Designing Coexistence: Speculative Design and Social Innovation within Degrowth Scenarios for 2045

This paper examines how speculative design can operate as a method of social innovation in future contexts marked by ecological limits, ideological conflict, and contested architectural values. The study is situated within a speculative 2045 scenario structured around two opposing social groups: the Vertical Infinitists, who view expansion as a moral imperative, and the Erasure Collective, who regard subtraction, biodegradability, and spatial emptiness as civic virtues. Rather than positioning conflict as a failure of planning, the paper treats social friction as a structural feature of post-growth societies. Methodologically, the research adopts a qualitative research-through-design approach that combines futures framing, persona construction, stakeholder mapping, and a workshop-led mediation exercise. The main design outcome, The Equilibrium Engine, is an Artificial Intelligence (AI)-mediated civic infrastructure that translates incompatible values into visible and negotiable trade-offs. The paper argues that speculative design can move beyond provocation when paired with social innovation frameworks and participatory governance models. Its value lies not in offering final solutions, but in creating conditions for dialogue, public reasoning, and adaptive coexistence. In doing so, the study repositions the designer as a mediator of socio-ecological relations and proposes a design agenda centred on negotiation, pluralism, and civic imagination.

Keywords: *speculative design; social innovation; degrowth; architectural futures; participatory systems*

Introduction

The convergence of climate disruption, widening inequality, resource depletion, automated labour displacement, and institutional mistrust has intensified calls for new political, economic, and cultural imaginaries. In design, these pressures have exposed the inadequacy of solutionist models that treat complex structural crises as if they were isolated technical problems. The language of innovation continues to dominate public and professional discourse, yet many forms of innovation remain tied to growth-based assumptions that deepen ecological overshoot, normalize extractive infrastructures, and weaken collective capacities for long-term care. If design is to remain socially relevant, it must do more than optimize existing systems. It must also help societies imagine, articulate, and negotiate fundamentally different ways of living together.

This paper is positioned at the intersection of speculative design, social innovation, and degrowth thinking. Speculative design is valuable because it expands the field of design beyond instrumental problem-solving and opens a space in which alternative social arrangements can be rendered tangible, discussable, and politically legible. Social innovation is relevant because it reframes design not as the delivery of finished solutions from above, but as the enabling of collaborative capacities, distributed agency, and new social relations.

Degrowth provides the broader socio-political frame, challenging the assumption that continuous expansion is either desirable or possible, and proposing instead that wellbeing, sufficiency, reciprocity, and ecological balance should guide future collective life.

The specific context of the research is a speculative urban future in 2045. Within this future, social organization is shaped by sharp ideological divergence over the meaning of progress, the role of architecture, and the legitimacy of permanence. Two social groups anchor the investigation. The first, the Vertical Infinitists, believe that growth is a civic good and that vertical expansion, density, and permanent construction express human achievement. The second, the Erasure Collective, understands subtraction as a creative and ethical act, valuing temporary structures, biodegradation, and the restoration of emptiness. The tension between these groups is not merely aesthetic. It concerns governance, public space, material use, ecological repair, memory, and the legitimacy of competing futures.

This conflict is particularly productive for design research because it reveals a key challenge for future-oriented practice: not every future problem can be solved through consensus, and not every social divide should be neutralized into a false harmony. Some differences are deep, value-laden, and persistent. The task of design, therefore, may be less about erasing disagreement than about constructing systems, interfaces, and institutions through which disagreement can become visible, structured, and negotiable.

The central research question is: how can speculative design function as a tool for social innovation by enabling negotiation and coexistence between conflicting value systems in degrowth-oriented futures? The aim of the paper is twofold. First, it seeks to develop a rigorous methodological account of how speculative design can be mobilized as research rather than only as aesthetic provocation. Second, it proposes and analyses a conceptual design outcome, The Equilibrium Engine, as a mediating infrastructure for conflict in a post-growth urban context.

The scope of the paper is intentionally conceptual and methodological rather than predictive. It does not claim that the scenario described will occur, nor that the proposed system should be implemented literally. Instead, it uses a designed future world to explore how different frameworks of value might collide and how design might support coexistence without collapsing difference into managerial neutrality. The paper is organized as follows. The first section introduces the topic, defines the research question, and situates the study. The second section reviews the literature on speculative design, social innovation, degrowth, and design ethics. The third section presents the research methodology. The fourth section presents findings and the conceptual proposal. The fifth section discusses theoretical and practical implications. The final section concludes by reflecting on the contribution and limitations of the study.

