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Superblocks between theory and practice: insights from an international e-Delphi process and urban living labs in Vienna and Berlin

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ABSTRACT

The concept of Superblocks has been recognized as a promising urban transformational intervention. With the concept evolving, spreading, and being adapted to different contexts, it is necessary to take stock of the situation. The article aims to clarify the Superblocks concept through an e-Delphi process and test the theoretical framework against ongoing implementations in Vienna and Berlin. Experts' opinions show that the concept has retained transformational capacity. In practice, however, we can observe conceptual ambiguity and slow implementation, subjugated to political constraints. The article discusses how these discrepancies might affect the ability of Superblocks to contribute to systemic transitions.

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Superblocks; urban transformation; sustainability; systemic transitions; e-Delphi; urban living lab

Introduction

The need for urban transformation

The vaunted 'urban age' is at a crossroads. The emergence of existential threats stemming from the sustainability poly-crisis has led to calls for a new paradigm of urbanism amongst broader societal transformations (Barnosky, Ehrlich, and Hadly 2016; Haberl et al. 2011; Rees 2009). Cities are drivers of ecological overshoot, the problem at the heart of the sustainability crisis, and they are expected to suffer many of the most extreme impacts of the crisis, putting a large percentage of the human population at high risk (Bulkeley 2013). Beyond existential threats, cities continue to suffer from persistent negative environmental conditions such as air pollution, noise pollution, and the urban heat island effect. Moreover, there are concerns that current approaches to urban planning reproduce unequal power dynamics and the exclusion of non-hegemonic groups from the production of urban space (McDowell 1983).

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And yet, given their position as nodes in global networks, cities are also global-scale agents of change capable of pioneering new approaches, transferring knowledge horizontally, and collectively establishing new norms (Acuto 2016). In response, the notion of 'urban transformation' has emerged in science and policy discussions to achieve sustainability, resilience, and social equity (Hölscher and Frantzeskaki 2021).

Superblocks – a new urban paradigm?

Among existing urban interventions, the Superblocks concept seems especially promising for renewing the new urban paradigm based on sustainability and livability. Originating from the late 1980s and further developed in the early 2000s in Barcelona, Spain (pop. 1,600,000), one of the most densely populated urban areas in Europe, the concept strategically eliminates motor vehicle through-routes to produce contiguous traffic-calmed spatial cells called 'superblocks'. While motor vehicles retain access, speed limits and circular traffic routing discourage motorized through traffic while walking and cycling are granted access on all streets (Amati, Stevens, and Rueda 2024; Nieuwenhuijsen et al. 2024). The Superblock model put forward in Barcelona's 2015 urban mobility plan conceptualizes a single superblock unit as an orthogonal cell of around 400 × 400 m, consisting of nine blocks, encompassed by perimeter roads for through traffic (Rueda 2019). The traffic-calmed interior of individual superblocks reclaims public space formerly dedicated to motor vehicle circulation and parking and repurposes it for climate adaptation measures, for social encounters, for recreational activities, and for other non-traffic uses decided upon by residents and community members. As a result, the mobility hierarchy shifts, as do notions of how streets should be used and designed. Concept originator Salvador Rueda and the Barcelona Urban Ecology Agency (BCN Ecologia) aimed to create more than 500 superblocks and cut the total area of public space dedicated to (auto)mobility by more than 50%. Implementation of the theoretical model in Barcelona would reduce the total length of through traffic roads by 61% and mobilize 45% of road space for reallocation and redesign (Rueda 2019).

It is important to note that the Superblocks concept not only calms traffic and reclaims public space; it also undermines the technocratic automobility regime that has dominated traffic planning (and public space allocation) for decades (Mattioli et al. 2020) while offering a new vision of green, sustainable, ethical urbanism (Rueda 2019). Such radical intention is confirmed by the four strategic goals of Barcelona's first Superblock program: (1) improve the habitability of public spaces; (2) move towards sustainable mobility; (3) increase and improve urban greenery and biodiversity; (4) promote public participation and joint responsibility. Superblocks simulations in Barcelona show increase of space for pedestrians by more than 270% and significant changes in the modal split, better air quality and increase in physical activity (López, Jordi, and Mercedes 2020), leading to a prevention of almost 700 premature deaths per year (Müller et al. 2020), and improved child behavioral coginitive development (Opbroek et al. 2024). A potential of the Superblocks concept for achieving urban sustainability is also supported by before-and-after evaluations of implemented superblocks, which showed improvement in environmental, lifestyle, livability and health indicators, although inconsistently (Nieuwenhuijsen et al. 2024).

After several initial implementation efforts in the early 2000s in Barcelona and other Spanish cities, most notably Vitoria-Gasteiz, the Superblocks concept received widespread international media coverage after the first pilot project was implemented in Barcelona's Poblenou neighborhood in 2016. Superblocks soon gained global recognition, aided by a dedicated internationalization strategy by the City of Barcelona, and were discussed as early as 2010 in the international planning discourse (Mostafavi and Doherty 2016). Buenos Aires, Valencia, Berlin, and Vienna, amongst others, all developed plans to implement superblocks, with cities in Australia, China, Taiwan, and Ecuador following suit. An internet search finds articles on the concept with titles such as 'Superblocks – the Spanish Idea that is Conquering European Cities' and '4 Emerging Concepts that Could Transform the World's Cities'. Superblocks appeared set to become not just one approach among many but perhaps a new paradigm – might cities of the future be cities of superblocks?

Multiple meanings and a loss of Identity

While that question cannot yet be answered, it raises another one: What exactly do we mean when we talk about Superblocks? Despite its popularity, there is no clear definition of the Superblocks concept, and as the concept matures, travels, and evolves, there are reasons for concern that different interpretations may impact both the discourse surrounding Superblocks and the ability of implementation efforts to contribute to urban transformation. For example, superblocks in Vitoria-Gasteiz do not follow the 3 × 3 block model of Barcelona because they are applied to an organic urban fabric as opposed to an orthogonal one. So, are they still superblocks? In projects around the world, the concept has also been given different names: Berlin's Superblocks proposals are called Kiezblocks, and Vienna's are called Supergrätzl (Brenner et al. 2024). The very nomenclature of the concept leads to confusion. In this paper we discuss the capitalized Superblocks (to refer to the broader scheme), which is composed of (lower-case) superblocks (which are individual traffic-calmed cells). There is, however, no standard practice for differentiating between the whole and its parts. In Barcelona, the proposed application of the Superblocks concept has morphed over time in response to shifting political aims, public pushback, and institutional learning. While the first period (2015–2019) of Barcelona's Superblock program aimed at extending superblocks citywide on an area-by-area basis, from 2020 onwards superblocks are no longer thought of as 'multiplying' individual traffic-calmed cells over the whole city but rather a strategy of broader scale (Cocco and Scaglione 2024). Taking into account psychosocial, functional and economic aspects, the renamed and reframed Superblocks program ('Superilla Barcelona') encompasses the entrie Example district and focuses on connecting neighborhoods via green axes ('Eixos Verds') (Ajuntament de Barcelona 2024).

