EXTRA experimenting with city streets to transform urban mobility

D1.2 Experiment assessment reports

URBAN EUROPE

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Executive summary

This deliverable presents a study that examines citizens' perceptions and values regarding street experiments (SE) in three European cities: London, Munich, and Bologna. The aim of the research is to understand how citizens value different dimensions of SE and to provide insights for the design of effective and inclusive street interventions.

To achieve this objective, the study employs a primarily inductive and qualitative survey method. A total of 458 citizens participated in the survey, offering their perspectives on five SE parklets and plazas located in the selected neighbourhoods. The survey methodology allows for open-ended responses, enabling citizens to express their thoughts and evaluations of the SE interventions in their everyday street life.

The analysis of the survey data leads to the development of a comprehensive framework comprising 10 categories that cover various dimensions, including functional, social, safety, environmental, and economic aspects. This framework enables a thorough examination of the values citizens associate with SE, capturing both the practical benefits and the broader social implications of street transformations.

The findings of the study reveal that most citizens across the three cities place higher value on the public life dimensions of SE compared to its benefits for active mobility. This includes appreciating the improved attractiveness of the streetscape, the provision of spaces for stationary activities, and the opportunities for social and civic interaction within their neighbourhoods.

The research not only provides valuable insights into citizens' qualitative evaluations of SE but also offers practical recommendations for practitioners involved in SE interventions. By understanding and incorporating citizens' values and preferences, practitioners can design SE initiatives that are more effective, inclusive, and aligned with the needs and aspirations of the community.

Overall, this study contributes to the existing literature by exploring citizens' perspectives on SE from the standpoint of everyday street life. It sheds light on the importance of considering the social meanings and impacts of street transformations and offers a valuable methodological approach for analysing citizens' qualitative evaluations of SE interventions.

Introduction

In European urban planning since the 1960s, reallocating street space from car use and motorized traffic to active mobility and public life has become a well-established practice. However, what has truly changed is the increased experimentation and implementation of such changes through pilot interventions. Over the past twenty years, thousands of experiments using temporary materials and tactical urbanism approaches have been conducted to redesign city streets (Lydon & Garcia, 2015). These experiments have become even more prevalent in response to the COVID-19 pandemic, addressing the need for social distancing and creating car-free public spaces (Honey-Roses et al., 2021; Combs & Pardo, 2021; Glaser & Krizek, 2021).

To capture this trend, Bertolini (2020, p.735) introduced the term "street experiment" (SE) which refers to intentional, temporary changes in street use, regulation, and form. The goal of these experiments is to explore systemic change in urban mobility, shifting from "streets for traffic" to "streets for people." SEs are implemented on a limited temporal and spatial scale, allowing for testing and subsequent evaluation of their impact in a relatively controlled manner (Luederitz et al., 2017). Therefore, data collection, monitoring, and learning from street experiments play a crucial role in this context.

The existing debate has largely assumed the positive value of SEs in transitioning to post-car cities (Poon et al., 2022). It has focused on determining the factors that lead to the upscaling of SEs, triggering city-wide changes (Smeds, 2021; Loorbach et al., 2022). This includes monitoring citizens' attitudes to facilitate instrumental learning, improve the public acceptability of SEs, and prevent or address any backlash (Hickman & Huaylla Sallo, 2022; Sargisson et al., 2022). However, this focus overlooks two important aspects.

First, it is essential to understand citizens' perspectives on whether SEs add value to everyday life at the neighborhood scale. This understanding maximizes the public value of SEs as local planning interventions (Jaspers & Steen, 2021). Second, it is crucial to recognize citizens' lived experiences to ensure socially and epistemically just urban mobility transitions (Zavestoski & Agyeman, 2015; Smeds et al., 2020; Schwanen, 2021). Scholars have suggested that SEs have the potential to mobilize the broader public in favor of post-car transitions (Bertolini, 2020; VanHoose et al., 2022). However, it remains unclear what motivates citizens to mobilize and what they value about SEs as street transformations beyond supporting systemic change.

Although a few studies have explored citizens' attitudes toward car-free SEs in a systematic manner, the research in this area is limited (Marcheschi et al., 2022; Hagen & Tennøy, 2021; Noland et al., 2022). Evaluations of SEs have mainly focused on impacts on active mobility behaviors, traffic flows, safety, and physical activity (Hipp et al., 2017; Nello-Deakin, 2022).

Only a small number of studies holistically consider the dual function of city streets as conduits for mobility and spaces for public life, combining multiple data types and user categories (GDCI, 2022). Most existing street evaluation tools, around 25 in total, rely on expert-led audits and do not incorporate the subjective perceptions of street users (Sheikh-Mohammad-Zadeh et al., 2022). The user surveys used in applications of prominent street evaluation frameworks rely on closed questions and quantified scoring, rather than exploring qualitative meanings.

Understanding user perception is crucial in the planning and evaluation of street experiments (SEs) aimed at reallocating street space and promoting active mobility and public life. By capturing

citizens' perspectives, planners can gauge public satisfaction, align interventions with local needs, and enhance public acceptance. User perception contributes to social and epistemic justice, ensuring SEs are equitable and responsive to diverse community needs. Additionally, understanding what motivates citizens and the value they place on SEs enables effective communication, public mobilization, and participation.

Exploring qualitative meanings is important because it provides a deeper understanding of the subjective experiences, perceptions, and interpretations of individuals in relation to street experiments (SEs) and their impact on the urban environment. It uncovers the subjective and contextual dimensions of individuals' experiences within SEs. It provides insights into the underlying motivations, symbolic meanings, and unintended consequences of street transformations, helping planners create more meaningful and inclusive urban environments.

This deliverable addresses the existing gaps in knowledge by focusing on citizens' perspectives regarding street space transformations through street experiments (SEs). The central research question is: What are the mobility and public life dimensions of SEs that citizens value, considering both the use value and broader social meanings? To answer this question, a comparison is conducted among five SE parklets and plazas located in London (UK), Munich (Germany), and Bologna (Italy). The methodology involves a survey method that combines qualitative and quantitative data analysis, encompassing responses from a total of 458 citizens. The analysis takes an inductive approach, avoiding any preconceived biases and allowing for an unbiased exploration of citizens' values regarding SEs. The results are structured into a comprehensive output framework consisting of 10 categories that encompass the functional, social, safety, environmental, and economic dimensions of mobility and public life.

Rather than evaluating street experiments, this study focuses on understanding how citizens value them in relation to mobility and public life. By exploring citizens' perspectives, the study aims to uncover what motivates them to support street experiments. The research design emphasizes qualitative methods and inductive reasoning, aligning with the mobilities literature. However, the study also considers existing approaches to valuing city streets developed by urban researchers and practitioners. It recognizes the need to connect street experiments with citizens' everyday experiences and the meanings they associate with street transformations and the sense of place. The research question asks about the dimensions of street experiments that citizens value in terms of both their practical use and broader social meanings.

Following this introduction, the deliverable is organized into six sections. Section 2 provides a review of the relevant literature on the valuation of city street transformations. Section 3 outlines the inductive methodology employed in this study. In section 4, the findings are presented, commencing with the SE value framework developed based on the citizens' perspectives data. Section 5 offers a discussion on the theoretical and methodological implications arising from the identified values that citizens associate with SEs. Finally, section 6 provides a summary of the main conclusions drawn from the study and discusses their implications for urban policymakers and practitioners.

Background

The value of street experiments: intersecting mobilities, places, and transitions

In simpler terms, valuing something means recognizing its importance, worth, or usefulness. When it comes to city streets, valuing them means understanding their significance in terms of both transportation and public spaces. In the past, streets were mainly seen as roads for cars. However, over time, other perspectives have emerged, such as designing streets to accommodate various modes of transportation (like walking, cycling, and public transport) and as spaces for social activities, events, and commerce. These two perspectives—streets for mobility and streets for public life—form the basis for understanding the value of city streets.

Traditionally, the value of travel was measured in economic terms, focusing on quantifying the worth of time saved during transportation. However, a new way of thinking about travel has emerged, considering it as an activity with intrinsic value and social meaning. This perspective looks at how different modes of travel, like walking or cycling, relate to people's identities, lifestyles, and social inclusion. It emphasizes the importance of incorporating citizens' experiences and perspectives in transportation planning, which has typically been dominated by experts and quantitative assessments. To capture these experiences, qualitative data and narratives are advocated for.

In addition to mobility, streets are also regarded as places. Places are not just physical locations but also carry cultural and emotional significance. Movement and routines in streets contribute to the sense of place, as do social and commercial activities associated with public life. Urban design has primarily explored the physical aspects of places, focusing on the design qualities of the built environment and their relation to policy goals. This approach relies on expert-led assessments and predefined criteria, which differs from the perspective of mobilities scholars.

Street experiments are interventions aimed at transforming streets and transitioning towards cities less reliant on cars. These experiments are seen as triggers for change, shifting the focus from streets for traffic to streets for people. Evaluating these experiments involves assessing their impact on various dimensions, including their ability to engage and mobilize the public in favor of post-car cities. However, the motivations and values that drive citizens to support these experiments remain unclear.

Measuring the value of street transformations

To provide a foundation for our analysis of the use value and social meanings of street transformations, we examine three established approaches that are utilized to measure the value of such transformations. These approaches encompass frameworks that determine the categories employed to assign value, as well as the knowledge and methods used to assign that value, including the incorporation of citizens' perspectives.

To illustrate the categories utilized within these frameworks and align them with five general dimensions of value (functional, social, safety, environmental, and economic), Table 1 presents a comparative overview. By employing these dimensions, we can establish a common framework for assessing the value of street transformations across the different approaches. Throughout the subsequent discussion, we will use the term "functional value" as a reference to what is commonly referred to as "use value."

By reviewing these three prominent frameworks, we gain insights into how street value is conceptualized and measured. This examination is crucial for informing our analysis of the use value and social meanings associated with street transformations.

Dimension of value	**Value of street improvements (Carmona et al. 2018)**		**Public Space Index (Mehta, 2013)**		**Healthy Streets (TfL, 2017a)**	
	Mobility	**Public life**	**Mobility**	**Public life**	**Mobility**	**Public life**
Functional	*Movement* – both mobility modes and stationary activities			*Meaningful activities; Comfort* – supports range of stationary activities comfortably	*People choose to walk, cycle, and use public transport*	
Social	*Physical fabric* – surface quality for walking and cycling	*Exchange* – social interaction		*Inclusiveness* – diversity of users, space perceived as open and accessible to participate in	*Pedestrians from all walks of life*; *Places to stop and rest*	
Safety	*Physical fabric* – infrastructure and perceived safety *Movement* – accidents	*Physical fabric* and *Exchange* – perceived social safety	*Safety* – traffic	*Safety* – crime, social surveillance	*Easy to cross; People feel safe* – traffic	*People feel safe* – crime and anti-social behaviour
Environmental	*Not too noisy*; *Clean air*; *Shade and shelter*; *People feel relaxed*	*Physical fabric* – design quality *Exchange* – perceptions of physical environment		*Pleasurability* – quality and attractiveness of streetscape	*Not too noisy*; *Clean air*; *Shade and shelter*; *People feel relaxed*	*Things to see and do*
Economic	*Movement* – traffic flow indicators	*Real estate* *Exchange* – perceptions of local economy				

Table 1. Value categories included in existing street evaluation frameworks.

