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# Urban rooms and the expanded ecology of urban living labs

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## ABSTRACT

Urban living labs (ULLs) deal with complex urban futures by acting as translators between research and urban co-production processes. The ‘urban room’ (UR) typology is a space for diverse actors and citizens to co-create city futures. This paper examines how the situated, hybrid and participatory methods of the URs compare with those of ULLs. This reveals similarities and differences in building resilience. URs are positioned as place-based infrastructures and active sites of multiplicity, where diverse communities can transform the city, decentring experts in urban transformations. A UR case study of collaborative civic regeneration in Sheffield, UK, is explored through a situated and diffractive analysis. Effective new methods are found to be speculative openness, generative witnessing and inhabiting detachments. These methods are complementary to ULLs and enlist a multiplicity of voices engaged in the co-production of urban knowledge. An expanded ecology of URs and ULLs would enrich ‘dialogical spaces’ within cities towards achieving just adaptation and resilience.

## POLICY RELEVANCE

Engaging diverse communities in entangled challenges of city and planetary futures is crucial, yet significant gaps exist, especially concerning minority populations in the United Nations’ Sustainable Development Goal (SDG) 11 datasets. ‘UR’ can nurture diverse partnerships and resilient forms of urban co-production by reaching new communities in sites of concern. This approach expands the ULL methods by addressing the critical planning challenge of inclusive community engagement for equitable urban development. URs provide new tactics that engage diverse actors and give voice to marginalised people. This long-term, situated and additive practice can transform the diversity of engagement, foster a plurality of urban futures and create novel forms of hybrid governance.

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# 1. INTRODUCTION

To tackle the complexities of polycrisis, there is growing recognition that distributed and networked experimentation is needed. Urban living labs (ULLs) conceptualise cities as networks of experimental sites that engage local citizens to become integral parts of systemic change, adaptation and transformation ([Bulkeley et al. 2019](#); [Karvonen & van Heur 2014](#); [Marvin & Silver 2016](#); [Nevens et al. 2013](#); [Scholl et al. 2022](#); [von Wirth et al. 2019](#)).

Two prominent trajectories within ULLs can be identified. One extends the controlled environments of traditional laboratories into urban settings ([Bulkeley et al. 2016, 2019](#); [Karvonen & van Heur 2014](#); [von Wirth et al. 2019](#)), expanding the local into translocal learning platforms ([Scholl et al. 2022](#)). The other prioritises citizen agency and the diversification of knowledge production towards just transitions ([Asenbaum & Hanusch 2021](#); [Belfield & Petrescu 2024](#); [Castán Broto et al. 2024](#); [Teebken 2024](#)).

This paper argues for the pluralisation of knowledge systems through co-production to maximise the transformative potential of ULLs ([Menny et al. 2018](#)), thereby facilitating the emergence of controversies within an agonistic framework ([Belfield & Petrescu 2024](#); [Björgvinsson et al. 2012](#)), and infrastructuring resilience through creative engagement with uncertainties ([Frangos et al. 2017](#)).