It is possible that although the number of efforts to implement superblocks (lower-case) continues to grow, such efforts may not reproduce the paradigm-changing intentions of Superblocks. And whether one speaks of Superblocks or superblocks, the scale, scope, and overall implementation goals often remain ambiguous. The existence of different interpretations of the Superblocks concept could lead to a mismatch between intentions, implementation, and impact, and a lack of clarity could diminish the potential and value of the concept.

Research questions and aims

This article therefore asks the following questions: what, exactly, constitutes the Superblocks concept? Are different implementation efforts shaped by different understandings of the concept? The article also discusses how differences may affect the ability of Superblocks to contribute to urban sustainability transformations.

The article aims to clarify the Superblocks concept and to test the theoretical framework against selected ongoing Superblocks implementations. It does that by presenting recent insights from the TuneOurBlock project, in particular the e-Delphi process with international experts, and observations from urban living labs in Vienna and Berlin.

Materials and methods

E-Delphi

The process of clarifying the meaning of the Superblocks concept employed the Delphi method, a widely used technique of exploring assumptions, consensus-building, theory-formulation or forecasting in a wide range of disciplines (Fink-Hafner et al. 2019; Hsu and Sandford 2007). This method is particularly appropriate when there is lack of knowledge about certain phenomena or to explore areas of controversy, debate or lack of clarity (Fink-Hafner et al. 2019). As the Superblocks concept is still evolving and globally adopted in various adaptations, the Delphi method was an obvious choice. We opted for the e-Delphi method, which computerizes the Delphi process to overcome spatial distance of a geographically diverse group, saving time and costs (Donohoe, Stellefson, and Tennant 2012). Our e-Delphi method consisted of three web surveys graphically presented in Figure 1. The first step was to establish the 'Delphi Core Group' in September 2021, consisting of six representatives from the TuneOurBlock consortium partners.

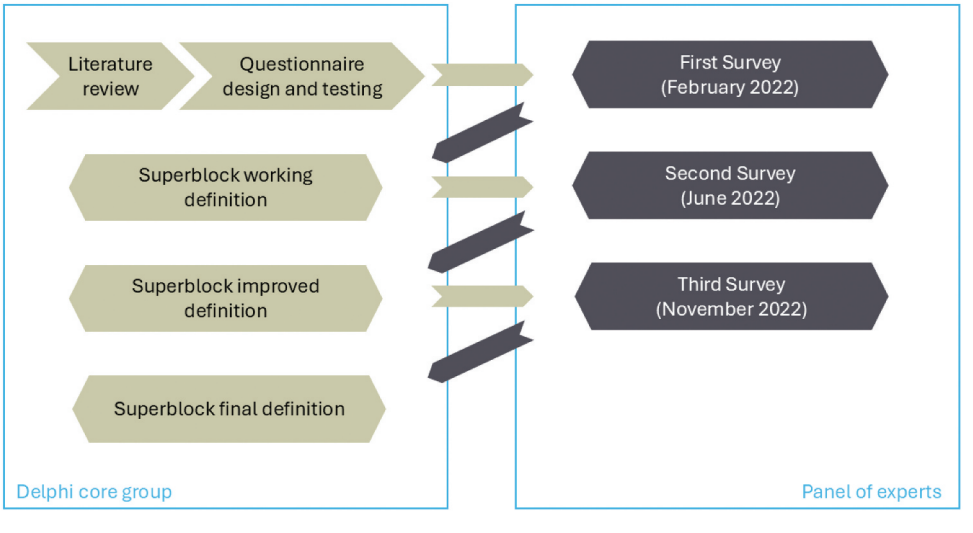

Figure 1. Methodological steps in the e-Delphi research.

International panel of experts

The first milestone in the Delphi procedure was forming a panel of experts. It consisted of acknowledged academics and practitioners in urban development based on networks of the consortium and reputation in the field of sustainable urban mobility and transformation. In line with the principles of the Delphi research, participants needed to fulfill certain requirements to be selected for the panel, namely to be recognized and validated as domain experts (Melnyk et al. 2009). In our case, they had to exhibit knowledge or experience with Superblocks (or similar concepts), urban transformation and urban sustainability. The formal criteria were the authorship of scientific articles on the topic, leadership of corresponding projects and initiatives and membership in relevant network groups. We also paid attention to the diversity of profiles and chose experts from different fields, such as urban planning, architecture, landscape architecture and geography covering a range of topics, such as mobility, urban planning, urban sustainability, urban transformation, social justice and participation. From a geographic point of view, we focused on Europe but also invited people from other continents (Africa, Americas, Asia). The TuneOurBlock 'Municipal Peer Group' with representatives from nine European cities was also invited to the panel.

The process of searching for panelists was completed in November 2021. In the first round of the survey, the panel consisted of 96 members invited to participate in the study. In the second round of the survey, the panel was expanded with 23 experts on the participation process, as one set of questions also related to this topic.

Questionnaire

The second milestone was designing the questionnaire in an iterative process. An initial literature review of concepts of urban transformation and their potential for urban sustainability enabled us to formulate key sets of questions. The questionnaire design process underwent testing of numerous iterations among the 'Delphi Core Group' members and was finally reviewed by all TuneOurBlock consortium members (N = 18) in December 2021. Based on their comments, the questionnaire was re-designed and finalized in February 2022.

The questionnaire consisted of informative data (gender, professional background, years of experience, familiarity with the concept) and 27 statements concerning Superblock core aims and key principles, urban morphology, traffic organization, and public space (see Appendix Table A1). Core aims and key principles was underpinned by the relationship between the Superblocks concept and urban sustainability transformations. The urban morphology category addressed perceptions of the scale of implementation, as well as the kinds of built environments it is suited for. Traffic organization was concerned with socio-technical transition away from the automobility regime and its integrality to the Superblocks concept. Finally, the public space category dealt with public space allocation within the Superblocks concept, including who or what is understood to be prioritized when street space is redesigned.

All these statements were asked to be answered on a 5-point Likert-type scale. Each section was followed by an open-ended question to comment on these elements or add new ones. During the questionnaire design, the key principles of the survey methodology were followed, especially concerning the quality of individual questions (De Leeuw, Hox, and Dillman 2012; Willis and Lessler 1999). The invitation letter was also carefully

designed, consisting of key information about the research and efforts to motivate the experts to participate. To increase the response rate all invitations were personalized; some were additionally individualized and sent from personal email addresses with a more informal invitation.

Web survey

The core part of the process was based on three web surveys, performed in 1KA open-source application. The invitation letter with the link to the first online questionnaire was sent out in February 2022 from the official project email address to the available email addresses of the experts. In March 2022, a reminder was also sent and by the end of March 2022, the survey was closed. Among 88 experts, who were successfully contacted, 55 participated in the survey, from whom 46 provided a full response and nine answered only selectively. The response rate in the first round was thus 62.5%.