When comparing the three evaluation frameworks, namely Mehta's Public Space Index (2013), the Healthy Streets approach developed by Transport for London (2017a), and Carmona et al.'s framework (2018), several similarities and differences emerge.

All three frameworks recognize the importance of evaluating the value of city streets beyond mere functionality. They acknowledge the significance of public spaces and emphasize the need for inclusiveness and experiential qualities. Mehta's Public Space Index stands out for its emphasis on public spaces supporting a range of stationary and social activities, as well as the subjective nature of inclusiveness. It takes into account the perceived accessibility and participation in spaces, which goes beyond objective factors like design and facilities. On the other hand, the Healthy Streets approach focuses on inclusive mobility for diverse users, particularly those with mobility impairments. It considers various design qualities that make streets attractive and promotes walking, cycling, and the use of public transport. Carmona et al.'s framework takes a holistic approach by incorporating elements from both Mehta's and the Healthy Streets approach. It considers mobility through the "Movement" category and includes aspects related to the physical fabric of streets, their value for exchange, and real estate considerations.

However, there are also notable differences in the frameworks. Mehta's Public Space Index, while comprehensive in its evaluation of public spaces, neglects the mobility function of streets. It is primarily focused on the public life aspect, which may limit its applicability in assessing the overall value of streets. The Healthy Streets approach, although encompassing mobility and inclusive design, is heavily weighted toward the mobility perspective. Its evaluation indicators primarily relate to walking, cycling, and public transport, with limited emphasis on other aspects of public life. Carmona et al.'s framework provides a more balanced approach by incorporating both mobility and public life dimensions. However, the structure of their framework raises questions. For instance, stationary activities associated with public life are included within the "Movement" category, potentially overshadowing their significance. Additionally, the operationalization of the "Exchange" category combines various factors, making it challenging to discern specific aspects influencing users' perceptions.

To capture the essence of these frameworks and identify general dimensions for valuing city streets, an analysis of their categories leads to the identification of five dimensions: functional value, social value, safety value, environmental value, and economic value. These dimensions collectively address various aspects of streets, such as activities supported, inclusiveness, safety, physical environment quality, and economic benefits. While these five dimensions offer a helpful framework, they may not be exhaustive, and other dimensions like health could also be considered.

In terms of methods and data used in the operationalization of these frameworks, there are some commonalities. All three frameworks recommend data collection on citizens' subjective perspectives, albeit as a smaller component within a broader suite of methods that prioritize expert-led audits and objective evaluations. Furthermore, they employ deductive evaluation approaches where pre-determined value categories and indicators structure the research designs. However, when it comes to gathering citizens' perspectives, reliance on street user surveys with closed questions, prompting respondents to assign quantitative scores, is prevalent in all frameworks. This approach differs from an inductive approach that would employ open-ended questions, allowing citizens to freely express the dimensions they value, potentially uncovering new and unexpected value categories.

Unveiling Citizen Perspectives: understanding the Value of Parklets and Plazas

City street experiments, ranging from intersection redesigns to full street closures, have gained attention as transformative interventions. This study specifically focuses on parklets, which repurpose car parking spaces into vibrant seating areas, and public plazas, which reclaim road space for community use.

To inform our research design and compare our findings with existing research on parklets and plazas, we examine evidence from major programs implemented in San Francisco (SF), New York City (NYC), Stockholm, and Milan. The review focuses on functional value categories and citizen perspectives on these street transformations.

Functional Value for Mobility: Studies consistently highlight increased pedestrian and cyclist activity after the implementation of parklets and plazas. Bicycle parking infrastructure integrated into these spaces is valued by users. Plazas in NYC are frequently utilized as access points for public transportation, while some parklets offer access to shared micro-mobility services, which citizens highly appreciate.

Functional Value for Public Life: The Gehl Institute's framework for analyzing stationary activities is commonly applied in studies evaluating parklets and plazas. These spaces show an increase in sitting, socializing, drinking, and eating activities. However, children's play is more limited. Plazas also support civic and cultural activities, contributing to the public life aspect of these interventions.

Identified Functional Value Categories: Based on the reviewed evidence, the functional value categories for parklets and plazas include mobility aspects such as walking, cycling, bicycle parking, waiting for public transport, and accessing shared mobility. In terms of public life, the categories comprise sitting, drinking and eating, socializing with others, spending time or playing with children, and engaging in civic and cultural activities.

Inclusiveness and Streetscape: The inclusiveness of parklets and plazas as public spaces varies across studies. While socializing is observed, the extent of social mixing between diverse groups remains uncertain. Some concerns arise regarding the presence of commercial establishments, which may impact the perceived publicness of the space. However, the consumption activities in these spaces do not necessarily diminish the inclusiveness. Temporary materials used in experimental implementations contribute to the attractiveness and aesthetic appeal of new plazas, as perceived by citizens in NYC and Stockholm.

Case studies

The present study employs an exploratory case study approach to investigate street transformation interventions in three distinct neighborhoods: London (UK), Munich (Germany), and Bologna (Italy). A total of five cases, comprising two parklets and three plazas, were selected for examination (refer to Figure 1). The rationale behind the case study selection was to maintain consistency in the type of street experiment while exploring diverse neighborhood contexts, thereby maximizing the benefits of the exploratory research. This approach aligns with a "maximum variation" strategy, which seeks to gather information about the significance of different circumstances on case outcomes (Flyvbjerg, 2006, p.230).

All the selected cases share the common feature of converting car parking spaces into public areas, incorporating elements such as seating and greenery. Furthermore, the interventions in London and Bologna also include bicycle parking facilities, while those in London and Munich integrate access points for car-sharing and/or bike-sharing services. These cases align with Bertolini's (2020) definition of street experiments as they were implemented using temporary materials for a predetermined period, ranging from 2018 to 2022, although their degree of permanence may have varied by the time of writing in May 2023.

The socio-demographic and spatial characteristics of the neighborhoods where the street experiments were conducted exhibit significant variation. The locations encompass suburban areas with a greater emphasis on car usage (South Woodford-Wanstead), walkable inner-city districts (Glockenbach-Schlachthof), and peripheral districts (Bolognina). Beyond these distinctions, the specific parklets and plazas chosen for study were based on the data requirements of the local municipalities. The research project was conducted in collaboration with municipal partner organizations, emphasizing their needs and priorities in terms of street experiment data collection and analysis.

The selected cases offer a diverse range of contexts and characteristics, providing valuable insights into the value of parklets and plazas across different urban settings.

In London, the South Woodford-Wanstead neighborhood represents a suburban area where car dominance is more prevalent. The parklet and plaza interventions in this neighborhood aim to transform underutilized car parking spaces into vibrant public spaces that promote alternative modes of transportation and enhance the pedestrian experience. The neighborhood is characterized by a mix of residential and commercial areas. It has a relatively suburban feel, with a higher prevalence of single-family homes and a car-dominated transportation system. The socio-demographic composition of the area includes a mix of families, young professionals, and older residents. Understanding the value of parklets in this context becomes crucial in providing a space that fosters community engagement, encourages active modes of transportation, and enhances the overall quality of the suburban neighborhood.

Moving to Munich, the Glockenbach-Schlachthof neighborhood presents an inner-city district known for its walkability. Here, the parklet and plaza interventions aim to further enhance the existing pedestrian-friendly environment by creating attractive public spaces for residents and visitors to gather, relax, and engage in various activities. The neighborhood is known for its vibrant urban atmosphere and diverse population. It attracts young professionals, artists, and students due to its proximity to universities, cultural institutions, and entertainment venues. The area has a higher population density and is characterized by a more walkable and bike-friendly environment. The

value of the plaza intervention here lies in creating a public space that caters to the vibrant social scene, fosters interactions among diverse community members, and serves as a focal point for cultural events and activities.

In Bologna, the selected neighborhood of Bolognina is situated in a peripheral district. The parklet and plaza interventions in this area seek to address the unique needs and characteristics of the neighborhood, providing a valuable opportunity to understand how street transformations can contribute to the livability and vitality of less central areas. The socio-demographic profile reflects a mix of residential and industrial areas. The neighborhood has experienced urban regeneration efforts aimed at revitalizing its identity and improving the quality of life for residents. Bolognina is known for its multicultural community, including a significant immigrant population. The parklet and plaza interventions in this context play a crucial role in transforming underutilized spaces into inclusive and welcoming environments that promote social cohesion, encourage community participation, and address the specific needs of the diverse population.

By examining these different cases, the research aims to uncover the perspectives of citizens regarding the value of parklets and plazas in various urban contexts. The selection of cases based on local municipalities' needs ensures that the study captures the specific objectives and challenges faced by each neighborhood, while also facilitating collaboration and knowledge exchange between researchers and municipal partners.

Parklet in South Woodford, London

Neighbourhood: Redbridge in Outer London, suburban and relatively affluent with high levels of car ownership and low sustainable mode share compared to London average
Location: George Lane, commercial high street in neighbourhood centre. Proximity to a café, a metro station and park-and-ride
Features: seating, plants, and cycle parking, with a reserved parking space for an electric vehicle car club vehicle.
Timeline: launched in 2021
Materials: permanent materials, but technically reversible

Parklet in Wanstead, London

Neighbourhood: Redbridge in Outer London, suburban and relatively affluent with high levels of car ownership and low sustainable mode share compared to London average
Location: Wanstead High Street, commercial high street in neighbourhood centre. 4-minute walk from metro station
Features: seating areas and greenery; cycle parking stands; a reserved parking space for an electric car club vehicle; and a public electric vehicle charging point.
Timeline: launched in 2021
Materials: permanent materials, but technically reversible

Piazza Zenetti, Munich

Neighbourhood: Glockenbach-Schlachthof district, inner city and residential, with a recent history of gentrification and a high density of restaurants, night life and cultural institutions
Location: residential street intersection
Features: formerly two car parking lots. Now space for shared e-mobility services, and a public square with informal seating, planters, book exchange and a notice board.
Timeline: launched in 2019
Materials: temporary materials

Summer Plaza at Holzplatz, Munich

Neighbourhood: Glockenbach-Schlachthof district, inner city and residential with a recent history of gentrification and a high density of restaurants, night life and cultural institutions
Location: green public square with fronting café and restaurants
Features: public seating, moveable planters with flowers and palm trees, bicycle parking spaces, outdoor tables for restaurants
Timeline: temporarily transformed for the 2022 summer months as part of the City of Munich's Summer Streets initiative.
Materials: temporary materials

School Plaza, Bologna

Neighbourhood: Bolognina district, residential and in the northern outskirt of the city
Location: Via Procaccini, residential street intersection with proximity to a primary and secondary school
Features: former parking lot, now a new 300sqm pedestrian space with ground-level painting, street furniture and objects stimulating children's play
Timeline: launched in 2022
Materials: temporary materials

Figure 1. The five SE selected as case studies.