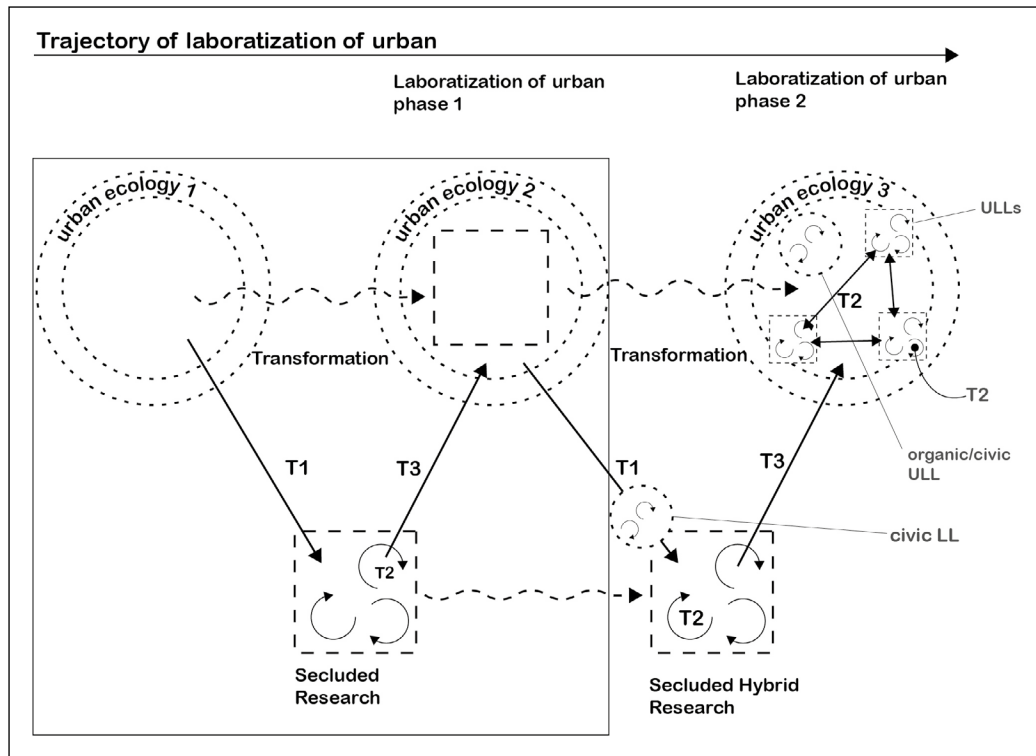
The paper is structured as follows. The next section provides a theoretical backdrop for laboratorisation of the urban environment. This is based on ethnographic studies on laboratories accumulated since the 1970s. Section 3 explores the gaps and relations between ULLs and the urban rooms (UR) literature. Section 4 introduces the methodological framework. Section 5 applies a diffractive methodology to the case study of the Live Works<sup>1</sup> UR in Castlegate, Sheffield. Section 6 presents the findings. Section 7 provides key conclusions that advocate an alternative trajectory of dialogical urban ecologies.

# 2. LABORATORISATION OF URBAN LIFE

Although some studies have examined the historical interdependencies of urban and laboratory life ([Dierig 2003](#); [Dierig et al. 2003](#)), and the relationship between architecture and the spatiality of science ([Gieryn 2006, 2008](#)), the spatial evolution of laboratories and their impact on urbanisation remains relatively underexplored.

Latour's work highlights how practice within the laboratory 'transforms the society into a vast laboratory' ([Latour 1983: 166](#); [Karvonen & van Heur 2014: 3](#)). This transformation involves: constructing an extractive field, extracting knowledge into a controlled environment and a return to the outside world for transforming the field ([Latour 1983](#)). [Callon et al. \(2011\)](#) further elaborate on these transformation stages describing them as three translation phases: reducing the macrocosm (annotated as urban ecologies in [Figures 1 and 6](#)) to the microcosm of the laboratory (T1), forming a controlled environment to devise simplified objects (T2), then transposing the results back into the macrocosm (T3) through 'laboratorisation' ([Callon et al. 2011: 48–70](#)). This makes the city a subject of scientific construction, with inhabitants becoming part of this socio-technical apparatus ([Knorr Cetina 1995: 334](#)). Laboratorisation of the urban creates the conditions of 'controlled experimentation', making the urban function as a laboratory ([Evans & Karvonen 2014: 416, 417, 426](#)). [Von Wirth et al. \(2019\)](#) studied the diffusion of laboratories into the urban environment through three processes: 'embedding experiments' into existing urban knowledge spaces; translations of experiments from one context to another; and transforming knowledge practices from one scale to another scale.

This paper critiques this laboratorisation in the context of the challenges of inclusivity and disjunctions within urban transition movements. It acknowledges the 'radical unknowability' ([Simone & Castán Broto 2022](#)) of urban life. The integration of diverse perspectives is crucial to minimise unintended consequences and to enrich values relevant to both humans and ecosystems ([Castán Broto et al. 2024](#)).