The experts' responses resulted in a working Superblocks definition, which was offered to experts for validation in the second survey. The invitation letter with the link to another online questionnaire was sent out in June 2022 to experts already contacted in the first round (plus 23 additional experts on the participation process, who joined the panel in the second round). A reminder was also sent 10 days later. In August 2022, the survey was closed. Among 111 contacted experts, 42 participated in the survey, of whom 36 provided a full response on the definition (the response rate: 37.8%).

Despite reaching the acceptance of the Superblocks definition within the TuneOurBlock project consortium after receiving feedback from the experts, we verified the new version of the definition also among the panelists. Therefore, the third round of the survey was executed at the end of November 2022 with a reminder at the beginning of December 2022. Due to an internal communication issue, this time only 78 experts were contacted, and among them 17 experts responded, the majority being from academia (10). The response rate in the third round was 21.8%. After that, we did not see the possibility of making much progress with an additional round and decided to close the process.

Designing the definition

The responses (including ones on open-ended questions) were thoroughly analyzed. To assess which statements reached sufficient consensus, we used different measures: mean above 4.0, interquartile range of 1 or less, the coefficient of variation at or below 0.5, and more than 80% on 5-Point Likert scale in the top 2 measures (Von Der Gracht 2012).

These statements were later taken into account when designing the Superblocks working definition, which was offered for validation in the second survey. It was assessed through six criteria: clarity, coherence, comprehensiveness, length, usefulness, and advancing the field. An open-ended question was also offered to experts to add, remove or challenge the content of the definition. All the gathered opinions were carefully evaluated and discussed among the 'Core Delphi Team' members.

Following numerous discussions inside the 'Core Delphi Team', we firstly agreed that to be useful for project purposes and wider application in supporting paradigm shift and systemic change, any definition of the Superblocks concept must include:

- that the Superblocks concept consists of both large-scale traffic reorganization and smaller-scale neighborhood development,
- that Superblocks are intended to promote systemic sustainability transitions and
- that the four central foci of Superblocks are sustainable mobility, climate adaptation, improved urban living environments, and social equity.

Next, the definition should focus on 'what' (minimum criteria) and 'why' (purpose), because those are the universal aspects of the concept. We decided to not include implementation processes ('how' as well as 'who', 'where', and 'when') despite a high level of experts' agreement on certain elements as they can vary widely across different political, economic, and cultural contexts.

Next, although the elements' assessing procedure was mostly based on a normative level (e.g. what should be necessary ingredients of Superblock), the definition of the Superblocks concept should be descriptive. Again, we paid attention to the sufficient level of consensus in the first round of the survey but also considered the latest insights (recent literature and development of the concept, peer group discussions and other project activities). We also designed a shorter, 'one-sentence' version of the definition, which would potentially be more useful for communication purposes with planners, public administrators and politicians. Besides the panel of experts, the final definitions were also offered to the project consortium members for evaluation.

Case study analysis

To analyze how and to what extent the Superblocks concept is practically applied in comparison to the theoretical definition derived from the e-Delphi, we analyzed the implementation of the concept in Vienna and Berlin. Based on the public description of the planning concept and their application in both cities, we determined similarities and differences in the implementation of Superblocks.

For better comparability, we derived the following main categories from Superblock elements, assessed in the e-Delphi method:

Understanding of the Superblocks concept

The term 'Superblocks' is often used as an umbrella term containing a multitude of meanings. Most of these share a minimal definition that superblocks are multi-block neighborhoods without motorized through-traffic. However, conceptualizations beyond this may vary.

Scale

The term Superblocks implies a mosaic of individual traffic-calmed cells; however, the implementation of the concept may not (yet) be comprehensive. Under this category, we therefore assessed how widely it was implemented. Some cities might merely aim to realize one or more isolated superblocks without any claim to citywide application of the concept.

Scope

Under this category, the depth and breadth of the proposed changes were analyzed. The Superblocks concept is usually understood as a multiple leverage point intervention. Minimally, it should consist of traffic calming measures, while the type and extent of additional measures may vary. These might include re-purposing of parking spaces, more green infrastructure and additional urban furniture, among other possibilities. The scope aspect looks at the extent of these additional measures to redefine and redesign public space within superblock.

Speed

Another key aspect is the implementation timeline. Interdependence with scope should be noted here. The implementation of superblocks that solely focus on traffic calming (less scope) is usually faster (and less financially costly) than a more comprehensive approach that takes into account aspects such as climate mitigation and climate adaptation, redesigning of public space, and more.

Clarifying the Superblocks concept

Level of consensus across Superblock elements

In the set of questions in the e-Delphi, related to **core aims and key principles**, all statements reached a high level of agreement. Among the statements, the ones related to reclaiming public space (for non-traffic use) and seeking to reduce the number of motor vehicles while pushing forward active mobility and public transportation achieved an especially high level of agreement. The experts also thought that the elements such as systemic transformation, sustainability, participatory design, promoting climate change adaptation measures and twofold organization (whole/parts) are essential to the concept. They were much more inclined to view Superblocks as living laboratories instead of finished products.

In the set of questions related to urban morphology, the experts' views were more mixed. Only two questions reached the threshold for consensus (Von Der Gracht 2012) (see also Designing the definition): (1) that the Superblocks concept can also be applied outside of areas with an orthogonal street grid, and (2) that the size of superblocks should find the balance between having enough interior streets to form a neighborhood and remaining comfortably walkable. Certain discrepancies between opinions was found regarding density with a mix of functions and marking the edge of a superblock cell by a visual border. Experts' views also slightly differed as to whether a superblock is merely one spatial unit among many within a restructured traffic grid. Even lower was the agreement about the (walkable) length of the edges of superblock cells, while the question on the overall scale of a Superblock model reached one of the lowest scores among all the statements in the survey.

From the perspective of traffic organization, the level of agreement was generally higher. Four statements received an average score of 4.0 or more and three among them reached the necessary consensus threshold across all measures. Almost all experts agreed that walking and cycling should be prioritized and allowed without restrictions. Most of them also agreed that speed limits should be reduced to be compatible with (prioritized) pedestrian traffic. The experts also agreed that on-street parking should be

reduced to a minimum. Opinions about the restrictions of motor vehicles to pass through the superblock were more mixed, but a majority still agreed with it. There was more disagreement as to whether through-traffic routes should define the edges of superblocks and that public transport lines should only run at the edges and not within the cell. In general, the experts were not in favor of the idea that all points within a superblock should remain fully accessible to motor vehicles.

Among the statements concerning public space, maximizing blue and green infrastructure across all Superblock areas and providing public space for a wide range of users received high approval. Slightly fewer, but still a large majority of the experts agreed that superblocks should also provide social infrastructure and a network of diverse micro-spaces. Views differed on whether Superblock interventions should also include private spaces. The idea that superblocks should require a central public space was one of the less accepted among all the statements in the survey.

A complete set of statements with average scores and other consensus measures is shown in the Appendix.