Methods

Data collection

The study employed a mixed research design that predominantly utilized inductive and qualitative methods while also incorporating deductive elements and some quantitative data collection. The research aimed to explore the value of parklets and plazas from citizen perspectives.

To assess the use of street experiments (SE), a survey questionnaire was developed, which included a combination of closed and open-ended questions. The closed questions asked respondents to report instances of SE use, categorized according to mobility and public life activities relevant to parklets and plazas. As pedestrian and cyclist counts were not feasible, walking- and cycling-related categories were formulated to capture movement around the SE as a proxy. Additionally, an open-ended question encouraged respondents to share their personal stories and experiences related to SE use, providing valuable qualitative insights.

The open survey questions were designed to gather data on the meanings attributed to SE by citizens. This included word associations prompted by photos depicting street spaces before and after SE implementation, the impact of SE on their everyday lives, and the neighborhood issues they considered most important in relation to SE. The questionnaire also explored themes of perceived inclusiveness and aesthetics/attractiveness of SE, drawing from existing literature.

The survey was designed to be self-selecting, aiming for a target sample size of 100 respondents for each case. This allowed for participation by both current SE users and other residents and individuals connected to the SE neighborhoods. The survey was conducted online using the Commonplace platform (London, Munich) and Google Forms (Bologna), and in-person using paper questionnaires distributed to participants in SE locations and surrounding streets (Munich). Promotion of the survey was carried out through social media, direct stakeholder engagement, and distribution of printed leaflets with QR codes. Data collection took place from January to September 2022. In the London cases, on-street observations of SE and informal conversations with citizens were also conducted to complement the survey data.

The data collection for the survey was facilitated by the use of the Commonplace platform, an online engagement tool that enabled efficient data collection and engagement with participants. The platform allowed for the administration of the survey in an accessible and user-friendly manner, ensuring ease of participation for respondents. This technology played a crucial role in reaching a wider audience and engaging with residents and individuals connected to the SE neighborhoods. By leveraging the Commonplace platform, the research team could effectively promote the survey through various channels, including social media and direct stakeholder engagement. Participants were able to access the survey online, providing their responses and insights on the value of parklets and plazas from the convenience of their own devices. The platform also facilitated the management and organization of the collected data, streamlining the data cleaning process. The utilization of the Commonplace platform not only enhanced the efficiency and reach of the data collection process but also ensured the inclusivity of the study by allowing diverse participants to contribute their perspectives. This platform provided a valuable technological solution in capturing citizen perspectives on the value of parklets and plazas, contributing to a comprehensive and robust analysis of the research topic.

After data cleaning, the final sample included 458 survey respondents across the five cases, with each case having between 84 and 100 respondents. The questionnaire collected additional demographic information, such as respondents' familiarity with the SE, connection to the SE neighborhood, age group, gender identity, car ownership, and typical mode of travel to the SE. Across the sample, the majority of respondents were residents who typically walked to the SE. Most respondents (65-92%) in all cases were residents of the immediate neighborhood surrounding the SE or the broader surrounding area. In four of the cases, a significant proportion of respondents typically walked to the SE location (63-68%), including in the suburban London neighborhoods. In the case of Piazza Zenetti (Munich), 48% of respondents walked, while 42% used bicycles. The age distribution varied among cases, with the majority of respondents in the London and Bologna cases falling within the 45-64 age range (52-60%), and in the Munich cases, the majority were in the 25-44 age range (53-55%).

Data analysis

To assess the functional value of the street transformations, the research team employed a combination of quantitative and qualitative analysis techniques. The quantitative data was analyzed using descriptive statistics in MS Excel, allowing for a comprehensive examination of the survey responses.

On the other hand, the qualitative data collected from the five cases was imported into NVivo, a qualitative data analysis software, to facilitate in-depth analysis. NVivo is a widely used qualitative data analysis software that provides researchers with a systematic and efficient way to manage and analyze qualitative data. It offers a range of tools and features that facilitate the coding, organization, and exploration of qualitative data. In the context of this study, NVivo was employed to support the analysis of qualitative data collected from the survey responses. The software allowed for the importation of the survey datasets, enabling the research team to work with the textual data in a structured and systematic manner. The auto-coding function in NVivo was particularly useful in organizing the data based on predetermined categories related to mobility and public life activities, ensuring consistency and ease of analysis. In the analysis of qualitative data, a systematic approach was followed. Deductive categories related to mobility and public life activities were applied to code the data, ensuring consistency and alignment with the research objectives.

For the analysis of qualitative data on the meanings attributed to the street transformations, a qualitative content analysis was conducted. A standardized template, following the approach outlined by Gläser and Laudel (2006), was utilized. The survey responses were represented as rows in MS Excel, with relevant survey questions serving as columns containing text segments from the open-ended questions. Initially, values expressed by the participants were inductively categorized into separate columns, distinguishing between positive and negative expressions. This allowed for a detailed examination of different aspects, such as social interaction, safety, and environmental concerns. Text segments were copied and pasted into the relevant columns to ensure easy access to qualitative quotes.

Through an iterative process, the research team refined and clustered the initial categories based on the dimensions of street value, including functional, social, safety, environmental, and economic aspects outlined in section 2.2. This iterative process involved multiple rounds of analysis and discussions among the researchers. The iterative process involved multiple rounds of analysis and reflection, during which the researchers reviewed and refined the categories to capture the diversity

and complexity of the values expressed by the respondents. This iterative approach helped to ensure that the analysis remained grounded in the data while also aligning with the overarching framework of street value dimensions.

To quantify the prevalence of different values expressed by the respondents, the number of text segments within each SE value column was counted, representing the frequency of values expressed (C-number). These counts were then summed to generate a total number of 'value items' (V) for each SE case. The richness of data collected for each case was reflected in the V-number, with higher values indicating a greater amount of data collected. Furthermore, the C-number for each SE value column was divided by V, yielding a proportion of total value items (P-number) for positive and negative values expressed across the 10 dimensions of SE value.

The final set of 10 categories represented a synthesis of the inductive insights derived from the survey responses and the deductive dimensions of street value. These categories captured the range of values expressed by citizens, including positive and negative aspects related to functional use, social interaction, safety, environmental impact, and economic considerations.

This comprehensive analysis approach allowed for a detailed exploration and understanding of the value attributed to parklets and plazas from the citizen perspective, incorporating both quantitative and qualitative data to provide a robust evaluation of the street transformations.

Findings

Our analysis revealed that citizens expressed values in relation to 10 distinct categories that encompassed the dual function of streets for both mobility and public life (see Table 2). These categories were structured based on the five dimensions of functional, social, safety, environmental, and economic value, but the specific set of categories and their detailed descriptions were derived inductively from the perspectives of the citizens. For instance, we observed that citizens made distinct qualitative comments regarding the functional value of street experiments for both automobility and active mobility, and we did not find any comments from citizens regarding the economic value of mobility in relation to street experiments (such as travel time costs).

The framework presented in Table 2 serves as a structure for presenting our findings on how citizens attribute value to street experiments in the subsequent sections of this paper. The bolded shorthand labels (e.g., 'automobility') within Table 2 are the terms we use to refer to each of the 10 value categories in this study.

Furthermore, the analysis of citizens' perspectives on the value of street experiments provided valuable insights into their specific considerations and priorities. For instance, within the functional value dimension, citizens distinguished between the benefits of street experiments for automobility, emphasizing factors related to vehicle usage and convenience, and active mobility, highlighting aspects related to walking and cycling experiences.

In addition, the absence of comments on the economic value of mobility in relation to street experiments suggests that citizens may not perceive economic factors, such as travel time costs, as significant in shaping their evaluations and experiences of these interventions.

The identified 10 value categories, as presented in Table 2, form the basis for organizing and presenting our findings on citizen perspectives on street experiments in the subsequent sections of this paper. Each category represents a distinct aspect of value attributed by citizens, providing a comprehensive understanding of their multifaceted evaluation of these urban interventions.

It is important to note that the shorthand labels used to refer to each value category, such as 'automobility,' 'active mobility,' and others highlighted in bold within Table 2, serve as concise descriptors to facilitate communication and reference throughout the paper.

By employing an inductive approach and incorporating citizens' perspectives into the development of these value categories, our analysis captures the nuanced and context-specific nature of how individuals perceive and assess the impact of street experiments on their daily lives and urban environment.

Table 2. Framework for Understanding Citizen Perspectives on the Value of Street Experiments Transformations

Dimensions of street value	**SE value categories**	
	Mobility	**Public life**
Functional	**Automobility** *Use of motorised vehicles* The category reflects citizens' recognition and value placed on the use of motorized vehicles as a means of transportation. It acknowledges the importance of private cars, motorcycles, and other motor vehicles in meeting mobility needs and facilitating personal and economic activities. **Active mobility** *Walking, cycling, and micro-mobility* The category encompasses citizens' recognition and appreciation of walking, cycling, and other forms of micro-mobility as important modes of transportation. It highlights the value placed on human-powered means of getting around, promoting physical activity, and reducing reliance on motorized vehicles	**Stationary activities** *Opportunities for stationary activities, including supporting infrastructure such as street furniture.* The category highlights the value citizens place on the availability of spaces and supporting infrastructure that facilitate stationary or non-mobile activities. This includes opportunities for relaxation, reading, picnicking.
Social	**Inclusive mobility** *Comfortable physical access to spaces, including individuals with reduced mobility.* The category reflects the significance citizens place on creating environments that are accessible and accommodating to all individuals, including those with reduced mobility. It encompasses the importance of designing spaces that allow	**Social and civic interaction** *Social interaction and relationships, including inclusiveness, diversity of user groups, (un)desirable behaviour; as well as the value of public space for civic exchange* The category the values citizens associate with the social aspects of public spaces. It encompasses various dimensions, including social interaction and relationships, inclusiveness, diversity of user groups, (un)desirable behaviour, and the value of

	comfortable and barrier-free physical access	public spaces for civic exchange; the opportunity to connect with others, engage in conversations, and build community bonds.
Safety	**Traffic safety** *Safe interaction between cars, pedestrians, and cyclists* The category highlights the value citizens place on the secure and harmonious coexistence of cars, pedestrians, and cyclists within the urban environment. It encompasses the importance of creating spaces where all road users can interact safely and with minimal risk of accidents or conflicts.	**Social safety** *Fear of harassment, violence, crime* This category focuses on the value citizens place on social safety within public spaces. It encompasses concerns related to the fear of harassment, violence, and crime that may impact individuals' sense of security and well-being. Citizens emphasize the importance of feeling safe and comfortable while using parklets and plazas, and they value measures that contribute to a secure and protected environment.
Environmental	**Traffic pollution** *Mobility emissions, including GHG emissions, air pollution, noise pollution* The category highlights citizens' concern for the environmental impact of mobility, particularly related to emissions generated by vehicles. It encompasses various forms of pollution, including greenhouse gas (GHG) emissions, air pollution, and noise pollution associated with traffic activities.	**Streetscape** *Pleasantness, aesthetics, and green infrastructure maintenance* This category recognizes the attention citizens give to the streetscape, encompassing elements such as the visual appeal, aesthetics, and overall ambiance of the street environment. It acknowledges that citizens consider the quality of the street design, the presence of well-maintained infrastructure, and the incorporation of green spaces as relevant factors. The streetscape is seen as a component that can contribute to creating a diverse and inviting urban setting. Citizen perceptions of the streetscape can vary, reflecting a range of observations and preferences.
Economic (land use)	**Economic Value of Mobility**: *Enhancing Prosperity and Efficiency* This category acknowledges the role of transportation in influencing economic activities and opportunities. It reflects how citizens recognize the impact of accessible and efficient mobility on local businesses, livelihoods, and overall economic well-being.	**Commercial - Economic value of public spaces** *Health and livelihoods of businesses.* This category reflects the value citizens place on the potential role of common spaces for enhancing the vitality of local businesses in their community. It encompasses the role of public spaces in facilitating economic interactions, promoting commerce, and enhancing the overall economic vitality of the community