Literature Review

Speculative Design as Critical and Social Inquiry

Speculative design emerged as an important challenge to mainstream conceptions of design as market service, product innovation, and user-centred optimization. Dunne and Raby (2013) argued that design could also be used as a medium for asking questions rather than supplying answers, for exposing assumptions rather than smoothing them away, and for opening debate about alternative ways of being. Their contribution has been especially influential because it reframed design from a strictly affirmative discipline into a critical one. In that shift, design no longer serves industry alone; it also serves public reflection.

A key strength of speculative design is its ability to materialize possibilities. Through narratives, prototypes, interfaces, images, and fictional systems, it creates what might be called discursive objects: designed propositions that make larger socio-technical conditions available for interpretation and contestation. Such work does not predict the future in a literal sense. Rather, it stages possible futures in order to deepen understanding of the present. This is why speculative design has become especially important in addressing issues shaped by uncertainty, long temporal horizons, and entangled technological, social, and ecological systems (Auger, 2013; Candy, 2010).

Yet speculative design has also been criticised. Some scholars have noted that it can drift toward gallery-based provocation without social accountability, or that it may privilege the perspective of the designer at the expense of those most affected by the issues being explored. Others have observed that speculative projects sometimes remain rhetorically powerful but methodologically thin (Mitrovic et al., 2021). These critiques are significant. If speculative design is to contribute to scholarly research and not only cultural commentary, it requires clearer methodological grounding, stronger links to situated communities, and more explicit reflection on ethics, power, and participation.

The present paper responds to those critiques by positioning speculative design not as a self-sufficient practice, but as one part of a broader methodological ecology. Here, speculation is combined with stakeholder analysis, workshop methods, social innovation theory, and governance considerations. In this sense, the project aligns with recent efforts to move beyond speculative design as provocation alone and toward speculative practice as a situated method of inquiry, mediation, and public reasoning. This approach aligns with recent architectural discourse that reconsiders modernity not as a fixed historical style but as an ongoing process of critical reinterpretation and collective experimentation (Mozzato, 2025).

Social Innovation and the Role of Design

The concept of social innovation is central to this study because it shifts attention from isolated artefacts to new social practices, collaborative infrastructures, and enabling environments. Manzini (2015) has been one of the

most influential voices in this field, arguing that contemporary societies are increasingly shaped by forms of diffuse design in which non-designers actively participate in the creation of solutions, institutions, and everyday innovations. In this view, the designer is not the sole author of outcomes, but a facilitator of processes that help communities make sense of situations, build trust, and act collectively.

This perspective is especially relevant in future-oriented work. If the goal is not simply to imagine different worlds but to examine how people might organise themselves within those worlds, then design must operate relationally. It must support encounters, negotiations, and forms of collective sense-making. Social innovation is therefore not only about novelty; it is about creating new capacities for cooperation, care, resilience, and democratic engagement. Manzini's emphasis on collaborative encounters, enabling ecosystems, and cosmopolitan localism is particularly useful for a project like this one. The conflict between the Vertical Infinitists and the Erasure Collective cannot be resolved by a single built form or technological interface. It requires a mediating system through which incompatible priorities can be translated, debated, and recalibrated. This is why The Equilibrium Engine is conceived not as a product, but as a civic platform and infrastructural process.

The literature on participatory design further supports this orientation (Sanders and Stappers, 2008). Participatory approaches remind us that design is political because it structures whose voice counts, whose knowledge is recognised, and which futures are made visible. They also reveal that conflict is not a methodological inconvenience but often the very site in which democratic design becomes possible. When participation is stripped of disagreement, it easily becomes performative consultation. When difference is acknowledged, however, participation can become a vehicle for legitimate negotiation.