Superblocks definition

Based on the first survey responses, a working definition of Superblocks was designed and offered for evaluation in the second round. The working definition did not reach the desired level of agreement: besides criticizing the length, many experts thought the definition was too academic, too detailed, and too prescriptive. Some of them offered first-hand solutions on which parts should be cut or how the definition should be structured to be more focused, useful, and clear. Some of them also suggested including additional aspects or advised us to avoid certain terms or expressions. We realized that the definition should also not be longer than 100 words and should be understood by a wider audience, not only experts and academics. This resulted in an adapted definition:

> The Superblocks concept leverages traffic reorganization and the reallocation of public space to support urban sustainability transitions. By systematically reducing the number of motor vehicle through-routes, the Superblocks concept transforms the city into a mosaic of traffic-calmed neighborhoods. Traffic reorganization is applied at scales large enough to promote systemic change, such as that of urban districts or even entire cities. Individual neighborhoods – superblocks – prevent motor-vehicle through-traffic, are walkable in scale, and redesign reclaimed public space to prioritize active mobility, climate adaptation, the improvement of local environmental conditions, and opportunities for diverse and inclusive public social life.

A shorter version of the definition, more appropriate for communication activities, was also designed (although not offered for evaluation):

> 'The Superblocks concept enables urban sustainability transitions by strategically reducing motor vehicle through-routes – converting the city into a mosaic of human-scale neighborhoods without motor vehicle through-traffic – and redesigning public space within neighborhoods to prioritize active mobility, climate adaptation, local environmental quality, and inclusive public social life.'

The new definition was ranked higher across all aspects – it was described as clearer (first round: 3.6/second round: 4.0), more coherent (3.9/4.3), more comprehensive (3.8/4.2), more useful (3.8/4.1) and less problematic in terms of length (4.2/3.2).

Superblocks concept in practice

Superblocks in Vienna, Austria

The Superblocks concept began to be discussed amongst Vienna's urban planning and urban mobility peers soon after its inception in Barcelona. Since 2015, first projects at the level of Bachelor thesis or speculative urban planning/visioning projects have explored the possibilities of the Superblocks concept for the Viennese context, but without involvement from the city administration and (local) politics. In 2018, the exploratory research and development project *SUPERBE* investigated the potential of applying the Superblocks concept in Austrian cities using Vienna as a case study. If focused on the question of potential energy and greenhouse gas savings due to changing mobility patterns by applying the Superblocks concept at a large scale (Frey, Leth, and Sandholzer 2020).

With increasing public awareness, the Superblocks concept was soon embedded in strategic documents of the City of Vienna. Eventually in 2020, the new social-liberal Viennese coalition included the Superblocks concept in their coalition agreement. The concept was also mentioned in the Viennese Smart Climate City Strategy (Vienna Municipal Administration 2022a) and in the Vienna Climate Roadmap (Vienna Municipal Administration 2022b), both published in 2022. In 2021, Vienna's first superblock pilot project was begun in Favoriten, Vienna's 10th district, under the term 'Supergrätzl'. The term is an adaption of 'Superilla' or superblock with 'Grätzl', a Viennese vernacular for a localized neighborhood with a special socio-spatial connotation.

Understanding of the Superblocks concept

In 2022, the City of Vienna's department of Urban Development and Planning (MA 18) published a brochure describing the Supergrätzl concept. The document states that the Supergrätzl is '*Vienna's answer to the climate crisis for densely populated neighborhoods [Bestandsstadt]*' (City of Vienna, Urban Development and Planning 2022). The concept would offer a '*reorientation of the use and design of public street spaces in the context of climate change*' by combining measures in mobility and transport, climate adaptation and climate protection, public space and quality of stay, participation and involvement, and neighborhood development as well as health and wellbeing. Accordingly, the transformation of a neighborhood would be '*noticeable for everyone*' by making it '*greener, cooler and traffic-calmed*'. According to the brochure, the concept aims to maintain a high quality of life in densely populated neighborhoods for everyone, even in times of climate crisis (City of Vienna, Urban Development and Planning 2022).

The targeted reorganization of traffic and optimization of street space should create new public space to be used for '*greening and cooling, for recreation and relaxation, for leisure activities and for more togetherness in the neighborhood*' (City of Vienna, Urban Development and Planning 2022). Accordingly, local residents should benefit the most. Traffic safety should be improved by the Supergrätzl – especially for infants and school children but also for pedestrians, cyclists and the elderly.

Comparing the City's understanding of a Supergrätzl to the e-Delphi definition of Superblocks, we can see that there is a much stronger focus on the block level in Vienna. The local interpretation of the concept aims at transforming individual neighborhoods instead of a systemic city-wide approach for urban transformation deploying the concept at scale.

Scale

Supergrätzl Favoriten was designed as a pilot project to test the Superblocks concept in the Viennese context and to act as a learning environment for the implementation of potential further superblocks. The pilot project has brought more attention to the concept. Since then, several districts have stated a political will to examine the application of the concept.

While Vienna's Superblock pilot project is top-down driven by the municipal administration, a growing number of bottom-up initiatives are demanding superblocks for specific neighborhoods. One civic stakeholder group, the cycling lobbying group (Radlobby) of Vienna, collectively created an open-source, e.g. a 'Supergrätzl Basemap' to show initiatives for superblocks and already implemented superblock-like traffic calming areas in Vienna (see Figure 2). In this context the TuneOurBlock living lab Vienna engaged one such citizen initiative in Vienna's 'Lichtental' neighborhood (district Alsergrund) to develop and test various activation and involvement strategies specific to Superblock projects. The work underlined the importance of a mediating agency that can facilitate between civic (bottom-up) demand and municipal (top-down) strategic planning to fully materialize the transformative capacity of the Superblocks concept.

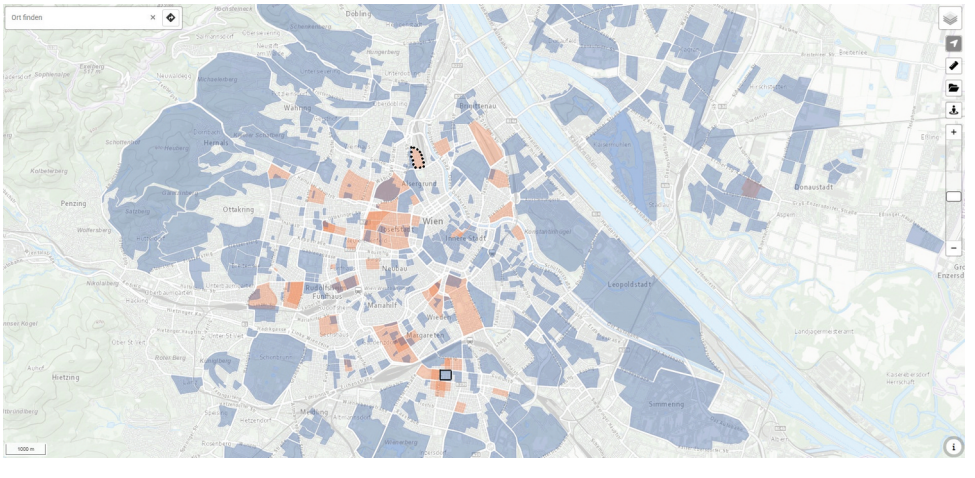

Figure 2. Supergrätzl Basemap Vienna: superblock-like initiatives in orange, superblock-like structures in blue, Favoriten Supergrätzl in black square, civic initiative for Supergrätzl Lichtental in dotted black line (source: https://radlobby.at/superblock-grundkarte as of November 19, 2024).

