evaluated in terms broader than attendance or consultation alone. The aim is interpretive and critical: to understand how participatory tools shape the relationship between citizens, data, design, and public value.

This study adopts a qualitative case-study approach to examine how participatory tools operate as systems of translation between community knowledge, design representation, and institutional decision-making in Bangkok. Rather than measuring participation solely through attendance or consultation outcomes, the study investigates how participation is staged, recorded, visualized, aggregated, and circulated across different media and scales.

The case is especially relevant because it combines in-person community engagement, digital interface development, dashboard-based aggregation, and longer-term

dissemination through exhibitions, workshops, and policy-facing platforms. Taken together, these components make it possible to analyze participatory design not as a single workshop event, but as a broader socio-technical infrastructure through which voice is transformed into legible and actionable design knowledge.

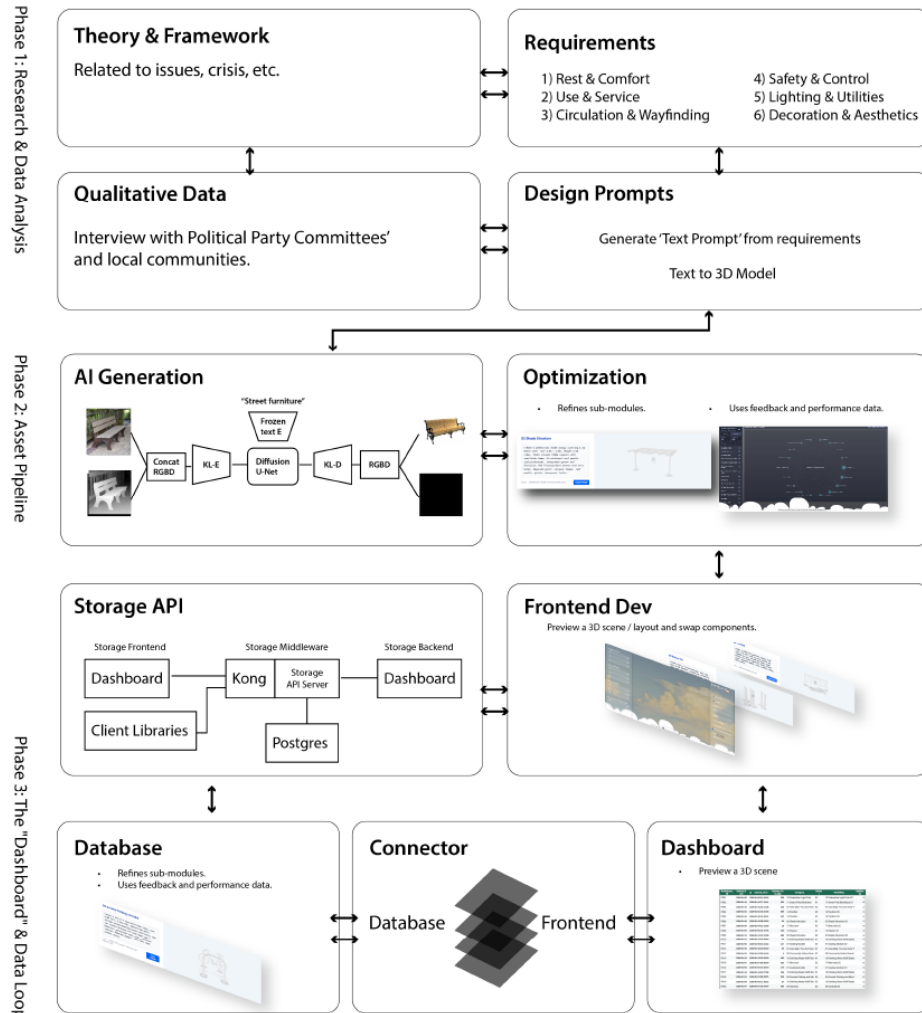
Community Participation Process

The first stage of the research focused on the participatory process itself. Community workshops in Bangkok brought together residents, facilitators, and designers in a shared setting where local concerns, spatial memories, and future aspirations could be expressed through discussion, collective reflection, and visual engagement. In these settings, participants did not merely respond to fixed proposals; they actively contributed to the shaping of possible futures through acts of narration, selection, and revision (**see Figure 1**).