Degrowth as a Framework for Future Social Organization

Degrowth is not merely an environmental slogan or an anti-growth economics. It is a broad political and cultural critique of the assumption that continuous expansion should remain the organizing principle of society (Kallis, 2018; Latouche, 2009). It challenges the metrics through which success has been measured and asks instead how societies might prioritize ecological stability, equitable distribution, meaningful work, and collective wellbeing. The degrowth literature does not always agree on policy detail, but it consistently rejects the conflation of prosperity with accumulation.

For design, degrowth matters because it destabilizes long-standing assumptions about progress, efficiency, novelty, and consumption (Fry, 2009; Irwin, 2015). It asks what kinds of design are needed in a world where less extraction, less waste, and less expansion are not signs of failure but conditions of survival. It also raises practical and ethical questions: how should spaces be shared, how should infrastructures be maintained, what should endure, and what should be allowed to disappear? The project draws from degrowth-oriented futures materials that emphasize scenario building, storytelling, sufficiency, and alternative measures of value, which translate abstract macroeconomic debate

into everyday roles, social rituals, material choices, and spatial practices. At the same time, degrowth should not be romanticized. A post-growth future will not automatically produce justice. It may intensify tensions over scarcity, memory, distribution, and governance (Raworth, 2017). That is why the paper does not present degrowth as a utopia but explores how degrowth conditions may sharpen value conflict and therefore require better mechanisms of public mediation.

Architecture, Mediation, and Contested Futures

Architecture is an especially productive site through which to examine ideological conflict because it materializes values at multiple scales. Buildings embody assumptions about permanence, ownership, labour, time, hierarchy, environmental relation, and public life. They are never neutral containers. In the speculative worlds explored here, architecture becomes the medium through which two divergent worldviews clash. For the Vertical Infinitists, architecture extends human aspiration and secures civic status through accumulation, height, and density. For the Erasure Collective, architecture should dissolve, compost, relinquish space, and avoid becoming a monument to domination.

This opposition resonates with contemporary architectural debates on resilience, adaptive reuse, temporality, ecological repair, and the politics of voids. The literature on adversarial design is useful here (DiSalvo, 2012). Adversarial design does not seek premature consensus; it recognizes that plural societies are shaped by contestation and that designed systems can frame disagreement productively. This insight is important for moving beyond simplistic notions of smart urbanism in which data infrastructures are imagined as if they could optimize cities without engaging value conflict. In reality, every metric privileges something. Every threshold excludes something. Every visualization frames a politics. The question, therefore, is not whether mediation is political, but how its politics can be made visible and accountable. Recent work on vulnerable inter-spaces in stratified landscapes further demonstrates how architecture can mediate between fragility and permanence, offering approaches that acknowledge both material vulnerability and historical continuity (Bosone, 2025).

Ethics, AI, and the Problem of False Neutrality

Any proposal involving AI-mediated negotiation requires ethical scrutiny. Digital systems are often presented as if they were impartial tools capable of balancing competing interests objectively. This is deeply misleading. AI systems are designed, trained, parameterised, and governed within social contexts. They inherit assumptions from their datasets, their optimization goals, and their institutional owners. When applied to social conflict, these systems risk reinforcing dominant values while presenting themselves as neutral arbiters (Norman, 2010).

Design ethics is therefore central to this project. The concept of false neutrality is particularly important. A mediation system that treats both sides equally without acknowledging asymmetries of power, historical injustice, or

ecological damage may appear fair while reproducing inequity. In the context of this paper, the challenge is to imagine an AI-enabled system that does not erase conflict, depoliticize decision-making, or transform public values into opaque technical outputs. This ethical concern shapes both the workshop design and the final concept. Participants were explicitly asked to define what the AI should not do, who controls it, and what trade-offs are embedded in its operation. Taken together, the literature suggests that the most promising role for speculative design lies in its capacity to connect imagination to social inquiry, and this paper builds on that intersection.

Methodology

Research Design and Epistemological Position

Figure 1. *Daily Life Contrasts: The Vertical Infinitists and the Erasure Collective in 2045*

Source: Author.