As of autumn 2024, Supergrätzl Favoriten was the first and only Viennese superblock in implementation. No further superblock is currently being planned on the grounds

that the Favoriten pilot project should first be completed and evaluated before any others are planned. Based on the first results of the pilot project, Vienna's mayor recently referred to the Supergrätzl as a model for successful urban development strategies to counter the climate crisis in Vienna.

It remains to be seen what dynamics will emerge once the pilot project is completed and evaluated. In any case, the political will shown by some districts to implement superblocks and the fact that several bottom-up initiatives have put the topic of superblocks on their agenda shows some potential of a future larger-scale roll-out of the Superblocks concept in Vienna.

Scope

The scope of the Supergrätzl concept is rather broad: Supergrätzl Favoriten shows that the concept is not solely applied for preventing through-traffic and hence improving traffic safety. The concept is primarily intended to support climate adaptation measures such as greening and cooling and improving quality of stay.

Structural measures are taken to achieve these objectives. More than 65 new trees are to be planted and 17 micro open spaces and several other green areas will be created. In addition, there will be water features, fogging systems, and seating areas. Three street sections in the center of the Supergrätzl will be transformed into pedestrian zones while an already existing one will be redesigned. Instead of conventional bollards, massive concrete dustbins that were obsolete have been upcycled as traffic guiding elements at the diagonal filters and planted with hardy grasses. The implementation followed a consistent design language with recognizable features such as color schemes, specific shapes and materials gained at establishing a local identity.

Speed

There are two phases in the implementation of the Supergrätzl Favoriten: a pilot phase and a phase of structural implementation.

The project's pilot phase started in summer 2022 with a large part of the new traffic reorganization implemented through the construction of the diagonal filters. Additionally, temporary interventions were made using tactical urbanism measures like colorful road markings and temporary open space elements. Comprehensive structural implementation will be completed by autumn 2025.

Hence, due to the many structural measures taken, the entire planning and implementation of Supergrätzl Favoriten will take approximately four years. However, the positive aspects of the traffic calming and tactical measures were already evident during the pilot phase within a year of the project's initiation.

Superblocks in Berlin, Germany

In Berlin, Superblocks are called Kiezblocks – a neologism created by the civil society initiative Changing Cities aimed at combining the term Superblocks with Kiez, a colloquial term used to describe city neighborhoods in Berlin. Hence, in Berlin it was not the city administration but a bottom-up movement that coined the term in 2020 and brought Kiezblocks onto the city's agenda. Over the next four years initiatives were started in nearly every district in Berlin, leading to multiple districts deciding to

make implementing Kiezblocks a priority. However, the concept is less popular away from the city center and there remains some ambiguity as to what constitutes a Kiezblock. While Kiezblocks have been politically decided upon in response to bottom-up demands in 29 cases as of July 2024, most of these have not yet been (fully) implemented (Changing Cities e.V. 2024). The campaign for Kiezblocks was also initiated by the local governing coalition (Social Democrats, Greens, and Left, in office 2021–2023) as a means to advance the implementation of Berlin's new mobility law adopted in 2018.

Understanding of the Superblocks concept

In Berlin's coalition agreement from 2021, Kiezblocks are mentioned as a measure for traffic calming and to increase traffic safety. In their campaign to promote Kiezblocks through neighborhood initiatives, Changing Cities defined Kiezblocks as '*city neighborhoods without motorized through-traffic*' (Changing Cities e.V. 2023). Many initiatives expanded on this definition by including normative aspects of spatial re-distribution, increasing quality of stay, and climate mitigation and adaption. In October 2023 recommendations for Superblock standards were published, wherein the definition became significantly more ambitious: '*Superblocks are urban living quarters with quality of life, good climate resilience, safe pedestrian, bike and public transport infrastructure, and without motorized through-traffic*' (Changing Cities e.V. 2023). In 2023 Berlin's Senate Department for Urban Mobility, Transport, Climate Action and the Environment published guidelines for the districts on how to implement Kiezblocks. It defined seven main goals for Kiezblocks: calming traffic in the neighborhood, improving conditions for pedestrians and cyclists, improving climate resilience, improving quality of life and stay, improving health conditions, reducing CO_2 emissions, and creating spaces to improve neighborhood structures and social cohesion (SenStadtUMVK 2023). This guideline is no longer publicly available, but it served as a guiding principle and is in line with many implementation attempts across the city. Contrary to the e-Delphi definition of Superblocks definitions for Kiezblocks in Berlin focus more on the individual neighborhood and enhanced traffic safety and less on transforming the city's overall grid. Since the Kiezblocks movement was driven by local initiatives a local perspective on the concept is obvious. Further, since district administrations are responsible for implementing Kiezblock measures, they focus mostly on their own districts and not on the overall city, which would exceed their purview. This leads to Kiezblocks being an ever evolving concept, adapted to local contexts and according to district policies.

Scale

As of November 2024, 72 Kiezblock initiatives have been enacted and 36 Kiezblocks have been approved in district parliaments (see Figure 3). How many have or are being implemented is difficult to say, as this depends on the understanding of what constitutes a Kiezblock – and this sometimes varies. Across six districts, a total of ten Kiezblocks or Kiezblock-like measures have been or are being implemented. The scale of implementation varies depending on the district, but especially in the inner-city areas the scale is increasing: the district administration of Berlin Mitte is currently planning the implementation of two new Kiezblocks (Bezirksamt Mitte von Berlin 2024) and envisions implementing 12 Kiezblocks in total. Friedrichshain-Kreuzberg has laid out