Figure 1

This figure shows the in-person participatory process through which residents, designers, and facilitators engaged in collective discussion and spatial imagination. The workshop format demonstrates that participation began with embodied interaction rather than abstract data entry alone.

2 Research Methodology



This stage is important because it captures the social and dialogic dimension of participation before community input is standardized through digital systems. The workshop environment allowed forms of tacit knowledge to emerge, including memory, attachment, routine use, informal care, and shared expectations about public space. These forms of knowledge often remain underrepresented in formal planning frameworks, yet they are central to understanding how communities interpret and inhabit urban environments.

Research and Data Analysis

The empirical material for this study consists of five types of project evidence: workshop documentation, interface mock-ups, dashboard visualizations, cross-community output boards, and a longitudinal timeline of project development. These materials were interpreted through qualitative visual-content analysis and critical case-study reading. The analysis focused on how participation was represented at each stage, what forms of knowledge became visible, and how these forms were translated into more institutionally legible outputs.

Rather than treating the digital system as a neutral container of information, this study examines the interface itself as a mediating structure. The mock-up platform demonstrates how analog insights from workshops were transformed into interactive visual form, allowing community-generated proposals to be spatially organized, tested, and compared. This translation process is analytically significant because it reveals both the gains and limits of computational participation. While digital visualization can enhance clarity, accessibility, and comparability, it can also simplify forms of knowledge that are embodied, relational, or emotionally textured.

Asset Pipeline and Data Loop

A key component of the methodology is the analysis of the project's asset pipeline and dashboard system. Here, "asset pipeline" refers to the process through which community-generated ideas were converted into visual objects, interface elements, and organized categories that could circulate within a larger digital environment. In this stage, community

input became part of a structured design system rather than remaining as isolated workshop expression.

The dashboard and data loop are particularly important because they show how participatory outputs were stored, categorized, and made retrievable across engagements. This process created a second layer of participation: not only were residents involved in generating ideas, but their contributions could also be tracked, compared, and revisited through a digital archive. The dashboard therefore functioned as both a representational tool and an administrative instrument, enabling local proposals to move from temporary discussion into longer-term systems of coordination and review.

Cross-Community Comparison and Scaling

The study also examines how participatory outputs were scaled across different neighborhoods and districts. The visual boards showing repeated object libraries and community-generated proposals across multiple sites indicate that the project did not remain limited to one location. Instead, it developed a shared visual framework through which local specificity could be retained while outputs were made comparable across communities.

This stage of the analysis is important because it reveals how participatory design can move between local depth and broader urban relevance. The study therefore asks not only how knowledge is produced within one workshop, but also how it is circulated, systematized, and mobilized across a larger urban field.