This study adopts a qualitative research-through-design methodology. Research-through-design is appropriate because the core knowledge contribution of the paper emerges through the generation, testing, and critical interpretation of designed scenarios, stakeholder relations, and conceptual systems (Schon, 1983). Rather than treating design as a post-research illustration of pre-existing findings, research-through-design understands design activity itself as a mode of inquiry. The epistemological position of the paper is constructivist and critical. The study does not seek predictive truth about the future, nor does it attempt statistical generalization. Instead, it investigates how design methods can reveal tensions, produce conceptual clarity, and generate transferable insights about mediation in contested futures. The methodology was designed to answer the research question by moving from broad futures framing

toward a situated design proposition, integrating speculative design methods with social innovation tools across five phases: (1) futures framing, (2) persona and social-group development, (3) stakeholder and systems mapping, (4) workshop-based mediation design, and (5) conceptual prototyping and reflective analysis.

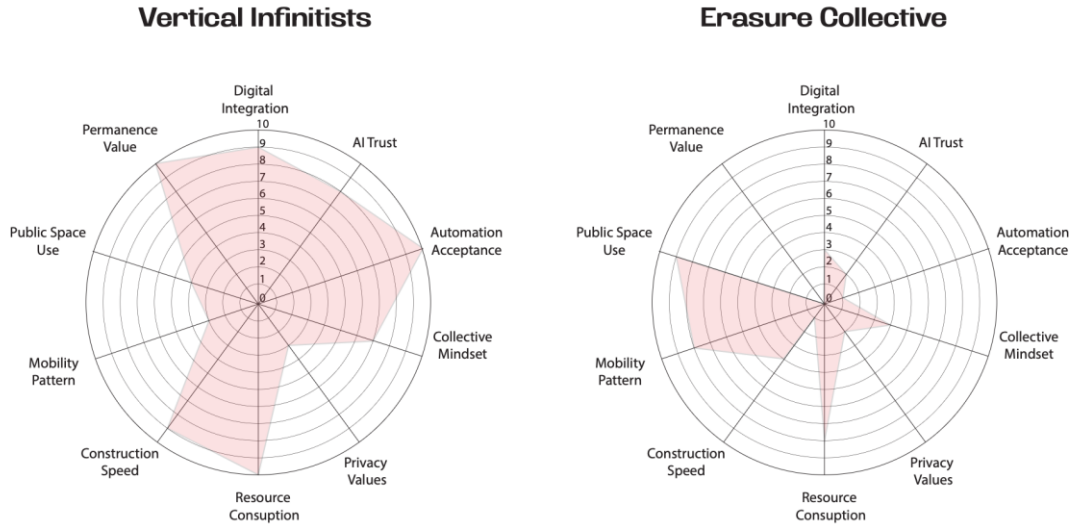
Phase 1: Futures Framing

The first phase established the larger future horizon through a four-quadrant scenario logic inspired by futures practice and degrowth futures frameworks. This phase began by identifying two major axes of uncertainty: tensions between growth and degrowth, and between centralised and distributed forms of governance. The purpose of the four-quadrant method was not to produce four polished scenarios for comparison, but to create a structured field of possibility within which one tension-rich world could be developed in depth. The selected scenario emphasised ideological divergence rather than smooth transition. Many future narratives assume that sustainable societies will emerge through consensus once ecological awareness becomes widespread. The project resisted that assumption, asking instead what happens when post-growth pressures produce more polarised responses rather than shared ones.

Phase 2: Persona and Social Group Development

The second phase translated abstract systemic logics into social worlds. Rather than creating conventional market-oriented personas, the research developed future social groups and representative figures who embodied distinct beliefs, rituals, governance models, and relationships to space. The two main groups selected were the Vertical Infinitists and the Erasure Collective. They were chosen because they represent extreme but legible ideological positions regarding architecture and social order. The Vertical Infinitists were developed as a densely urban, technologically integrated culture that equates vertical growth with collective progress. Their built environment privileges megastructures, altitude-based status, durable materials, and continuous expansion. The Erasure Collective was developed as a distributed, anti-monumental society in which building is temporary, decomposition is valued, and open land has intrinsic meaning. By developing these groups in detail, the methodology allowed the project to move beyond symbolic opposition. The groups became lenses through which questions of power, daily life, environmental relation, and civic value could be examined.

Figure 2. *Radar Chart Comparison: Core Characteristics and Beliefs of the Vertical Infinitists and the Erasure Collective*



Source: Author.