The categories mentioned in the previous text can be valued both positively and negatively by citizens. The value citizens place on these categories is subjective and influenced by their individual perspectives, experiences, and preferences. Here's an example of how these categories can be valued in both positive and negative ways:

Streetscape: Citizens may value streetscape positively when they perceive it as visually appealing, aesthetically pleasing, and well-maintained. They may appreciate the presence of green

infrastructure, such as trees and parks, which contribute to a more attractive and sustainable urban environment. On the other hand, citizens may value streetscapes negatively if they find it visually unappealing, poorly maintained, or lacking greenery, which can detract from their overall experience and perception of the street.

Stationary activities: Citizens may value opportunities for stationary activities positively when they have access to amenities like seating areas, public spaces, and street furniture that allow them to rest, relax, socialize, or engage in leisure activities. They may appreciate the availability of these amenities as they contribute to a vibrant and inviting street environment. Conversely, citizens may value stationary activities negatively if they perceive a lack of suitable infrastructure or if the available amenities are uncomfortable, inadequate, or poorly maintained.

Social and civic interaction: Citizens may value social and civic interaction positively when they feel that the street provides opportunities for meaningful social connections, community engagement, and inclusive interactions among diverse groups of people. They may appreciate the sense of belonging and social cohesion that emerges from vibrant social and civic interactions. However, citizens may value this category negatively if they experience social tensions, conflicts, or exclusions in the street environment, leading to a sense of discomfort, insecurity, or disconnection.

Automobility: Citizens may value automobility positively when they perceive convenient and efficient transportation options that allow them to move around easily and access desired destinations. They may appreciate the flexibility and convenience that private vehicle use offers. On the contrary, citizens may value automobility negatively if they experience traffic congestion, pollution, safety concerns, or a lack of alternative transportation options, which can impact their quality of life, health, and overall street experience.

Commercial: Citizens may value the commercial dimension positively when they perceive a vibrant and diverse range of local businesses, shops, restaurants, and services in the street environment. They may appreciate the economic vitality, employment opportunities, and convenience that local businesses provide. However, citizens may value this category negatively if they perceive an overabundance of commercial activities that negatively affect the character of the neighborhood, lead to gentrification, or create an imbalance between commercial interests and community needs.

It is important to note that these valuations can vary among individuals and communities, and different factors can influence the positive or negative perception of each category. Citizens' values are shaped by their unique perspectives, personal preferences, socio-cultural backgrounds, and specific experiences in the given context.

The following section provides a summary of the findings for each of the five-case study SE in London, Munich, and Bologna. The findings include reported instances of SE use (Figures 2, 3, 6, 7, 10) and how citizens valued SE across the 10 different categories (Figures 4, 5, 8, 9, 11). In the figures, positive values on the upper part of the y-axis represent positive SE perceptions, while negative values on the lower part of the axis represent negative perceptions.

Case study findings: London, Munich, and Bologna

Parklets in London: a social space for coffee vs superfluous seating 'in the road'

The narratives of citizens regarding streetscape, stationary activities, social/civic interaction, automobility, and commercial categories were similar for both positive and negative values in both London parklets. However, there was a difference in the direction of evaluations: a higher proportion of favorable evaluations were expressed by respondents from South Woodford, while a higher proportion of unfavorable evaluations were expressed by respondents from Wanstead.

The primary use of the parklets was for stationary activities centered around consumption, such as meeting others for food and drinks. The South Woodford parklet was seen to enhance and beautify the high street, with additional greenery, vibrant colors, seating areas, and public spaces for socializing and enjoying coffee from the nearby café. Interestingly, the citizens in both parklets recognized the commercial value of the street experiment, particularly in South Woodford, where it was believed to support the health and prosperity of local businesses.

In the case of the Wanstead parklet, the positive values expressed for streetscape, stationary activities, and social and civic interaction were like the South Woodford parklet. However, many respondents in Wanstead viewed the parklet seating as unnecessary because it was located on the road close to noise and air pollution from passing traffic. As a result, it was perceived as less pleasant compared to the abundant seating options available near existing café fronts, sidewalks, and the adjacent park. Additionally, the removal of parking spaces and its impact on local businesses were viewed more negatively in relation to the Wanstead parklet.

The London parklets were promoted as "Mobility Hubs" by the local municipality, offering citizens a place for multi-modal transportation interchange, including cycling, public transport, and car-sharing. However, a small percentage of respondents from both South Woodford and Wanstead had utilized the bicycle parking infrastructure, and only a fraction had used the parklet for waiting for public transport or accessing car-sharing services (specifically in Wanstead). Interestingly, the mobility aspect of the parklets was not clearly perceived by citizens, with one respondent questioning its label as a "Mobility Hub" and emphasizing its social nature instead.

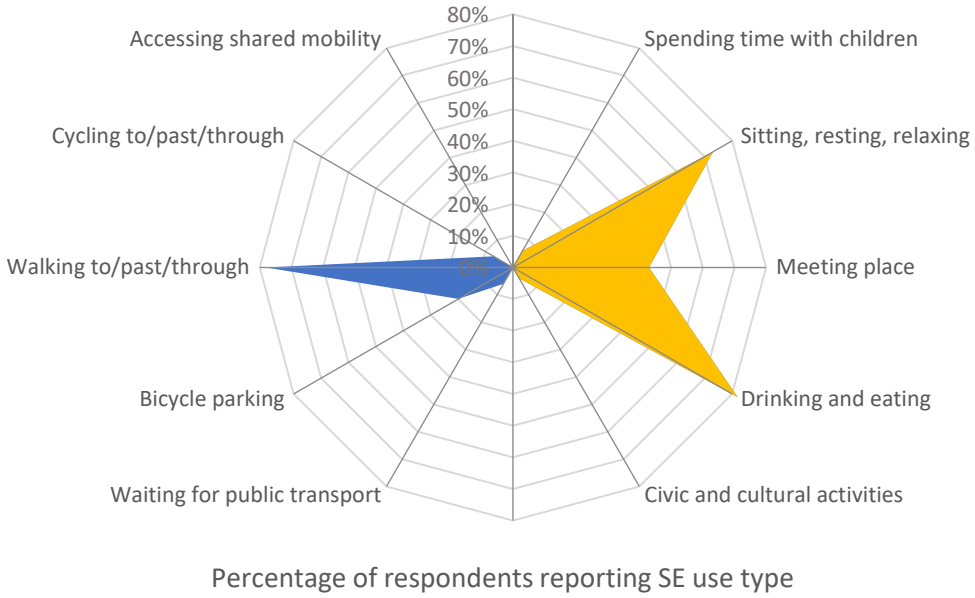

Figure 2. SE use for mobility activities and stationary activities – South Woodford parklet, London.

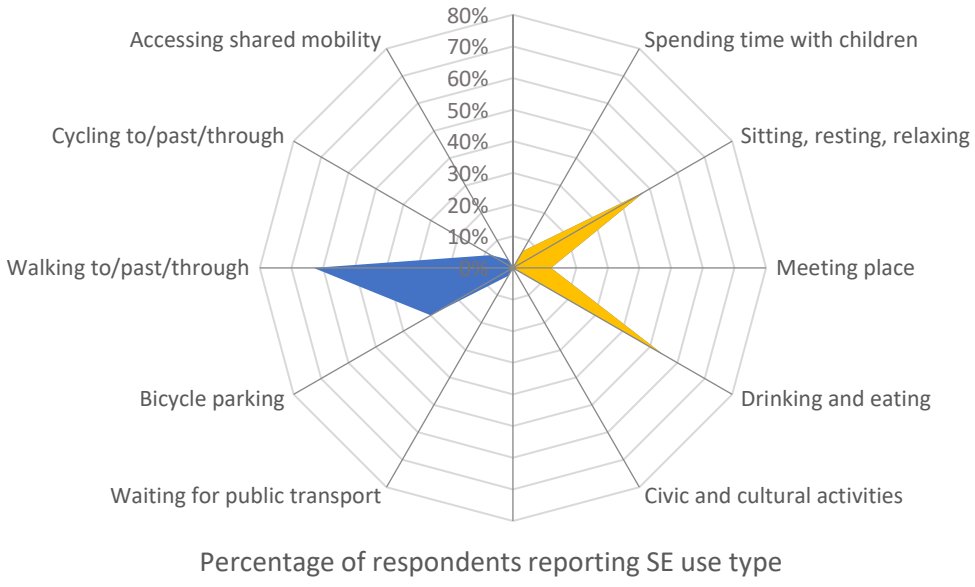

Figure 3. SE use for mobility activities and stationary activities – Wanstead parklet, London.