**Figure 1:** Trajectory of the laboratization of urban ecologies.

*Note:* Conceptualisation of the transformation of ‘macrocosm’ (annotated as ‘urban ecology’) to a new state (from E1 and E2) as a result of three translation phases, T1–T3. LL = living lab; ULL = urban living lab.

*Source:* Adapted from Callon et al. (2011: 69).

Callon et al. (2011) propose ‘hybrid forums’ that act in ‘dialogical spaces’ to productively engage with inherent uncertainties and to diversify socio-technical knowledge systems (21–36). These hybrid forums interface ‘dialogical democracy’ with research infrastructures to facilitate ‘deepening of knowledge’ (192). This moves ‘laboratorisation’ narratives beyond the diffusion of knowledge. Callon et al. advocate for spaces for the ‘implementation of dialogic procedures’ that make room for minor identities to recognise their own powers and embed them into the emerging plural knowledge ecology (180–181, 240–241).

This paper proposes URs as a spatial typology that could foster ‘agonistic pluralism’ (Mouffe 1999: 754) and generate ‘dialogical spaces’ where conflicting views and agendas can be engaged within urban adaptation and transformation processes (Rizzo et al. 2021).

### 3. URBAN LIVING LABS AND URBAN ROOMS: GAPS

Bulkeley et al. (2019: 321–323) have identified three typologies of ULLs:

- *Strategic:* acting as testbeds to ‘develop applications, build local capacity and develop an internationally competitive technology sector’.
- *Civic:* transferring research to demonstrate application, innovation and development capacities, or accelerate (transition) plans and processes.
- *Organic:* context specific, responding to ‘the needs and priorities of particular communities and/or neighbourhoods’.

Belfield & Petrescu (2024: 4) propose ‘civic–organic’ hybridisation of ULLs that combines technologies, procedures, methods and resources from both civic and grassroots organisations. For them co-design procedures can catalyse cross-sector trust-building and increase porosity of boundaries, building capacity of resource-sharing across organic and civic initiatives, contributing to the ‘transformative potential of ULLs’ (Menny et al. 2018; Nevens et al. 2013). ULLs adopting co-production is identified as a potential bridge between URs and ULLs. Interrogating UR practice through the lens of the hybrid typologies of ULLs open alternative pathways where citizens actively participate in the transformation of knowledge infrastructures.

The Urban Rooms Network (URN) (2022b) defines a UR as ‘a space where people can come together to help create a future for their local area’. URs reproduce diverse civic pedagogies. Learning in the UK is from urban studies centres (Perez-Martinez 2020), the community architecture movement of the 1980s and architecture centres of the 2000s. URs bring people from different sectors, backgrounds and experiences together with experienced facilitators who can mediate across a plurality of voices and opinions.<sup>2</sup> The objective is not necessarily to reach a consensus but to hold a space for different and sometimes conflicting views with the aim to share knowledge, gain understanding, build relationships and catalyse new ways of working together. The UR becomes not only the location for but also the archive of conversations, opinions and ideas for the future of the local area, maintaining an evolving record of the outputs of these dialogues on the physical walls and in the digital spaces of the UR. While the term ‘urban room’ is mainly associated with the UK context prompted by the Farrell Review of 2014 (Farrell Review Team & Farrell 2014), there are instances of UR practice directly or indirectly implemented elsewhere. For example, The Future of Small Cities Institute (2025) in the US actively uses the UR methodology, instigating several URs in the Capital Region (District) and Hudson Valley of the US.

The Farrell Review<sup>3</sup> recommended the UR as spaces where people could collectively explore and engage with the past, present and future of places (Farrell Review Team & Farrell 2014: 53, 162). Although there is a growing interest in URs, and an expanding network of diverse initiatives, there is limited literature on URs in comparison with ULLs. Despite the lack of literature, there is growing evidence regarding the infrastructural capacity of URs as open and accessible physical spaces located on high streets or nearby sites of worry that use creative and participatory methods to conduct experiments concerning the future of places (Butterworth *et al.* 2022a).