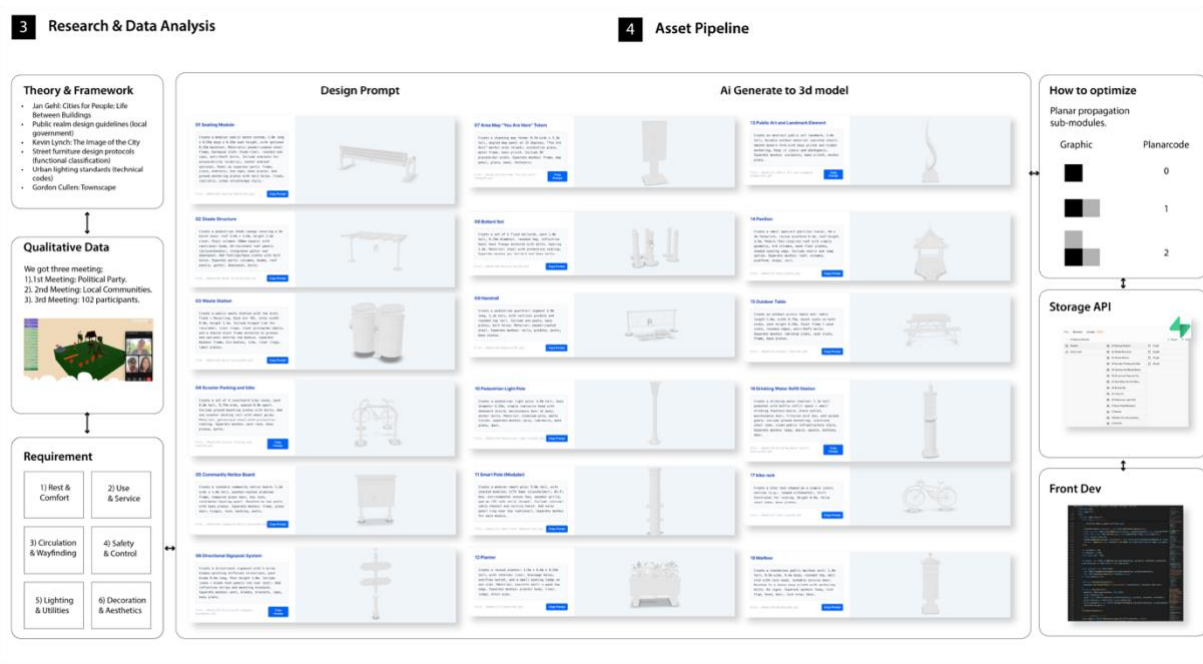
Longitudinal Development and Public Impact

Finally, the methodology includes a longitudinal reading of the initiative's development from 2019 to 2026. The project timeline shows that the participatory system evolved through exhibitions, awards, collaborative workshops, prototype development, research dissemination, and policy relevance. This longer trajectory provides important context for understanding participatory design as an evolving infrastructure rather than a one-time event.

By reading the timeline alongside the workshop, interface, and dashboard materials, this study evaluates participation not only as process, but also as continuity. This allows the article to consider whether participatory tools generate lasting forms of public value and whether they support broader forms of institutional recognition, design legitimacy, and community-centered urban development. (see **Figure 2**).

Figure 2

This figure presents the mock-up digital platform used to explore spatial proposals, object placement, and community-generated design options. The interface illustrates how analog insights were translated into visual and interactive formats.



Limitations

The study has three limitations. First, it relies on project-generated materials rather than a fully transcribed interview corpus. Second, although the case spans multiple communities and districts, the article does not claim statistical generalizability. Third, because the analysis focuses on mediation through artifacts, some aspects of participant experience remain indirect rather than directly quoted. These limitations do not invalidate the study’s contribution, but they frame it properly as an analytically rich, interpretive case study rather than a population-based evaluation.

Results

The analysis produced four major findings concerning recognition, legibility, translation, and public value.

Recognition Beyond Consultation

The first finding is that participatory tools expanded recognition beyond the limited logic of consultation. In the workshop setting, residents did not simply provide opinions in response to predefined plans; they participated in shaping the design conversation itself through spatial imagination, discussion, and collaborative decision-making. This suggests that the participatory process operated not merely as public feedback, but as a form of co-production.

A significant outcome of this stage was the visibility of community knowledge that might otherwise remain excluded from formal planning. Participants articulated concerns related not only to function, but also to atmosphere, comfort, social use, shared memory, and long-term care. As a result, the process broadened the meaning of relevant design evidence. What became visible through participation was not simply preference, but a situated and relational understanding of space.