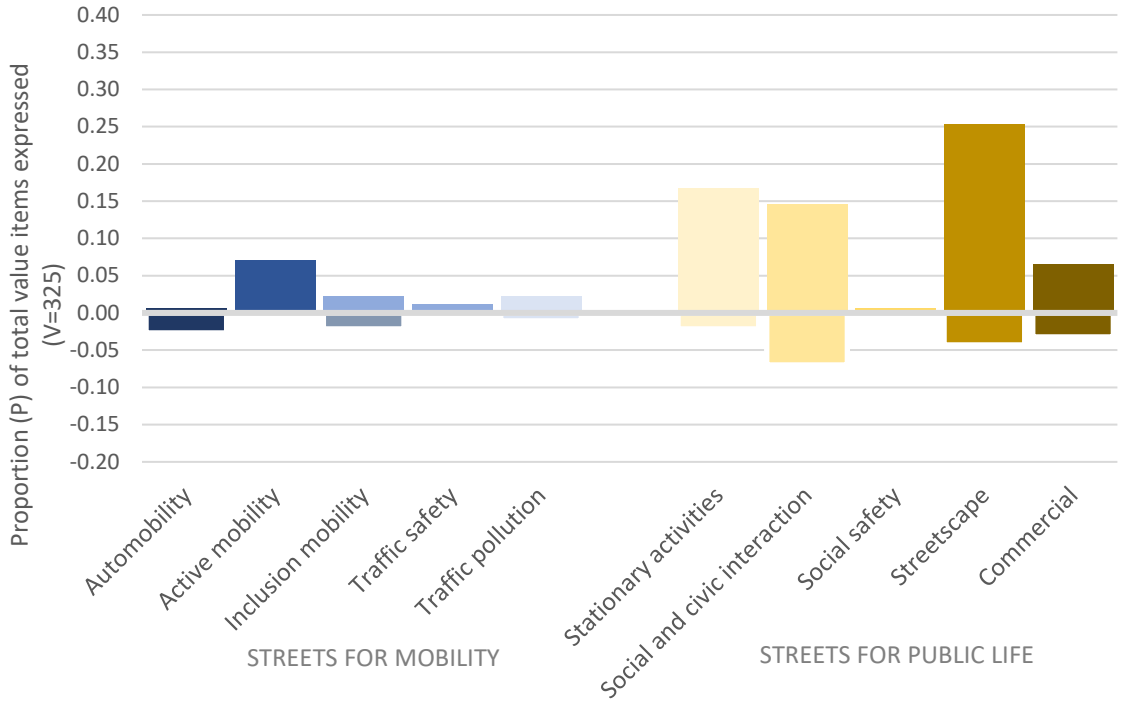

Figure 4. How citizens valued SE for mobility and public life – South Woodford parklet, London.

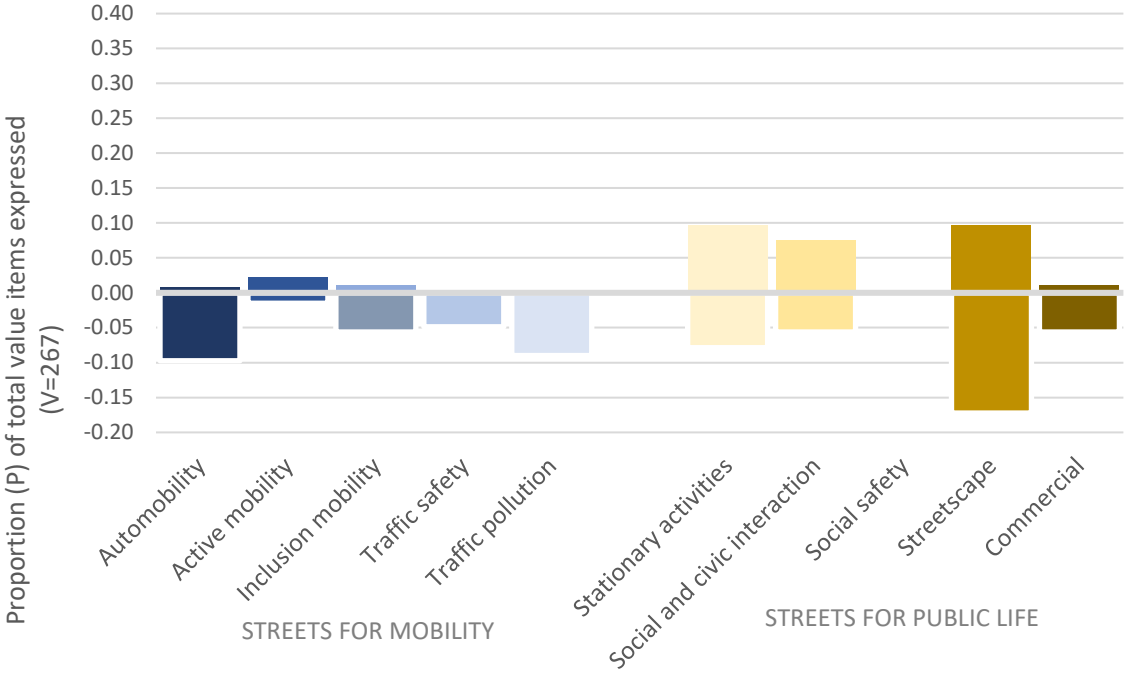

Figure 5. How citizens valued SE for mobility and public life – Wanstead parklet, London.

Plazas in Munich: 'oases of calm' for lingering and meeting in the neighbourhood

For both Munich plazas, citizens' value narratives were similar for the streetscape, stationary activities, and social and civic interaction categories, in both positive and negative directions. Munich citizens predominantly expressed values related to 'streets for public life'; across both plazas, the aggregate P value for mobility-related dimensions was the lowest of all five SE cases.

Enlarged public space at Piazza Zenetti and Holzplatz was perceived as an 'oasis of calm' (*Ruhe* in German) that provided a more pleasurable and attractive streetscape, with a significant emphasis on greening, and improved opportunities for lingering, reading, socialising, and eating. Citizens valued the plazas as a meeting place for 'the neighbourhood', with the possibility of encountering and communicating with existing and new social connections. At Holzplatz, these values were additionally associated with greater space for children's play and families. These perceptions are reflected in the data on reported instances of SE use; this data also revealed that the plazas supported a range of civic and cultural activities such as hosting meetings for local civic associations, urban gardening (citizens growing vegetables and flowers), use of a community bookshelf 'library' and noticeboard, hosting artistic activities, and other events. While the Piazza Zenetti plaza integrated access points for car-sharing and bike-sharing, only 8% of respondents reported having used these facilities.

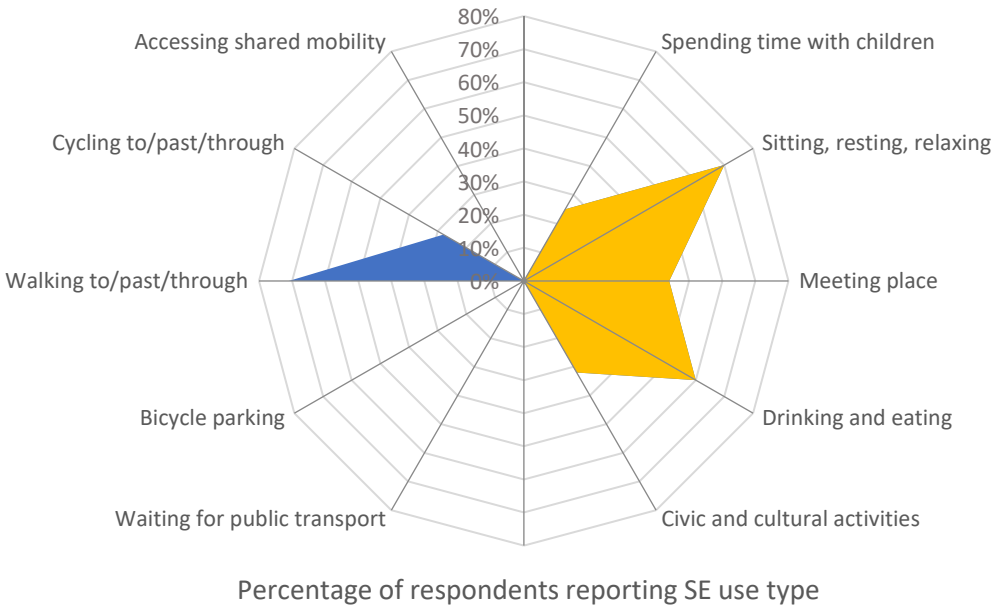

Figure 6. SE use for mobility activities and stationary activities – Summer Plaza, Holzplatz, Munich.

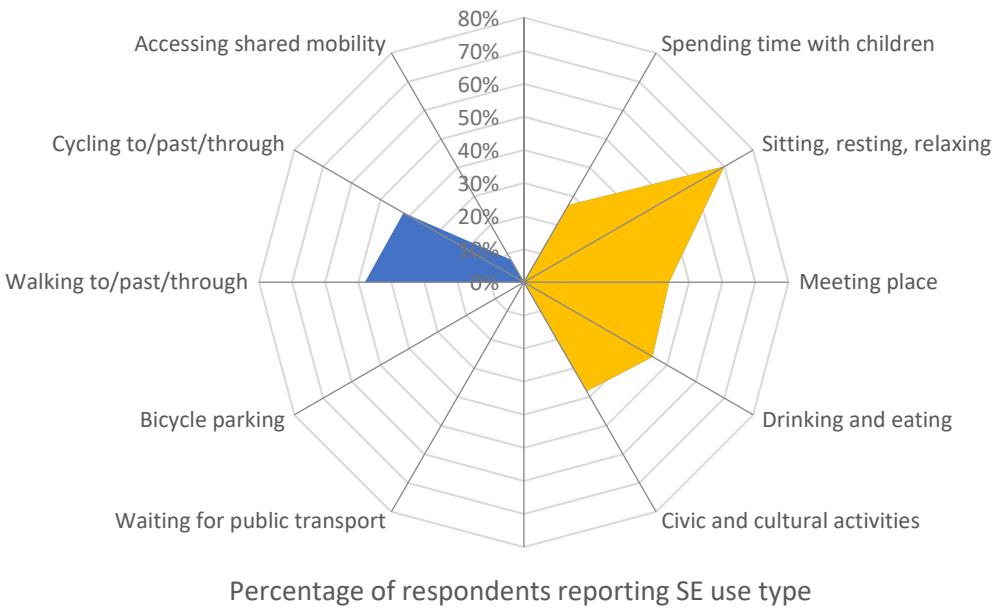

Figure 7. SE use for mobility activities and stationary activities – Piazza Zenetti, Munich.