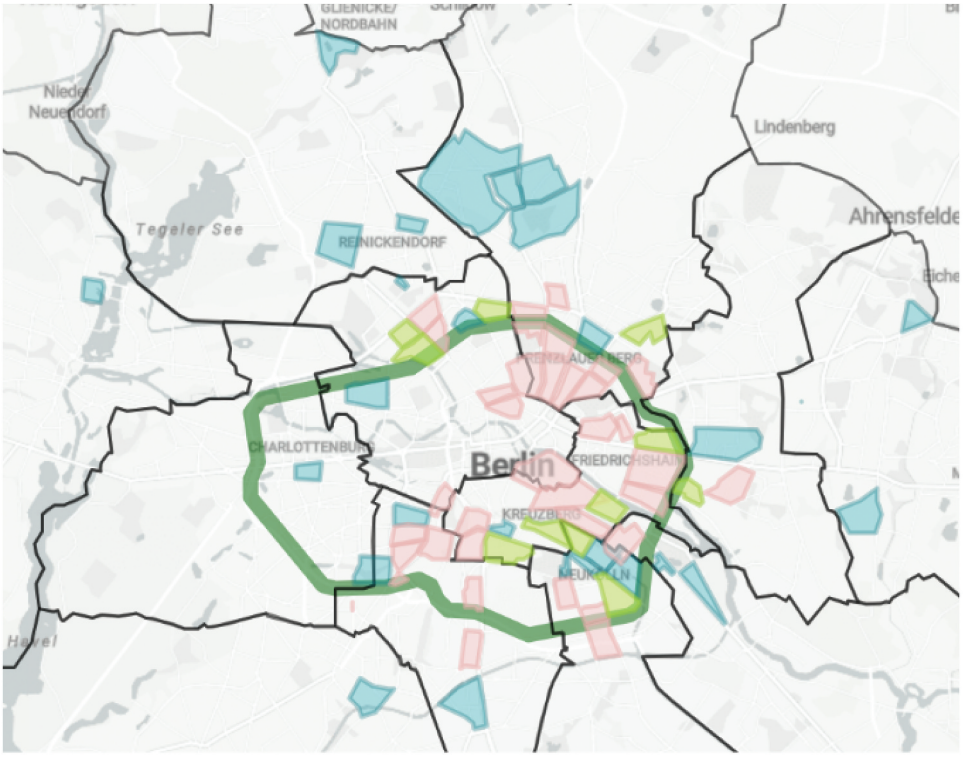

Figure 3. Map of Kiezblocks in Berlin: Kiezblocks initiatives in blue, Kiezblocks that have been decided upon in district parliaments in red (Source: https://umap.openstreetmap.fr/en/map/kiezblocks-berlin_496800# as of November 19, 2024).

a long-term plan for district-wide traffic calming in response to local Kiezblock initiatives (Bezirksamt Friedrichshain-Kreuzberg 2024) in addition to several partially implemented Kiezblocks. The district of Pankow has so far implemented one Kiezblock and has planned one more, without a specific timeline. Lichtenberg has also implemented one Kiezblock and Neukölln two, with two more planned – these, however, are not called Kiezblocks but 'traffic concepts'.

Scope

In Berlin, implementation of Kiezblocks is the responsibility of the district administrations. Although the responsible Senate department briefly published guidelines for Kiezblocks, district administrations are responsible for residential roads within Kiezblocks. While Berlin counts thirteen administrative districts, Kiezblocks are not discussed in all of them, and in some, they are addressed more intensely than others. In most cases Kiezblocks are framed as a traffic safety issue and a tool to increase quality of stay through traffic calming, and hence are limited in scope. In some cases, implementation strategies have a broader scope that includes space-redistribution and re-design of public spaces, but most districts focus on one-way streets and modal filters as first measures. In the district of Mitte these measures are called 'Kiezblock light', with the implication that further measures will follow at a later stage.

An example for these 'light Kiezblocks' is the Komponistenviertel Kiezblock in Pankow, where a series of one-way streets were implemented to reduce through traffic. While measures to revitalize public space are planned, they are not specified. Similarly, Reuterkiez Kiezblock in Neukölln was implemented as a traffic calming concept with a set of modal filters and one-way streets to reduce through-traffic. The goal to increase quality of stay is mentioned but not further defined. In Bellermannkiez in Berlin Mitte a former 'Kiezblock light' now includes measures for increased quality of stay after modal filters helped convert a former crossing into a new 'town square'. This town square includes raised beds, seating areas and a pizza oven whose use is organized by the neighborhood. These additions were made possible in the involvement of multiple stakeholders willing to contribute and take responsibility for the care of the space. Friedrichshain-Kreuzberg's Graefekiez is an example of a neighborhood with Kiezblock-like measures. Officially traffic-calmed since the 1980s and equipped with a modal filter, the neighborhood served as an urban living lab to improve the quality of stay. For example, paved areas on former parking spaces were unsealed and turned into seating areas or garden projects. Neighborhood groups were formed to maintain the garden spaces.

Hence, the scope of Kiezblocks in Berlin varies immensely, even within individual districts. While the goals of increased quality of stay and contributing to urban climate cooling in the neighborhoods are stated, few measures beyond traffic calming have been implemented. This is due to limited resources within the district administrations, which require cooperation from other administrative and civic partners as well as the neighborhood to realize more far-reaching measures. Further, as Kiezblocks and traffic calming in general are heatedly debated in Berlin, reducing parking spaces is therefore often not discussed as a priority measure. The scope of Kiezblocks not only depends on local administrations but also on the needs and willingness of residents.

Going back to the definition of Superblocks derived from the e-Delphi survey, the aim of 'reducing motor vehicle through-routes' is always tackled, however this is not done at a strategic city-wide level, and public spaces are redesigned only in some specific examples.

Speed

The speed of implementation varies greatly between the districts and is not only affected by personal and financial resources within the administration but also by the district's political leadership. The Kiezblock campaign and Berlin's mobility law did speed up the mobility transition by setting the agenda and advancing the discourse publicly and politically, fostering the implementation of school zones, new bike lanes, and other traffic calming measures. However, changes in political leadership and a polarized public discourse have hindered faster and further implementation of measures, as was evident after the 2023 re-elections and the change in political leadership in the Senate Department for Mobility.

Discussion

Understanding of the Superblocks concept

At first glance, Vienna and Berlin's situation in the field suggests that understandings of the Superblocks concept may not be far away from the 'theoretical ideal' of the e-Delphi definition. In both case studies, the Superblocks concept is understood as a tool for

traffic reorganization and reallocation of public space. In Vienna, where the process can be described as largely 'top-down' driven by political actors and the municipality, initiation of the project is associated with a transformation that goes beyond purely mobility: climate adaptation, improvement of local environmental conditions, and opportunities for diverse and inclusive public social life all seem essential. In Berlin, the situation is more 'bottom-up' driven by civil society bringing the concept onto the agenda. The concept is always adapted to the local context and therefore has been evolving. While the definition of Changing Cities and the Kiezblock initiatives involves more far-reaching conceptualizations of Kiezblocks, these have not been implemented in practice. Since Kiezblocks in Berlin are planned and implemented by district administrations and not on a city-wide level, their aims and ambitions vary depending on their locality. Interestingly, not every district employs the term 'Kiezblock' or 'Superblock' for their planned measures. This might be due to the discourse around the issue having become increasingly polarized, media discourse dwelling on the use of bollards and the phrase 'blocks'.

Scale

The analysis of the field situation regarding scale shows a high discrepancy with the experts' opinions. The ambition that the Superblocks concept transforms the city into a mosaic of traffic-calmed neighborhoods and that traffic reorganization is applied at scales large enough to promote systemic change, is not found in either Berlin or Vienna on a city-wide level.