The third phase investigated how conflict between the two groups would operate within a wider socio-technical system. A systems map was produced to identify actors, flows, dependencies, and sites of tension. Stakeholders included not only the two primary groups, but also planners, ecologists, engineers, district custodians, civic assemblies, non-human entities, material supply systems, public interfaces, and algorithmic infrastructures (Meadows, 2008). This phase focused on four analytical dimensions: (1) value conflict — what each group seeks to maximize or protect; (2) resource conflict — how land, energy, materials, and maintenance are distributed; (3) governance conflict — who decides when to build, preserve, dismantle, or rewild; and (4) representational conflict — whose vision of the future becomes visible, legitimate, and measurable. This phase revealed that the conflict could not be reduced to taste or symbolism, making clear that any mediating system would need to operate across environmental, social, and cultural layers simultaneously.

Phase 4: Workshop-Based Mediation Design

A key methodological contribution of the project is the use of a structured workshop, titled Creating and Visualizing the Mediator, as both a pedagogical exercise and a research instrument. The workshop brief asked participants to design an AI system capable of translating incompatible values between the two opposing groups into visible and negotiable trade-offs. The workshop was organised in three stages. In the first stage, participants identified one critical conflict requiring ongoing negotiation and wrote a structured tension statement.

In the second stage, participants defined the mediator system, selecting AI functions such as translating values, visualising impacts, modelling scenarios, or monitoring thresholds, and described the system in terms of inputs, processing logic, outputs, governance structure, and limits. In the third stage, participants created a diagram, interface concept, or spatial representation of the mediation system and wrote a critical reflection focused on power dynamics, false neutrality, trade-offs, and social consequences. From a research perspective, the workshop functioned as a form of generative inquiry, externalising assumptions, revealing how participants conceptualized conflict, and surfacing recurring design patterns.

Phase 5: Conceptual Prototyping and Synthesis

The fifth phase translated the workshop findings and scenario analysis into a refined conceptual design proposal. The prototype was not intended for immediate implementation. Instead, it served as a speculative infrastructural model demonstrating how design might frame coexistence in a city shaped by deep ideological division. The resulting concept, The Equilibrium Engine, was defined as a spatial, temporal, and AI-mediated hybrid system. In methodological terms, conceptual prototyping served two purposes. First, it allowed the research to test whether the earlier phases produced enough clarity to support a coherent proposal. Second, it created a concrete basis for critical discussion.

Findings And Design Proposal

The Great Divergence of 2045

The first major finding is that the project scenario produces a credible model of future conflict not because it imagines difference, but because it imagines organised difference. The Vertical Infinitists and the Erasure Collective do not merely hold individual opinions; they inhabit distinct social worlds structured by competing moral, material, and temporal assumptions. The Vertical Infinitists view height, density, and permanence as signs of collective purpose. Their world is built upward and inward. Megatowers, internal weather systems, vertical farming, and enduring bio-concrete symbolize not only technical prowess but civic legitimacy. Space is scarce and therefore must be multiplied. Expansion is interpreted as responsibility rather than excess. The Erasure Collective begins from a different ontology. They see permanent architecture as a burden on future possibility. Buildings should biodegrade, land should regenerate, and demolition can be a gift rather than a failure. Their world privileges cyclical dwelling, temporary structures, rewilding, and social practices oriented toward care, restraint, and relinquishment. The conflict between these groups is not reducible to policy disagreement. It is a conflict over what architecture is for, what the city owes the future, and whether persistence or disappearance is the more ethical civic act.