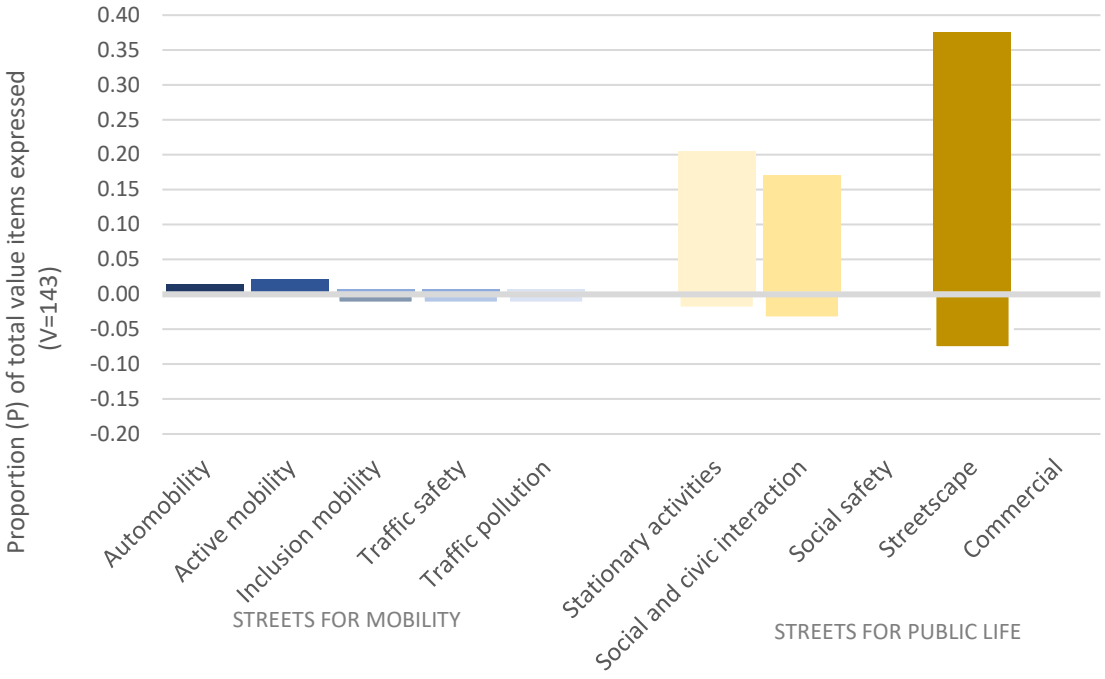

Figure 8. How citizens valued SE for mobility and public life – Piazza Zenetti, Munich.

Figure 9. How citizens valued SE for mobility and public life – Holzplatz Summer Plaza, Munich.

School Plaza in Bologna: a cheerful space for children's sociability and mobility

Uniquely among our cases, as the city's first 'school plaza' (*piazza scolastica*) the Bologna SE was designed explicitly for children attending adjacent schools. In addition to streetscape, stationary activities, and social and civic interaction; traffic safety and functionality for active mobility were other highly valued categories for the Bologna School Plaza.

Citizens valued the fact that the conversion of car parking spaces had made the street more cheerful and colourful: into a space that had come alive with children before and at the end of the school day, waiting with family members or playing and socialising. Stationary activities and social interaction were less emphasised for other user groups, but the space was potentially perceived to strengthen social networks within the neighbourhood. Data on reported SE use contrasts somewhat with this perceived value added of the plaza for stationary activities and socialising, as the data suggests that the plaza is used more as a stopping and waiting place during school journeys, than for lingering for long periods: only 33% of respondents reported spending time and playing with children (including instances reported as a school drop off or pick-up) and 45% of respondents reported staying in the plaza for less than 5 minutes and 80% for less than 10 minutes.[1]

The SE transformation that involved a redesign of a street intersection's layout and crossings was perceived to improve traffic safety, particularly for children, and improved 'usability' for pedestrians and cyclists. The Bologna Plaza is unique among the cases in that it is also used for walking and cycling *in and through* an enlarged car-free street surface. For example, citizens reported that their young children were learning to walk and cycle within the plaza space.

[1] The relatively low proportion of Bologna respondents using the plaza for sitting is explained by the seating provision being limited to one non-standard bench, as the overall focus was providing objects for children's play.

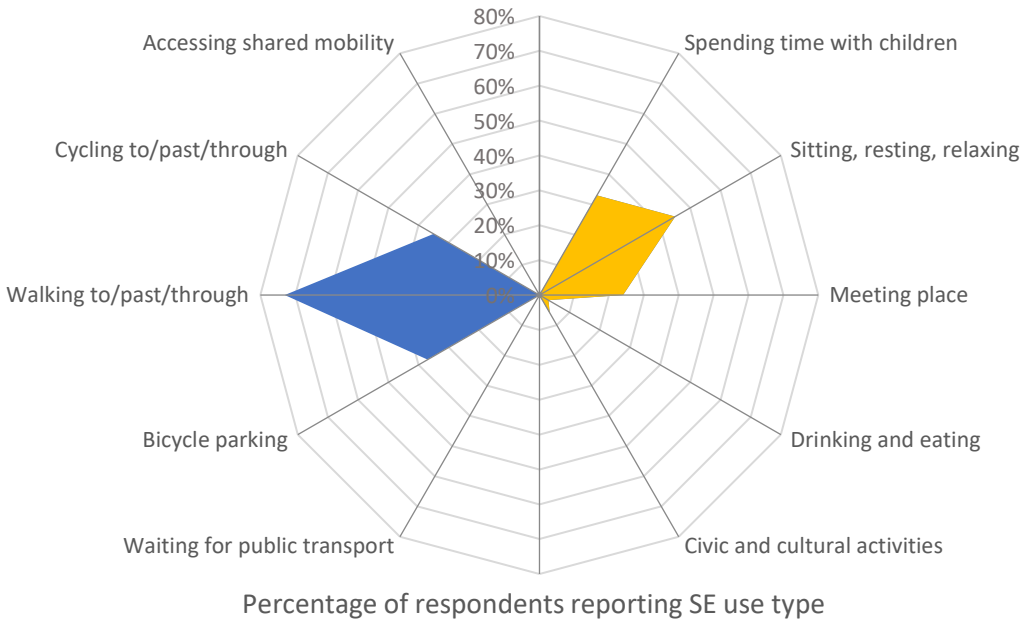

Figure 10. SE use for mobility activities and stationary activities – School Plaza, Bologna.

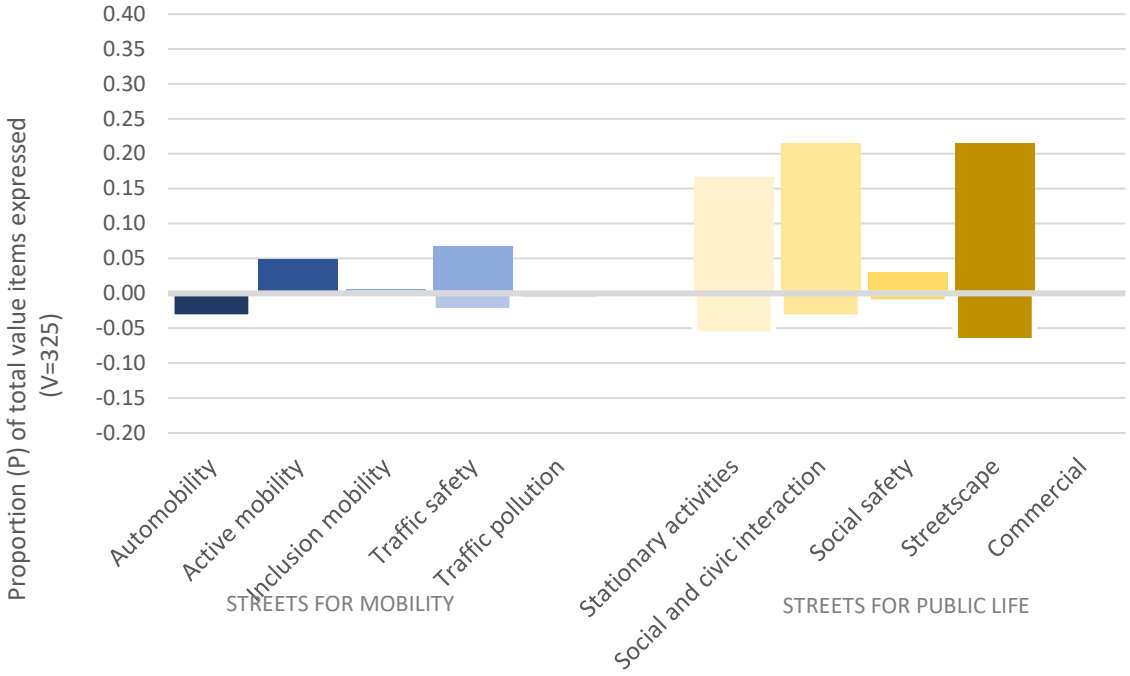

Figure 11. How citizens valued SE for mobility and public life – School Plaza, Bologna.

Cross-case analysis of SE value categories

Overall, across all cases, citizens placed higher value on the public life categories of the street compared to mobility-related ones, whether positively or negatively. This indicates that most citizens expressed their values from a perspective of "streets for public life" rather than "streets for mobility," except for the Wanstead parklet, where citizens expressed more values related to mobility compared to the other cases. The most valued dimensions of SE were streetscape (ranked 1), followed by opportunities for stationary activities and social and civic interaction (ranked either 2 or 3).

The distribution of proportion of total values expressed (P) across mobility and public life categories varied among the cases. The London and Bologna cases exhibited a greater distribution of P across mobility and public life categories, suggesting a greater diversity among citizens' perspectives. However, the Munich plazas showed a lesser distribution of P for the mobility categories, indicating a less rich data collected from open questions in that city.

In four of the cases, most citizens held a positive sentiment towards the SE and expressed a desire for the street transformation introduced by the experiment to remain in place. The mean sentiment scores, measured on a scale from 1 (Unhappy) to 5 (Happy), were 4.31 for the South Woodford parklet in London, 4.12 for Holzplatz and 4.10 for Piazza Zenetti in Munich, and 4.10 for the School Plaza in Bologna. The Wanstead parklet in London was an outlier, with a mean sentiment score of 2.47 and 38% of respondents indicating a desire for the SE to be removed. In contrast, only 1% of respondents for the South Woodford parklet, 5% for the Bologna Plaza, and 0% for the Munich plazas expressed a desire to reinstate the pre-SE street layouts.

Functional value: active mobility and stationary activities

The SE transformations in London and Munich generated greater added functional value for public life compared to mobility, as indicated by reported instances of SE use and perceived usefulness. In Bologna, the findings suggest that the SE supported both mobility and stationary activities, with the strongest evidence for added value in families' journeys to school.

The most frequently reported stationary activities across all cases were sitting, relaxing, and resting; drinking and sitting; and using the SE as a meeting place for friends, family, colleagues, and other parents. Our data highlight the central importance of seating in the SE: negative values for stationary activity and inclusive mobility were often related to the design of seating, including perceptions of discomfort and unsuitability for elderly or disabled citizens.

The findings indicate that the five SE were not considered essential infrastructure for everyday life but rather a "nice-to-have" amenity. In London, most respondents (70%) and in Piazza Zenetti (Munich, 64%) reported using the SE less frequently than once a week. The Holzplatz Summer Plaza was used once a week or more by 50% of respondents. In the case of the Bologna Plaza, a significantly higher proportion of respondents (35%, likely parents) used it three or more times a week. However, even in this case, 42% of respondents did not use the plaza on a weekly basis.

These findings highlight the varying levels of engagement and frequency of use of the SE among citizens. While some individuals utilized the SE regularly, it was not perceived as essential infrastructure for their daily or weekly activities. Instead, it was seen as an additional amenity that provided value for specific occasions or social gatherings.