Even if some aspects of a larger scale transformation take place in Vienna, e.g. the reduction of lanes of several motor vehicle through-routes, these measures are neither associated with, nor embedded in a city-wide Superblocks concept. The term Supergrätzl purely refers to the neighborhood level. In this context, also the definition of the 'Supergrätzl' is much more of a framework for transforming individual neighborhoods into superblocks than a systemic, city-wide strategy.

The political will to implement further superblocks is postulated, but only after Supergrätzl Favoriten is completed and impacts are evaluated.

In Berlin, the scale is broader while the scope is more limited. The situation in Berlin is also more complex as there have been many ongoing superblock projects across the city with different implementation statuses. At the district level we can see more strategic and scaled attempts, e.g. through district-wide traffic calming in Friedrichshain-Kreuzberg, or in the plan of Mitte to implement 12 Kiezblocks within five years. However, the current city administration in the Senate does not intend to implement Kiezblocks as a strategic measure throughout the city.

Further, the cities have different urban governance systems which makes cases hard to compare: in Berlin, the districts have their own planning departments, while in Vienna, the planning departments are on the city level as part of the city administration. Despite governance differences, we can conclude that in both cases, the Superblocks concept is not (yet) understood as a systemic, city-wide tool. Rather, it is viewed as one tool amongst many, to be applied acupuncturally where it is most desired, feasible, and impactful.

Scope

The theoretical Superblocks definition did not specify concrete measures to implement for creating Superblocks. However, the expert survey showed a high level of agreement on certain measures, especially providing public space, green and blue infrastructure, or allowing walking and cycling in the right-of-way and in all directions. In Vienna's superblock pilot, the ambition of providing public space infrastructure, maximizing green and blue infrastructure, and prioritizing active mobility modes can be recognized through multiple tactical urbanism and structural measures, which is a promising approach, especially in case of quick transition from temporary tactical to permanent measures (Scudellari, Staricco, and Vitale Brovarone 2020). In Berlin, the situation depends on individual cases, with most districts being in the stage of establishing one-way streets and modal filters and further measures expected to follow. Focusing on traffic calming measures to reduce motorized through-traffic and increase traffic safety seems to be the common denominator regarding Kiezblock understandings in Berlin. Other perspectives, such as climate mitigation or public space redistribution, have been included in some cases but demonstrate the fluidity of the concept more than agreement on core criteria. This could allow for developing more far-reaching measures for Kiezblocks in potential future processes, but also creates a fuzziness around the concept leading to misunderstandings about what it entails. Another reason for focusing on traffic calming measures is the fact that Kiezblocks in Berlin are usually governed by the district administrations for roads and green space and not by the departments for urban planning, which makes implementing measures other than those targeting traffic more challenging. Greater cross-department collaboration could be helpful to implement Kiezblocks of broader scope. In Vienna on the other hand several departments from both the strategic and the operational municipal levels collaborated during the implementation process of the Supergrätzl pilot project.

Speed

Given the urgency of achieving urban sustainability in the context of the climate crisis (Bulkeley 2013), the pace of implementing measures in both Vienna and Berlin is slow. In Favoriten, the entire planning and implementation of the first (pilot) superblock will comprise four years. In Berlin, the speed of implementation varies greatly between the districts (2–4 years) and was recently halted at the city level by changes in political leadership. The experience in Barcelona is similar (Benavides, Usmani, and Kioumourtzoglou 2022; Nieuwenhuijsen et al. 2024).

This points to a lack of coherence in implementing Superblocks at the macro (city) and micro (neighborhood) level; as long as the main road network is not reorganized, the systemic impact of superblocks in individual neighborhoods is limited (Scudellari, Staricco, and Vitale Brovarone 2020). On the other hand, in both Vienna and Berlin, first implementations brought more public attention to the concept and hence contributed to questioning the auto-centric regime. In both cities, pressure from bottom-up initiatives demanding further superblock-like measures has increased. In Berlin, Kiezblocks have fostered the implementation of many other traffic calming measures. Even if the pace of change in Berlin and

Vienna is slow, Kiezblocks and Supergrätzl have paved the way for further superblock initiatives and projects in cities across Germany and Austria, led by both administrative and civic actors. In this way the two capital cities act as change agents and experimentation labs for their municipal counterparts nationwide.

The comparison between the evolution of the original Superblocks model, experts' opinions in the e-Delphi, and both case studies of Vienna and Berlin show multiple understandings of what the Superblocks concept is and what it should achieve. On the one hand, the e-Delphi process showed that experts widely perceive Superblocks as a replacement regime for automobility and a high-leverage tool for systemic change toward urban sustainability and greater livability. The public discourse on Superblocks often refers to this potential. On the other hand, the situation in the field is much less promising, more nuanced, and highly dependent on political and financial constraints. The attributes that could enable systemic urban transitions are not always present in working definitions and implementations of superblocks. Examples in Vienna and Berlin demonstrate that each city has its own understanding of the Superblocks concept by translating it to its local context and needs, which deviates from the 'ideal' notion of what Superblocks should contain and achieve. Considering the slow pace of superblock implementation, it is evident that it heavily depends not just on the purpose but also on the given financial and time resources [How much money is available? How quickly can results be observed?] and therefore on political agendas and the will of local political constellations. Political backlash and hindering of Superblocks implementation also proves that urban transformation is at least as much a matter of competitive urbanism and short-term political gains as it is about quality-of-life benefits and long-term planning (Zografos et al. 2020).

As the examples of Berlin and Vienna show, Superblocks are often only associated with the implementation of measures on the neighborhood level to prevent through-traffic and other measures to promote active mobility and climate change adaptation. This fact means that the systemic dimension of the Superblocks concept, which is an elementary component of the definition, is often neglected in practice.

The current conceptual ambiguity of the Superblocks concept is problematic. As with other concepts, it can lead to misinterpretations, confusion in policymaking, and last but not least, the reduction of its potential for systemic change. Even though a certain flexibility of the ideal theoretical concept is necessary to implement it (Scudellari, Staricco, and Vitale Brovarone 2020), understandings of Superblocks should be clarified to improve alignment between intended change and design of implementation.

In their current form, Kiezblocks and Supergrätzls (and many other similar attempts across the globe) should rather be described as 'neighborhood-based Superblock projects' since they only partially correspond with the theoretical potential of the Superblocks concept and do not show (yet) the ambition to be implemented city-wide. Their further labeling with Superblocks can increase the fuzziness of the concept and hinder its potential to become a high-leverage tool for urban transformations toward sustainability and greater livability. At the same time, the Superblocks concept should be complemented with other approaches such as the 15-minute city to undermine the technocratic automobility regime and achieve systemic transition (Benavides, Usmani, and Kioumourtzoglou 2022).

Conclusion

This article examined what constitutes the Superblocks concept and how the various implementation efforts are characterized by different understandings of the concept. In addition, it discussed how these potential differences might affect the ability of Superblocks to contribute to urban sustainability transformations.