Legibility Through Interface Design

The second finding is that digital interfaces increased the legibility of community-generated knowledge. Once workshop insights were translated into the participatory platform, they could be visualized, revised, and discussed in more systematic ways. The interface made local ideas easier to compare, communicate, and potentially integrate into wider planning or design processes.

This increased legibility was not only visual but also procedural. The platform structured how ideas were represented, which options could be manipulated, and how spatial

inputs could be reformulated into design propositions. In this sense, the interface did not simply display participation; it actively shaped the terms through which participation became meaningful.

Aggregation, Storage, and Data Loop

The third finding is that the dashboard system transformed participatory input into a scalable and retrievable body of evidence. By organizing workshop outputs into a digital loop of capture, storage, and visualization, the dashboard created continuity across separate acts of participation (see **Figure 3**). This allowed community-generated inputs to circulate beyond the original workshop moment.

The data loop also expanded the institutional usefulness of the project. Once stored within the dashboard, community inputs could be reviewed across time, compared across groups, and mobilized as part of a wider design and policy conversation. This strengthened the possibility that participation could have effects beyond symbolic inclusion. At the same time, however, the act of turning voice into data introduced a filtering process. What entered the dashboard gained visibility, but what could not easily be standardized risked becoming less legible.

Figure 3.

This figure illustrates the dashboard system used to capture, store, and visualize participatory outputs across multiple community engagements. It represents the feedback loop through which local proposals became traceable and scalable.

5 The 'Dashboard' & Data Loop

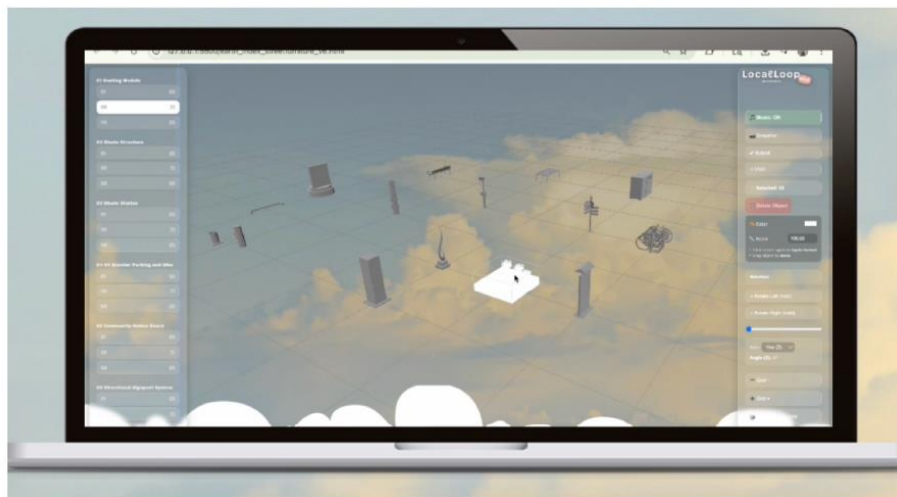


Participatory process was 35 participants in Bangkok, Thailand



<https://participatorydesigntools.netlify.app/>

User Interface



Scaling Across Communities

The fourth finding is that the project successfully developed a shared framework through which participatory outputs could be compared across multiple communities and districts (**see Figure 4**). The repeated object-based visual boards suggest that the system was designed to preserve local variation while also creating a common format for cross-site interpretation.

This is important because it shows that participatory design can operate across scales without being reduced to a single master plan. The framework made it possible to identify recurring needs, typologies, and priorities while still maintaining site-specific inputs. In this sense, the project functioned not only as a local engagement exercise, but also as a broader urban platform for organizing community-derived design intelligence.

Figure 4

This figure shows the range of participatory outputs generated across multiple communities and districts. The repeated visual fields indicate how community-specific ideas were organized within a shared framework.