Social and civic interaction and commercial value

In all cases, citizens expressed the value of SE in facilitating social encounters within the neighbourhood. This included using the space alone for activities like reading or taking a lunch break, enjoying the presence of others without necessarily interacting with them. The London parklets and Bologna Plaza served as meeting places for existing friends and family members. In the Munich plazas, there was evidence of the development of new social relationships, particularly among neighbours from nearby residential buildings. These plazas also became hubs for civic engagement, with groups of citizens organizing meetings and cultural events, and actively participating in the maintenance of the space.

The inclusiveness and public nature of SE spaces emerged as important factors for social interaction. Respondents in London and Munich emphasized the significance of freely accessible public space, recognizing that not everyone may be able to afford commercial seating or have access to private outdoor areas such as gardens. Munich respondents specifically highlighted the positive value of having a diverse range of plaza users representing different age groups, socio-economic backgrounds, and migrant communities.

Across all cases, citizens observed that certain population groups seemed to use the SE spaces more than others, and they recognized the positive value of SE for those specific groups. For example, the South Woodford parklet was seen as beneficial for young families, the Wanstead parklet for teenagers, and the Piazza Zenetti and Holzplatz in Munich for children. However, there were also perceptions that certain user groups "dominated" the SE spaces, leading to exclusion of other users. Teenagers in Wanstead and individuals perceived as "alcoholics" or homeless in Munich were seen as engaging in anti-social behaviour. In Bologna, some respondents felt that the plaza should be more inclusive and cater to a broader range of neighbourhood residents, rather than focusing primarily on children. The Bologna case highlighted the potential of tailored SE concepts linking to schools as "anchor institutions," while the Munich cases demonstrated the potential of promoting car-free public spaces that can be flexibly used by families and other user groups.

The South Woodford case presented a unique tension between the social value of inclusive public space and the commercial value of the SE. The parklet's location directly in front of a café, acting as an "anchoring institution," likely enhanced its perceived social and commercial value, making it a popular meeting place with direct benefits for the café business. However, some respondents felt that the parklet's design and the café staff serving customers seated at the parklet created an impression that it was exclusively for café customers rather than a public space. Interestingly, this issue did not arise in the other London and Munich cases, and the impact of plazas on local businesses was not a significant concern for Munich respondents.

Automobility, parking, and traffic-related values

In all cases except Holzplatz in Munich, some respondents expressed the view that SE made life more difficult for car drivers due to the removal of parking spaces (negative functional value for automobility). However, except for the Wanstead parklet, such perceptions accounted for a smaller proportion of the issues mentioned. Most Munich respondents believed that removing car parking spaces to create SE was justified.

Negative perceptions regarding traffic safety and pollution highlight a self-reinforcing cycle caused by the dominance of automobiles in city neighbourhoods, which impacts SE transformations. Across

all cases, citizens perceived that SE spaces suffered from excessive noise and air pollution and lacked adequate physical protection from traffic to be pleasant for use as public spaces. However, some respondents did not necessarily recognize that SE initiatives were attempts to address these very issues of traffic dominance. In London and Bologna, some individuals took these arguments further by expressing the belief that by removing car parking, SE increased traffic pollution and congestion as drivers spent more time searching for parking spaces.

Uniquely, citizens in London raised concerns about mobility justice, linking the removal of parking to negative impacts on inclusive mobility. They emphasized the need for SE planners to consider the needs of residents who rely on their cars to access high street shops and services, particularly those with reduced mobility (such as elderly and disabled citizens) or individuals who could not afford public transport fares or faced socio-economic disadvantages.

The attractiveness of the streetscape

Our findings highlight the significant importance citizens placed on the aesthetic aspects of the street, including greenery and maintenance. Streetscape was consistently the most highly valued dimension of SE in all cases.

Except for the Wanstead parklet, the values assigned to SE in relation to streetscape were predominantly positive. Citizens perceived that SE made the streets more attractive and "green," especially in comparison to the previous appearance characterized by grey concrete and car parking spaces. Negative perceptions were centred around the dislike of temporary materials and the informal design of SE, which was seen as appearing "cheap" and unsightly, as well as concerns about the poor maintenance of greenery and the presence of litter.

Discussion

What dimensions of SE do citizens value?

In response our research question – *What mobility and public life dimensions of SE do citizens value, considering both use value and broader social meanings*? – we found that citizens assigned greater value to SE use/functional value for stationary activities and public life, and assigned greater value to the meaning of SE transformations for the social, safety and environmental dimensions of public life, rather to streets' mobility function. The majority of the 458 citizens held a positive sentiment towards SE interventions, except for one outlier case (Wanstead parklet) that was valued more negatively in relation to its impacts on automobility.

These overall findings suggests that citizens are willing to (re)imagine the purpose of city streets as public places, rather spaces for motorised traffic and privatised automobility. We do not claim that we can generalise from this to conclude what a cross-section of citizens in London, Bologna, Munich – or other cities, for that matter – value about SE, based on our five exploratory case studies and self-selecting survey samples. For example, even if we found that citizens were not too concerned with car parking removal, we cannot conclude how representative this is of the local neighbourhood populations. Instead, we emphasise the lessons that can be drawn from our findings about the *multiple types of value* that citizens may assign to SE, including functional value, social meanings, and symbolic value, and the relative importance of each type.

Our argument that it is crucial to consider the use value of SE (section 2.1) was validated in the sense that the opportunities provided by SE for activities like socialising or bike parking were clearly important to citizens. However, we have also shown that functional value must be considered in light of the inclusiveness and pleasantness of SE spaces (Mehta, 2013). Citizens were acutely sensitive to the issue of functional value *for whom*, whether in relation to the perceived comfort of SE seating for individuals with reduced mobility, publicness of SE space, or socially excluding impact of reduced functionality of SE streets for private car drivers. Functional value for stationary activities and socialising was only maximised for citizens who perceived that SE space was pleasant to use, including safe, unpolluted, and well-maintained. In other words, it is not only the facilities provided by SE as mobility or social 'infrastructure' that matter, but also emotional and sensory experience. In response to Cresswell (2020), we argue that there is a sense in which mobilities research needs to acknowledge such practical design aspects of maximising SE use value, i.e. there are insights to be considered from the street evaluation and urban design literature.

On the other hand, our findings demonstrate the importance of broader social meanings that citizens associate with SE. Indeed, if we compare the sum of values expressed (P) for all functional versus non-functional categories, the non-functional dimensions of SE were valued more highly. We demonstrate that citizens assign value to SE based on their emotional investment in the perceived strengths and challenges of their neighbourhood, including how SE affect the 'image' and 'vibrancy' of the streetscape and local commerce as aspects of 'sense of place' (Carmona et al. 2018; Cresswell, 2009). This interfaces with the fact that one defining aspect of SE is that they typically use temporary materials (e.g. not formal street furniture), and our findings indicate that citizens' attitudes with

respect to the informality of tactical urbanism in this sense is another key factor (Berglund, 2019). Significantly, our inductive data revealed fears harboured by some citizens that SE transformations would have a negative impact on the mobility of elderly and low-income residents, levels of traffic pollution, and traffic safety. Such fears are narrated by specific individuals based on their specific circumstances and lived experience and thus their value needs to be recognised on grounds of epistemic justice (Smeds et al., 2020; Schwanen, 2021), yet they are often dismissed as irrational by urban planners, and certainly not considered relevant within most expert-led street evaluations. While Carmona et al. (2018) and the Healthy Streets approach (TfL, 2017a) incorporate attention to inclusive mobility, traffic pollution and traffic safety, these are all evaluated through objective indicators (Table 1), rather than as socially constructed categories of value. This is a major difference with the approach used in our study, in its inductive exploration of social meanings inspired by the mobilities paradigm.

We also found that citizens assign *symbolic value* to SE, reflecting desires for change beyond the neighbourhood scale, such as transitions towards a post-car city, a liveable city adapted to climate change, and a just city that resolves pressing social needs. These respondents did not relate the value of the SE to everyday street life, but rather SE spaces were abstract symbols of change, for example: "Take back public space from cars for people" (South Woodford parklet). The symbolic value dimension is not included in our output framework because it extends beyond the framing of our research question, and we cannot offer a proper conceptual grounding for it. However, we mention this dimension here because it can be linked to the question of whether SE can 'mobilise the broader public' in favour of post-car transitions (Bertolini, 2020; VanHoose et al., 2022). Our data suggests that citizens who assigned symbolic value to SE for post-car transitions were part of 'pre-mobilised publics':[2] citizen networks that pre-dated SE implementation and were mobilised for or against specific SE types (e.g. parklets) and a transition. The majority of our 458 respondents did not assign symbolic value to SE, rather the values they expressed related to the 10 more tangible categories captured by our framework. Thus, we argue that what mobilises most citizens to support SE is use value and social meanings in the context of everyday street life, rather than the idea of 'systemic change' away from automobility. In this sense, our findings tentatively support Gössling's (2020) argument that anti-car rhetoric is ineffective for SE targeting majority populations.

Finally, we reflect on our finding that citizens did not perceive SE to generate much added value for active and/or shared mobility. Can SE contribute to transitions towards a post-car city, if most citizens do not mobilise around SE solely based on the promise of systemic change/disrupting automobility, *and* citizens do not perceive that SE tangibly support alternative mobility practices? In other words, can SE contribute to post-car transitions solely based on citizens reimagining city streets as public spaces (rather than movement arteries)? Our answer is no: because mobility will still be necessary in an entirely car-free city, transformative change cannot just involve a cultural shift away from 'streets for mobility' to 'streets for public life', but also involves change in local walking and cycling cultures (Aldred & Jungnickel, 2014). We do not argue that all SE need to generate as much value for mobility as they do for public life: to a significant extent, the balance depends on the context-specific needs of specific streets and planning goals for SE. However, there

[2] Our use of this term draws on the social science literature regarding the formation of 'publics' around socio-technical controversies (Marres, 2016).

remains a considerable need to support the growth active and shared mobility in all European cities, and we know that SE design can integrate such goals; for example, through soft-edged space for walking and cycling in the case of the Bologna School Plaza, integration of e-scooter parking in Stockholm parklets (City of Stockholm, 2022) and bicycle lanes in Milan plazas (City of Milan, 2022). Thus, our case study findings that the value of parklets (London) and plazas (Munich) for active mobility was limited does present a conundrum for future research and practice.

Towards a holistic approach for studying SE transformations

The primary contribution of this paper is the methodological and analytical approach presented, which addresses a research gap on citizens' perspectives on SE, and combines a primarily inductive design, innovative analysis of qualitative survey data, and an output framework that relates findings to existing knowledge on city streets. The reliability of our approach is reflected in the consistency of findings across SE cases in the same city: for London parklets and Munich plazas, citizens' narratives were similar for most of the ten value categories.