By running the e-Delphi process with international experts, we tried to clarify the Superblocks concept by testing assumptions over core aims and principles, impact of urban morphology, role of traffic organization, and changes to public space. There seems to be a consensus as to what Superblocks should achieve and yet mixed opinions regarding size, scale and certain aspects of traffic organization, such as full accessibility for motor vehicles and organization of public transport. This resulted in designing a definition of the Superblocks concept, which is helpful to clarify the concept and see how the concept is perceived by international experts after being present in international planning discourse for almost a decade. The definition for systemic change are present and to provide consistency in communication.

In theory, the Superblocks concept has retained transformational capacity compared to the original model, developed in Barcelona. But in practice, at least in Vienna and Berlin, the concept has been adapted to financial, governance, and political constraints, and is still evolving or being implemented very slowly and mostly only on a local scale. As such, it loses much of its radical ambition and transformational capacity. It seems that urban transformational projects can be based on the Superblocks concept and retain many superficial similarities without sharing the original concept's (and experts') view of comprehensive, city-wide urban transformation towards sustainability. However, a shared understanding of the Superblocks concept and adherence to the theoretical definition can provide useful starting points for implementing successful urban transformation projects that also aim to achieve systemic change. In the future, the scale, scope and speed of urban projects should be assessed in terms of transformational capacity if they want to be called 'Superblocks' and are intended to act as change agents.

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Appendix

Table A1. Statements in the survey with means and measures of consensus (if reached, marked with bold).

Category	Statement	Mean	Interquartile range	Coefficient of variation	Top 2 measures
Core Aims and Key Principles	Any Superblocks model must include two related parts: a district-level traffic reorganization scheme and the designation of numerous contiguous traffic-calmed areas (Superblock cells) within the reorganized district.	**4.28**	**1**	**16.4%**	**90.0%**
Core Aims and Key Principles	The Superblocks concept aims for the systemic transformation of urban environments – not merely for incremental change – according to principles of social and environmental sustainability.	**4.28**	**1**	**17.7%**	**90.0%**
Core Aims and Key Principles	A defining characteristic of any Superblocks model is an increase in the quantity, quality, and diversity of public spaces; this is achieved through reclaiming street space from motor vehicles.	**4.67**	**1**	**10.1%**	**100.0%**
Core Aims and Key Principles	The Superblocks concept fundamentally seeks to reduce the role of motor vehicles in cities while elevating the importance of active mobility (i.e. walking and cycling) and public transportation.	**4.48**	**1**	**15.8%**	**92.0%**
Core Aims and Key Principles	Superblocks models should support the widescale implementation of climate change adaptation measures.	**4.22**	**1**	**15.4%**	**88.0%**
Core Aims and Key Principles	Plans and designs for the transformation of public space within Superblocks should be highly participatory; residents, shopkeepers, and other stakeholders are to be viewed as partners by city officials and technical experts.	**4.22**	**1**	**20.5%**	80.0%
Core Aims and Key Principles	Each individual Superblock should be seen as a living laboratory instead of a finished product; it is a functional urban unit for investigating, planning, measuring, and managing urban transformation processes.	**4.08**	**1**	**19.7%**	80.0%
Urban Morphology	Superblock cells should not exist on their own. Each Superblock cell is merely one spatial unit among many within a restructured traffic grid.	3.74	**1**	**25.2%**	68.0%
Urban Morphology	The overall scale of a Superblocks model should be between that of a city district and that of an entire city.	3.15	**1**	**27.3%**	36.2%
Urban Morphology	Superblocks should be large enough to contain multiple interior streets and not so large that they exceed the scale of comfortable walkability.	**4.04**	**1**	**19.3%**	**85.1%**
Urban Morphology	The length of the edges of individual Superblock cells should be determined primarily by the amount of time required for a typical pedestrian to walk them (approx. 5 minutes or 300 to 500 meters).	3.59	**1**	**26.7%**	60.9%
Urban Morphology	The Superblocks concept can be applied to a wide range of urban built environments, not only those with an orthogonal street grid.	**4.13**	**1**	**18.6%**	**80.8%**

(*Continued*)

Table A1. (Continued).

Category	Statement	Mean	Interquartile range	Coefficient of variation	Top 2 measures
Urban Morphology	Superblock cells perform best when they feature medium to high levels of population density and a mix of functions (not only residential).	3.91	**1**	**22.7%**	73.9%
Urban Morphology	The edge of a Superblock cell should be defined by some kind of visual border (street marking, pavement changes, etc.) that makes it clear that one is leaving or entering the Superblock.	3.70	2	**28.1%**	59.5%
Traffic Organization	The edges of Superblock cells should be primarily defined by streets that facilitate through traffic.	3.48	**1**	**24.0%**	52.20%
Traffic Organization	The interior streets of Superblock cells should not allow motor vehicles to pass through.	**4.02**	**1**	**23.7%**	78.3%
Traffic Organization	Within a Superblock cell, walking and cycling should be allowed in the right-of-way and in all directions.	**4.54**	**1**	**13.7%**	**93.5%**
Traffic Organization	Within a Superblock cell, speed limits for all modes should be reduced so as to be compatible with pedestrian traffic; by default, pedestrians have priority.	**4.26**	**1**	**24.0%**	**87.0%**
Traffic Organization	Public transport lines should run at the edges and not within the Superblock cell.	3.39	**1**	**33.2%**	50.0%
Traffic Organization	While the interior streets of a Superblock cell do not allow through traffic, all points within a Superblock should remain fully accessible to motor vehicles.	3.09	2	**36.7%**	43.5%
Traffic Organization	On-street parking for private motor vehicles, even those owned by residents, should be reduced to a minimum within Superblock cells; it becomes the exception rather than the norm.	**4.22**	**1**	**21.7%**	80.4%
Public Space	Interventions within Superblock cells should primarily entail the transformation of public space (streets, sidewalks, on-street parking spaces) and not that of buildings, facades, or private courtyards.	3.74	**1**	**24.2%**	71.7%
Public Space	Superblock cells should require a central public space (park, plaza, etc.).	3.2	2	**27.7%**	36.9%
Public Space	In keeping with the transformation of linear street space, Superblock cells should be characterized by a network of diverse micro-spaces such as parklets, gardens, and playgrounds.	**4.02**	**1**	**19.3%**	**80.4%**
Public Space	Superblock cells should provide freely accessible public space infrastructure (seating, playgrounds, sport facilities, etc.) for a wide range of user groups (children, adolescents, elderly, etc.).	**4.52**	**1**	**13.0%**	**95.7%**
Public Space	Superblocks models should seek to maximize blue and green infrastructure (nature-based solutions) as climate change adaptation measures, both along the edges of Superblock cells and inside them.	**4.52**	**1**	**13.8%**	**93.5%**
Public Space	Superblock cells should provide publicly accessible "social infrastructure" beyond street furniture such as community centers or shared service facilities (for laundry, repair, meeting, etc.).	3.98	**0**	**20.2%**	**82.6%**