6 Impact and Future



Social and Economic Value Over Time

The final result is that participatory tools generated both social and economic value over time. The project trajectory indicates that the initiative extended beyond workshops into exhibitions, academic dissemination, prototype development, collaborative programs, and policy-facing applications (see **Figure 5**). This suggests that participatory design produced value not only within community meetings, but also across institutional, educational, and public domains.

The social value of the project lies in its ability to strengthen recognition, trust, and collective imagination. The economic value lies in improving the fit between public intervention and lived need, reducing mismatch between planning assumptions and everyday use, and supporting forms of stewardship that can sustain spaces over time. These forms of value should not be understood narrowly in financial terms alone. Rather, they reflect a broader understanding of economy as maintenance, coordination, reduced waste, and improved long-term usability.

Interpretive Summary

Taken together, the results show that participatory tools do more than gather community opinion. They shape who is recognized, what becomes visible, how ideas are translated, and whether participation can move from expression to consequence. The findings therefore support the central argument of this article: participatory tools should be understood as social and economic infrastructure because they mediate between local knowledge, design systems, and public value.

Figure 5

This figure traces the development of the participatory design initiative over time, including workshops, exhibitions, recognitions, collaborative events, prototype development, and policy relevance.



Discussion

The findings suggest that participatory tools are best understood not as supplementary devices within urban design, but as infrastructures of translation. They mediate between forms of knowledge that are often institutionally separated: memory and metric, narrative and data, care and computation, local experience and administrative decision-making. Their value lies precisely in their ability to hold these domains together without collapsing one into the other.

This has important implications for the politics of participation. First, the study shows that participation is inseparable from recognition. Tools do not merely collect input; they structure visibility. They determine who appears as a legitimate contributor, what kinds of claims can be expressed, and what forms of evidence can travel into design and policy processes. This means that the design of participation is itself a political act.

Second, the results complicate celebratory narratives of digital urbanism. While dashboards, interfaces, and digital platforms can widen reach and improve institutional responsiveness, they can also privilege the kinds of knowledge most easily categorized and visualized. The danger is not digitization itself, but the assumption that computable visibility is equivalent to democratic depth. A participatory process may appear inclusive while still marginalizing forms of experience that are embodied, relational, or difficult to standardize.

Third, the study demonstrates that public value should be a central evaluative criterion in participatory design. Too often, participation is judged by attendance, process, or aesthetics alone. This article instead suggests that participation should also be assessed by its ability to

broaden recognition, support collective imagination, improve the fit between investment and need, and strengthen the social infrastructures through which communities sustain urban life. In this respect, participatory design is not only about better design outcomes; it is about the redistribution of interpretive authority.

Finally, the Bangkok case offers a useful contribution to broader interdisciplinary debates. It shows that participatory design can be analytically productive when examined through the combined lenses of urban governance, design justice, rhetoric, and political representation. Participation is not only a technical workflow. It is a field in which knowledge, power, and value are negotiated.

Conclusion

This article has argued that participatory tools in Bangkok should be understood as social and economic infrastructure rather than as neutral mechanisms of consultation. By examining how workshop practices, digital interfaces, dashboard systems, and community-generated outputs interact, the study has shown that participation is fundamentally a process of translation. Through this process, residents become visible as political subjects, local knowledge becomes actionable within design systems, and public value is either expanded or narrowed.

The findings demonstrate that participatory design can create meaningful social value by strengthening recognition, preserving cultural specificity, and enabling collective imagination. At the same time, it can create economic value by improving the fit between public investment and everyday use, supporting local stewardship, and reducing the gap

between formal planning and lived reality. Yet these gains are never automatic. When voice is translated into data, something may also be lost. The challenge is therefore to design participatory systems that make community knowledge legible without stripping it of context, meaning, and relational depth.

Ultimately, the democratic promise of participatory design lies not in listening alone, but in co-production. A truly participatory urbanism does not simply invite citizens to speak; it builds the procedural, visual, and institutional conditions through which communities can shape decisions, redistribute recognition, and claim a more substantive role in the making of the city.

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