Circling back to the methodological debates discussed in section 2.1, we have shown how many responses to open survey questions can be systematically categorised. We think our qualitative content analysis approach (Gläser & Laudel, 2006) has advantages compared to a thematic or pure grounded theory analysis that is often used for inductive data (Braun & Clarke, 2006): it maintained some loose connections to existing street evaluation literature, and was more feasible to conduct for a large amount of short qualitative text segments or so-called 'micro-stories' (von Schönfeld et al., 2020; Vecchio, 2020). The survey method generated fewer rich data compared to interviews as a more common method in qualitative mobilities research, but on the other hand, captured the values of many more citizens (Manderschneid, 2016). We have shown how simple quantification of qualitative comments can be productive: it allowed us to not only identify *what* citizens value about SE, but also the relative significance of each value category, i.e., to show from what proportion of citizens the data underlying a particular type of value was derived from. This latter aspect is often missing in thematic analyses of qualitative data from smaller groups of individuals, i.e.. in interview studies. We have also shown how including some multiple-choice survey questions for quantitative data (reported instances of SE use) can serve as a useful point of triangulation with qualitative data. Overall, we have demonstrated the advantages of a carefully balanced mixed inductive-deductive and qualitative-quantitative approach.

Our framework for valuing SE across 10 dimensions of the mobility and public life function of city streets (Table 2) is the outcome of our findings regarding what citizens in London, Munich, and Bologna value. We do not present it as a new framework that we recommend others should use for deductive evaluation of SE interventions, nor as a definitive set of categories for valuing SE. Replication of our inductive research approach to study other SE cases would generate a context-specific set of categories, reflecting what citizens value about that type of SE in that place. Having said that, in section 2.1 we argued that a holistic perspective on city streets *may* need to consider *at least* five dimensions (functional, social, safety, environmental, and economic) in relation to both mobility and public life. We think that our findings confirm the validity of this argument, since the SE

aspects that citizens valued spanned the whole breadth of our 10 categories across the five dimensions. Thus, one strength of our tentative framework is its holistic nature or 'comprehensiveness', in comparison to Mehta's (2015) Public Space Index and the Healthy Streets approach (TfL, 2017b). Our framework arguably also has a clearer structure compared to that developed by Carmona et al. (2018), in that our 10 value categories do not overlap/span across mobility and public life functions, and functional, social, safety, environmental, and economic dimensions, in the way that Carmona et al.'s (2018) categories do.

Lastly, we wish to acknowledge that despite the importance of understanding citizens' perspectives, they also do not represent any form of 'final truth'. While we should recognise the intrinsic value of citizens' lived experience, as scholars, we can also critically reflect on citizens' values in a world of late capitalism – in particular, for our findings, how citizens perceive the social value of SE. For example, for London parklets, the perceived value of consumption-based socialising in parklets in the context of 'homo cappucino' liveability urbanism (Krivy & Ma, 2018), and for all the cases, how certain groups of SE users were perceived as 'undesirable' by other citizens, in the context of structural injustice in public space access. Our findings have confirmed those of existing studies: that parklets and plazas are not necessarily inclusive 'social connectors' (section 2.4). More in-depth qualitative research is thus needed to understand the social value of SE for a diversity of population groups (e.g. Risbeth & Rogaly, 2017; Latham & Layton, 2021).

Context-specific factors shaping SE value

Our study includes five case studies that examine how citizens value similar SE parklet and plaza interventions in neighbourhoods with varying socio-spatial characteristics. The selection of these cases was based on a "maximum variation" approach, allowing us to compare and explore how citizen values differ across different contexts. It is important to note that our approach was exploratory, and we did not have specific hypotheses about the expected differences.

Despite the variations in neighbourhood characteristics, we found strong similarities in what dimensions of SE citizens value. Across all five cases, streetscape, stationary activities, and social and civic interaction were consistently valued the most. This finding is particularly interesting considering that South Woodford and Wanstead, both suburban and car-dependent neighbourhoods in London, also placed high value on these public life dimensions, despite expectations of a more car-centric perspective.

However, there were some differences in what citizens valued, which were linked to the perceived needs of the SE location. The specific characteristics of the streets where SE interventions were introduced played a significant role. For instance, in South Woodford, the parklet was seen as valuable because it addressed existing issues such as a lack of green space, limited seating, and narrow pavements. In contrast, Wanstead High Street did not have these issues, resulting in a perception of lower value for the parklet. Negative sentiments towards SE often stemmed from a perception that the interventions did not address the pressing needs of the neighbourhood.

While our findings provide insights into the factors that shape citizen values of SE, it remains unclear whether the variation in neighbourhood type or the type of SE intervention itself has a greater

influence. We did observe that the functional value of SE was strongly influenced by the specific characteristics of parklets and plazas.

Several factors emerged from our study that influence how citizens perceive the value of street experiments (SE). These factors contribute to shaping their evaluations and attitudes towards the interventions. One key factor is the existing socio-spatial characteristics of the neighbourhood. Neighbourhoods with distinct characteristics, such as being car-dependent or having limited green spaces, tend to influence how citizens perceive the value of SE. For example, in areas where there is a lack of public gathering spaces or seating options, citizens may highly value SE interventions that provide opportunities for social interaction and stationary activities. On the other hand, in neighbourhoods with abundant existing amenities or differing priorities, the perceived value of SE may be lower.

The specific location and design of the SE intervention also play a role in shaping citizen perceptions. Factors such as the presence of nearby businesses, the type of street (commercial or residential), and the existing infrastructure can influence how citizens evaluate the value of SE. For instance, if a parklet is located in close proximity to a popular café or enhances the aesthetic appeal of a commercial street, it may be perceived as more valuable due to the additional amenities and social opportunities it provides. On the contrary, if the design of the SE intervention does not align with the needs or preferences of the neighbourhood, it may result in lower perceived value.

Moreover, citizens' individual needs, preferences, and experiences significantly influence how they perceive the value of SE. Different demographic groups may prioritize certain aspects of SE more than others, based on their specific requirements and lifestyles. Factors such as age, mobility limitations, economic status, and cultural background can shape how citizens perceive the functional, social, and environmental benefits of SE interventions. Understanding these diverse perspectives is crucial for designing inclusive and effective SE interventions that cater to the needs and desires of the entire community.

Overall, a combination of contextual factors, location-specific characteristics, and individual experiences collectively contribute to how citizens perceive the value of SE. By considering these factors and engaging in ongoing dialogue with the community, urban planners and policymakers can better understand citizen preferences and design SE interventions that truly enhance the quality of street life in a way that is meaningful and valued by the residents.

Limitations of the study

The main limitations of the study relate to our raw survey data. We did not aim to recruit a sample of respondents that would be representative of the population of each neighbourhood, given that the research team’s resources were stretched across three cities. The combination of a sample size of N=84-100 per case and respondents' skewed socio-demographic and mobility attributes meant that cross-analysis of SE use/perception with these attributes was of limited value.

As for all studies with self-selecting sampling, the presence of pre-mobilised publics (section 5.1) within our case contexts skews the data collected on citizens’ perceptions. In our findings, this was particularly observable for the Wanstead parklet, which it appeared many respondents had mobilised against prior to data collection, and for the Bologna Plaza, where co-creation activities conducted by the SE implementing organisation had likely mobilised parents to support the plaza

before its implementation. Further, citizens who identify as male, are younger than 25 years old, and identify with a non-white ethnic group are likely to be underrepresented among our respondents, relative to the broader population of each SE neighbourhood.

The most significant caveat concerning the source data relates to the mix of SE users and non-users across samples, ranging from 33-65% non-users for the London cases to 10-11% for Munich cases and below 10% for the Bologna case. The proportion of non-users was higher in London because of the greater resources available for participant recruitment. In contrast, recruitment in Munich and Bologna depended on fewer resources and local partner organisations rather than the UK-based authors; thus, in these cities, recruitment focused on the easier task of engaging current SE users.

However, this feature of the source data does not significantly affect our overall findings and conclusions. We sought to recruit a mix of SE users and non-users based on the hypothesis that users would be more likely to hold a positive sentiment towards SE than non-users, as shown by other studies controlling for respondent familiarity with SE (Noland et al., 2022). Thus, we judge that at most, the lower degree of non-users in Munich and Bologna samples means that our data may overestimate local positive sentiment towards SE, and the higher degree of non-users in the Wanstead sample may overestimate negative SE sentiment there. In any case, our primary contribution is the research approach for understanding the value of SE that we have presented, rather than our findings regarding the balance of positive and negative values for our specific cases.

Conclusion

In this study, we addressed the research gap concerning citizens' perceptions of the value of street experiments (SE) in everyday street life. Our findings highlight that citizens primarily value the functional dimension and meanings of SE in relation to public life in city streets, rather than its impact on street mobility or its symbolic value for transitioning to post-car cities.

The main contribution of this paper is our analytical approach, which involved an inductive analysis of large amounts of qualitative survey data. This approach enabled us to develop a structured analytical framework that captures how citizens value SE across 10 dimensions. The framework integrates perspectives from mobility, urban design, and transitions literature, providing a holistic understanding of the value of SE. This approach differs from previous studies that primarily employ deductive and quantitative methodologies and often overlook the integration of mobility and public life functions.

Our survey methodology and analysis approach are feasible for urban planning practitioners to adopt. We respond to the need for low-cost approaches to studying small-scale street transformations, where comprehensive statistical analyses and representative respondent samples may not be necessary. By employing our approach, practitioners can effectively assess citizens' responses to SE, facilitating iterative refinement of interventions and enhancing the local value of SE for everyday street life.

Our study collected data from 458 citizens in three European cities, encompassing two types of SE (parklets and plazas) and three distinct neighbourhoods. While this exploratory study cannot provide

definitive conclusions about how citizens value SE across entire census populations, it is unique in its comparative analysis across multiple cities. Despite the diverse contexts, we identified significant similarities in how citizens value SE's public life dimensions, providing valuable insights for future research.

To maximize the local value of SE for citizens and everyday street life, we offer the following recommendations:

- Carefully consider the potential of SE to support goals of promoting active and/or shared mobility, considering the relevance of SE type and location. Our research suggests that citizens often find the public life value of SE more accessible and easily understandable than its impact on mobility. Caution should be exercised when using anti-car rhetoric to communicate about SE.
- Integrate SE interventions into broader policy packages that include traffic calming measures for the surrounding streets. This complementary approach ensures a cohesive and effective transformation of the entire street network.
- Incorporate well-established design principles to clearly signal the publicness of SE spaces, such as signage, and promote inclusiveness through design elements or programming that affirm the rights of diverse social groups to use the space.
- Prior to SE implementation, conduct a needs assessment specific to the streets and neighborhood locations to inform the design and communication of SE interventions. This assessment should consider mobility and public life facilities, traffic volumes, adjacent businesses, and public institutions, and address broader neighborhood challenges, including social safety. Crucially, citizens should be involved in identifying the most important or pressing issues and incorporating perspectives from different potential user groups.

By following these recommendations, practitioners can ensure that SE interventions are aligned with citizens' needs, enhance the value of everyday street life, and contribute to the ongoing learning and refinement of SE initiatives.

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