Conflict as a Structural Feature

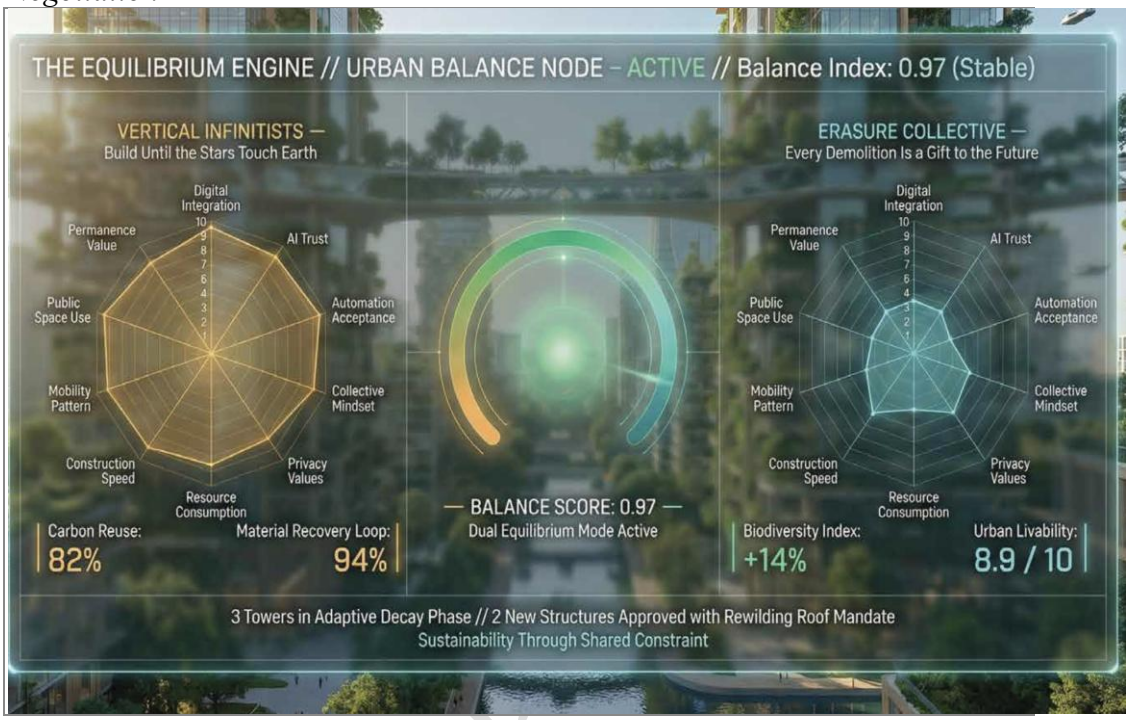
A second major finding is that conflict in this scenario cannot be meaningfully "solved" through a compromise object. The workshop and systems analysis both revealed that disagreement extends across metrics, symbols, institutions, and everyday life. A tower that includes biodegradable materials does not necessarily satisfy the Erasure Collective if its overall logic remains monumentalist. Likewise, a rewilded void does not satisfy the Infinitists if it interrupts collective expansion. This matters because it shifts the design brief. Instead of seeking a hybrid artefact that blends both aesthetics, the project recognises the need for a continuing process of public negotiation. What is needed is not a single solution, but an infrastructure for managing incompatible values over time.

Visibility as a Design Requirement

The third finding concerns visibility. In both workshop reflections and conceptual synthesis, one issue recurred: conflict becomes destructive when trade-offs remain hidden. If one group experiences policy decisions only as imposed outcomes, without seeing the criteria or consequences behind them, mediation lacks legitimacy. This insight shaped the proposal of a public interface that displays the shifting balance between growth and rewilding, density and emptiness, durability and decomposition. Visualisation here is not cosmetic; it is civic. The role of the interface is to render urban metabolism and value conflict intelligible enough for public debate.

The Equilibrium Engine

Figure 3. *The Equilibrium Engine: AI-Mediated Civic Infrastructure for Value Negotiation*



Source: Author.

The principal design proposal of the study is The Equilibrium Engine, a distributed mediation infrastructure for a city divided between opposing architectural philosophies. Its core function is to monitor, visualise, and negotiate the balance between construction, adaptation, decomposition, and ecological restoration, translating social and environmental data into visible, discussable civic choices.

The system gathers multiple forms of input: biodiversity indicators, energy flows, air quality, population density, maintenance demand, land-use pressure, material cycles, and civic preference signals. Importantly, qualitative inputs are also included through citizen assemblies, district feedback, and value declarations, preventing the system from reducing public life to environmental telemetry alone.

The processing layer does not produce a single optimal answer. Instead, it runs weighted analyses based on declared priorities and threshold conditions. For instance, it might indicate that an area has exceeded its material intensity threshold and should enter a phase of contraction, or that a district's housing pressure justifies limited expansion on the condition that ecological restoration occurs elsewhere. Outputs are communicated through public pavilions, holographic interfaces, civic dashboards, and district-level spatial signals. These outputs show consequences and trade-offs; citizens can therefore see not only what is proposed, but what is being sacrificed, protected, delayed, or regenerated.