Four emerging UR typologies in the UK are identified, drawing on the ‘Stories’ in the ‘Urban Room Toolkit’ (Butterworth *et al.* 2022a) and online sources. The stories provide a good starting point for an initial understanding of the potential links between URs and ULLs. This review of UR practice on the ground reveals knowledge of diverse networks of public, civic and community organisations that develop skills, resources, creative methods and capacities to act collectively within urban environments.

The URN identifies 33 different iterations of URs (so far) across the UK, initiated by universities, local authorities, community groups, arts organisations or architecture practices (URN 2022a). However, a defining characteristic of the UR is the plurality of the partners engaged, resulting in an intrinsic complexity that goes far beyond categorisation by sector. Governance and operation of URs are often hybrid, while caretaker organisations ensure longevity and continuity of co-production processes.

URs occupy strategic locations in areas of concern, both permanently or temporarily, in underused shops, community or civic buildings, or pop-up structures. This flexible spatio-temporal strategy allows responsive and tactical acting while maintaining and building local trust. While approximately 5% of ULLs are located outside the domain of institutional settings (Marvin & Silver 2016: 53), URs depend on strategic proximities to areas of concern. Like organic ULLs, they are prone to unstable and precarious funding, creating challenges for continuity of resourcing and for maintaining autonomy of operation independent of agendas set by funding sources. The paper identifies four typologies across the URN in the UK:

- *Creative co-acting*

Despite being associated with built environment disciplines, a considerable number of URs are led by artists and creative practices. Arts methods underpin these URs, offering creative tools with which to engage visitors with diverse themes that include creative placeshaping,<sup>4</sup> inclusive cultural strategies (UR Folkestone), urban development and regeneration (UR Croydon and UR Cambridge), diversifying cultural heritage of places (UR Blyth), climate justice (UR Dudley), *etc.* As an artwork commissioned for the Folkestone Triennial in 2017, UR Folkestone expands the role of arts practice through embodied and spatial interventions, bringing creative and critical placeshaping agendas to communities, changing places and cultures through creative actions.

- *Situated placeshaping*

Council led URs (UR Croydon and UR Ruthin) locate participatory planning practices on the high street, increasing visibility and building legitimacy of their actions. Often learning from arts-led URs, they use creative methods and work with artists to enhance and diversify conversations around placeshaping, providing valuable resources to the public organisation. UR Croydon expands the planning office of the council into the high street through a ‘planning shopfront’, aiming to democratise planning processes by widening access, especially for underrepresented communities (Butterworth *et al.* 2022a). The UR has a strategic programme that supports reciprocal learning, exhibitions, artist residences and archive to create a hybrid culture around planning practices with diverse voices and perspectives.

- *Community-led imaginaries*

Community-led URs embed themselves in community hubs or meanwhile spaces to reclaim placeshaping through localised actions, increasing the capacity of inhabitants to shape their built environments. The agendas and programmes of community-led URs are surrounded and influenced by community services such as wellbeing, language support and repair workshops. UR Smethwick, which is embedded within the Bearwood Community Hub (2025), offers UR activities alongside 13 different community services. The everyday community support knitted into the UR typology creates resilience, locating placeshaping narratives in response to the challenges communities are facing. The potential downside of this hybridity is the challenge of instigating future thinking from the midst of providing essential services to marginalised members of the community. If a creative tension between the two states can be maintained, the diversity of knowledges and activities in the UR are invaluable in challenging institutionalised placemaking structures (Petrescu *et al.* 2022).

- *Knowledge interfaces*

University-led URs align themselves with civic impact, knowledge exchange and student employability agendas, with the focus on each varying in different institutions. They provide spaces outside university infrastructures and interface with both local authorities and community initiatives, introducing (urban) research and pedagogy into non-academic urban processes. Live Works (the project office and UR of the School of Architecture and Landscape at the University of Sheffield) is the first permanent university-funded UR in the UK (Live Works 2025b). It is closely connected to the socially engaged pedagogical infrastructure of Live Projects with architecture students acting as provocative agents within the UR. By engaging with the pedagogical settings of co-design, communities access creative tools and resources that unlock funding, future visions that create new partnerships with public institutions and gain visibility within networks, increasing their legitimacy (Butterworth *et al.* 2022b).

Despite the gap in the literature regarding URs, the evidence gathered from the four examples above provides a clear indication of the capacity of URs to act as ‘dialogical spaces’ within a wider ULLs ecosystem. The case study of Live Works is now presented and used to examine this potential.

## 4. METHODS

By examining the situated practice of Live Works in Castlegate’s ongoing involvement in co-producing the Castlegate project, the paper seeks to provide an alternative trajectory to the labourisation of the urban environment. Can URs become an infrastructure for urban adaptation, transformation and building resilience by expanding the ULLs’ ecologies into plural knowledge ecosystems? The analysis of the Live Works case study challenges traditional laboratories and networks as immanent ecologies of knowledge production.

The authors are intimately connected to the case study of Live Works in Castlegate, being embedded as researchers and educators, with their students and stakeholders, in the processes of co-production in the area for the last decade. Although this paper focuses on a single case study, the authors’ close understanding of the complex interrelationships, controversies and layered processes at play in Castlegate’s regeneration gives them access to situated data (Castlegate Co-production Index<sup>5</sup>) to analyse.



The potential limitations of a single case study are offset by the capacity to produce a ‘thick’ analysis of a situation that has developed over many years. It is the authors’ contention that, even though the particularities of the case study are not necessarily transferable to other situations, this methodological approach of a diffractive analysis of a situation from within can offer useful knowledge of how to work in and learn from other situations.

This paper’s theoretical framework, drawing on Latour (1983) and Callon *et al.* (2011), utilises notions of experimentation, translation, mediation and transformation to reassemble knowledge ecologies, exploring the potential role of URs as instigators of plurality within urban transition processes. This theoretical framing contests the linear expansion and further diffusion of infrastructures of control through laboratorisation of the urban. This prepares the ground for the diffractive analysis which makes contributions of the specific UR methods more visible in relation to ULLs.

The diffractive analysis is based on feminist methodologies developed by Haraway (1992, 1997) and Barad (2014). Diffraction is used as a productive method, rather than reflective (Haraway 1992: 300, Barad 2014: 172), and here it is used to bring about differences generated in the situated practice under four themes: experimentation, translation, mediation and transformation. The themes, derived from theories of laboratorisation expanded below, are used to construct the diffractive apparatus. They act as ‘agential cuts’ (Barad 2014: 176) to reveal differences that challenge the trajectory of laboratorisation of the urban.

Experimentation in ULLs is framed as a controlled scientific procedure embedded within urban environments, analysed through their situatedness, change orientation and contingency (Karvonen & van Heur 2014), and discussed as processes facilitating change:

where emerging and fluid ideas, practices, expectations, technologies, and new social relations can develop and align into a new, potentially more sustainable socio-technical configuration.

(Fuenfschilling *et al.* 2019: 220)

Callon *et al.* (2011) propose that experiments deal with uncertainties, put in place by a collective. Bulkeley (2021) suggests reframing how experimentation is understood in relation to climate politics to innovate relational and hybrid governance models to address the inherent uncertainties of the times. This paper explores design speculation as a rich toolbox to engage with uncertainty through experimentation with co-production methods and hybrid models of governance of urban regeneration processes. Speculative ‘thought experiments’ are constructed and ‘expressed through design’ to tackle difficult issues and wicked problems (Dunne & Raby 2013: 80). The question that helps identify methods of creative engagement with uncertainties of urban transformation is:

How does UR practice generate difference through provisional and speculative experimentation?

Within laboratory studies, translation is the act of bringing elements from the outside into the lab by reframing practices, procedures and technologies (T1 in Figure 1). An alternative reading of translation is introduced by considering that ‘objects of scientific inquiry inhabit multiple social worlds’ and translations are multidirectional across diverse actors (Star & Griesemer 1989: 392). This paper identifies such ‘boundary objects’ that maintain and manage diversity of perspectives through acting as multipliers of meaning within social worlds that are plural (Star & Griesemer 1989). The question that helps to initiate diffraction of translation methods is:

How does UR practice generate differences in translations between experts, citizens and more?