Governance is a central feature of the concept. The Equilibrium Engine is not controlled by a private platform or opaque urban operating system. It is supervised by a civic assembly composed of builders, rewilders, planners, ecologists, and citizen delegates. Local maintenance is carried out by district custodian guilds with technical and ecological expertise. This arrangement reflects the project's insistence that mediation systems are political institutions, not neutral software. The trade-offs embedded in the system are explicit. The Vertical Infinitists give up unlimited expansion but gain material renewal, ecological stability, and longer-term urban resilience. The Erasure Collective gives up total erasure but gains institutionalised rewilding, decomposition rights, and meaningful influence over the city's life cycle. Neither group wins completely, which is precisely what makes the system plausible as mediation rather than domination.

The importance of The Equilibrium Engine lies less in its technological novelty than in the way it reframes the purpose of urban intelligence. Contemporary "smart city" discourse often assumes that better data will enable smoother optimisation. This project proposes a different function for urban intelligence: not optimisation without politics, but the structured handling of politics through designed visibility, translation, and deliberation. The conceptual outcome thus demonstrates that speculative design can move beyond dystopian warning or aesthetic fiction to design institutional imagination — systems through which future societies may confront disagreement without collapsing into paralysis or authoritarian control.

Discussion

From Solutionism to Mediation

The findings support a broader argument that the future role of design, particularly in architecture and urban systems, may need to shift from solution-making to mediation-making. This is not a rejection of problem-solving altogether, but a recognition that certain societal conditions are irreducibly plural and conflictual. When value systems diverge at the level of world-making, the most responsible design act may be to create conditions for ongoing negotiation rather than to impose closure. This perspective aligns with both social innovation and adversarial design. Social innovation reminds us that sustainable transformation depends on enabling collaborative capacities rather than simply delivering expert outputs (Manzini, 2015). Adversarial design reminds us that democracy requires spaces in which disagreement can be structured rather than denied (DiSalvo, 2012).

Repositioning the Designer

A second implication concerns the role of the designer. Within consumer capitalism, designers are often cast as stylists of innovation or translators of user needs into products and services. Within speculative practice, they may become

provocateurs or storytellers. This project suggests another role: the designer as mediator of socio-ecological relations. That does not mean the designer becomes a neutral broker. On the contrary, the project shows that neutrality is neither possible nor desirable. Instead, the designer becomes responsible for making tensions legible, staging competing values fairly, and designing infrastructures in which multiple actors can participate meaningfully. This is a demanding role requiring systemic literacy, ethical reflexivity, visual communication skills, and an understanding of governance (Schon, 1983; Simon, 1982).

The Value of Degrowth for Design Research

The degrowth frame proves particularly generative for design research. It does so not only because it offers a critique of unsustainable development, but because it destabilizes inherited categories of success. Once growth is no longer assumed to be the dominant good, design questions change: how much is enough, what should be preserved, what should disappear, and how should maintenance, repair, decay, and relinquishment be valued? These questions are architectural, social, and political all at once. The project demonstrates that degrowth need not result in a single coherent lifestyle model. Instead, it can become the condition under which multiple responses emerge — some collectivist, some technocratic, some adaptive, some oppositional — contributing to a more plural account of post-growth futures (Escobar, 2018).

AI Mediation and the Ethics of Governance

The discussion of AI mediation must remain cautious. The concept developed here is intentionally critical of techno-solutionism. An AI mediator cannot be assumed to produce fairness merely by processing more data. Its legitimacy depends on who defines the inputs, who sets the thresholds, how transparent the outputs are, and what forms of recourse citizens possess. This is why the design includes strong governance mechanisms and explicit limits. The AI does not replace civic judgment; it supports it by modelling consequences, visualising thresholds, and structuring debate. Even then, the risk of false neutrality remains. The concept should therefore be understood as a critical proposition: it asks what an accountable mediation system might require, rather than claiming that such a system can ever become fully neutral.

Limitations of the Study

Several limitations must be acknowledged. The research remains conceptual and does not evaluate how real communities would interpret or contest the proposed mediator. Nor does it test the visual and procedural comprehensibility of the Balance Index with users. The polarised social groups are analytically useful but may oversimplify the hybrid identities that characterise actual urban publics. Finally, the proposal is situated at an architectural and civic scale; its translation into policy, legal frameworks, and technical implementation remains outside the scope of the study. These limitations do not invalidate the

contribution. They clarify it: the paper offers a robust conceptual and methodological framework rather than an empirical model ready for deployment.

Conclusions

This paper set out to investigate how speculative design can function as a tool for social innovation by enabling negotiation and coexistence between conflicting value systems in degrowth-oriented futures. It argued that the increasing complexity of ecological and social crises requires design practices capable not only of imagining alternatives, but also of structuring public mediation where consensus cannot be assumed. Through a research-through-design methodology combining futures framing, social-group construction, stakeholder mapping, workshop-led inquiry, and conceptual prototyping, the study developed a speculative 2045 scenario centred on two opposing architectural cultures. The resulting design proposal, The Equilibrium Engine, was advanced as a mediating infrastructure that makes trade-offs visible and contestable rather than attempting to erase political difference.

The paper contributes in three main ways. First, it strengthens the methodological legitimacy of speculative design by showing how it can be combined with systems thinking, participatory prompts, and governance analysis. Second, it extends social innovation discourse by proposing mediation as a key design function in plural and post-growth societies. Third, it offers a conceptual architectural model in which AI is repositioned from optimiser to accountable translator within civic negotiation. The broader implication is that future-oriented design should not be judged only by whether it produces desirable visions, but by whether it creates conditions for shared reasoning under disagreement.

Further research could extend this work through participatory testing with real communities, comparative analysis of other conflict scenarios, and the development of visual or interactive prototypes that examine how mediating interfaces affect trust, comprehension, and civic agency. What this study demonstrates already, however, is that speculative design is at its most powerful when it is not only imaginative, but institutionally and ethically ambitious.

References

Auger J (2013) Speculative design: crafting the speculation. Digital Creativity 24(1): 11–35.

Candy S (2010) The Futures of Everyday Life: Politics and the Design of Experiential Scenarios. Honolulu: University of Hawai'i at Manoa.

Bosone M (2025) Tales from fragile grounds: The project of vulnerable inter-spaces in stratified landscapes. Athens Journal of Architecture 11(3): 279–298.

DiSalvo C (2012) Adversarial Design. Cambridge, MA: MIT Press.

Dunne A, Raby F (2013) Speculative Everything: Design, Fiction, and Social Dreaming. Cambridge, MA: MIT Press.

Escobar A (2018) Designs for the Pluriverse: Radical Interdependence, Autonomy, and the Making of Worlds. Durham, NC: Duke University Press.
Fry T (2009) Design Futuring: Sustainability, Ethics and New Practice. Oxford: Berg.
Irwin T (2015) Transition design: a proposal for a new area of design practice, study, and research. Design and Culture 7(2): 229–246.
Kallis G (2018) Degrowth. Newcastle upon Tyne: Agenda Publishing.
Latouche S (2009) Farewell to Growth. Cambridge: Polity.
Manzini E (2015) Design, When Everybody Designs: An Introduction to Design for Social Innovation. Cambridge, MA: MIT Press.
Meadows DH (2008) Thinking in Systems: A Primer. White River Junction, VT: Chelsea Green.
Mozzato A (2025) The reinvention of modernity: Gianugo Polesello and the Gruppo Architettura. Athens Journal of Architecture 11(3): 299–316.
Mitrovic I, Auger J, Hanna J, Helgason I (eds) (2021) Beyond Speculative Design: Past–Present–Future. Split: SpeculativeEdu.
Norman D (2010) Why design education must change. Core77, 26 November.
Raworth K (2017) Doughnut Economics: Seven Ways to Think Like a 21st-Century Economist. London: Random House.
Sanders EBN, Stappers PJ (2008) Co-creation and the new landscapes of design. CoDesign 4(1): 5–18.
Schon DA (1983) The Reflective Practitioner. New York: Basic Books.

Simon H (1982) The Sciences of the Artificial. 2nd edition. Cambridge, MA: MIT Press.