This paper explores the role of UR as ‘mediator’ (Latour 2007: 240–241), making visible plural values in emergent dialogical spaces. For Latour, mediators are attachments or linkages that ‘transform, translate, distort, and modify meanings’ determining an organisational system’s capacity to act (217). The mediations prioritised through the diffractive analysis are those of the minor, making collectives sensitive to differences and fostering ‘agonistic pluralism’ (Mouffe 1999: 754). The question here is:

Transformation is a process for upscaling the procedures and technologies generated within a knowledge system to make it applicable across multiple scales to create structural change (Feola 2015: 382; von Wirth *et al.* 2019). Transformation could also generate alternative pathways, disrupting linear processes by generating new ‘storylines’ and ‘imaginaries’ by radically changing the existing dominant narratives (Castán Broto *et al.* 2024). For Castán Broto *et al.* (2024: 205), ‘urbanisation is a disruptive process’ contesting the existing narratives of adaptation and transformation. The question is:

How does UR practice generate differences in transformation processes to reveal new narratives and imaginaries?

This framework is used to analyse the contributions of the UR as ‘hybrid forum’ (Callon *et al.* 2011: 158–168) and draw conclusions on its potential as a new model for infrastructuring resilience (Frangos *et al.* 2017).

## 5. A DIFFRACTIVE ANALYSIS OF LIVE WORKS IN CASTLEGATE

The 1960s’ Castle Market, used by working-class communities of Sheffield with customs and folklore of its own (Beck 1987), was emptied and demolished in 2014 to make way for large-scale council-led regeneration. The Live Works UR started engaging with affected communities and the wider public in Castlegate in 2014. The UR is still active today after engaging with thousands of people in various pop-up URs—utilising three empty shops, a gallery space, a disused department store and public streets—as well as the Live Works project office near the relocated market, now on The Moor. Through its decade of engagement with the site, the UR has developed many co-production and co-design methods to enable affected communities to contribute to regeneration processes. This sustained engagement proved instrumental in 2021 when Sheffield City Council (SCC) secured £17 million in national government funding for a new park on the site of Sheffield Castle and Castle Market. Engagement continues with proposals emerging through co-production for a new Pavilion to sit at the heart of the new Castle Park. The recognition of Castlegate as inherently a place of vibrancy and plurality is now informing the aim that the Pavilion will intentionally bring together community, ecology, arts and culture, and heritage.

The first instance of this approach was the 2014 ReMake Castlegate project, a large, mobile cardboard model of Castlegate depicting its topography, rivers and key landmarks. The model was based in a pop-up UR adjacent to Castle Market as it was waiting for demolition. The project team of architectural educators, students and artists acted as the mediators to guide participants to contribute their memories of the past, observations of the present and dreams for the future through craft, modelling and writing. Over time, the model became dense with contributions from stallholders, residents, activists, visitors and local decision-makers, reflecting their diverse perspectives on Castlegate. The model started to inhabit the ‘multiple social worlds’ captured by the rich constellation of boundary objects that triggered multidirectional translations (Star & Griesemer 1989). Many of these objects overlapped in time and space, revealing the contradictions and detached positions of participants. A guiding principle was to continue adding to the model despite these conflicts, deliberately resisting simplification.

This open-ended and additive method of speculative experimentation slowly transformed the grieving for the loss of the public market into dialogical conversations. Controversies and contingencies became resources of collective exploration through the additive and speculative experimentation methods.

Such collective experimentation challenged the assumptions about who has a claim in urban experimentation processes. This approach transformed design experimentation into a method for raising the aspirations of local actors, unsettling traditional modernist planning apparatuses and ultimately cultivating a multiplicity of design ideas for Castlegate’s future (Figure 2).





**Figure 2:** ReMake Castlegate model, a 1:200-scale urban base to stimulate and hold speculative visions.

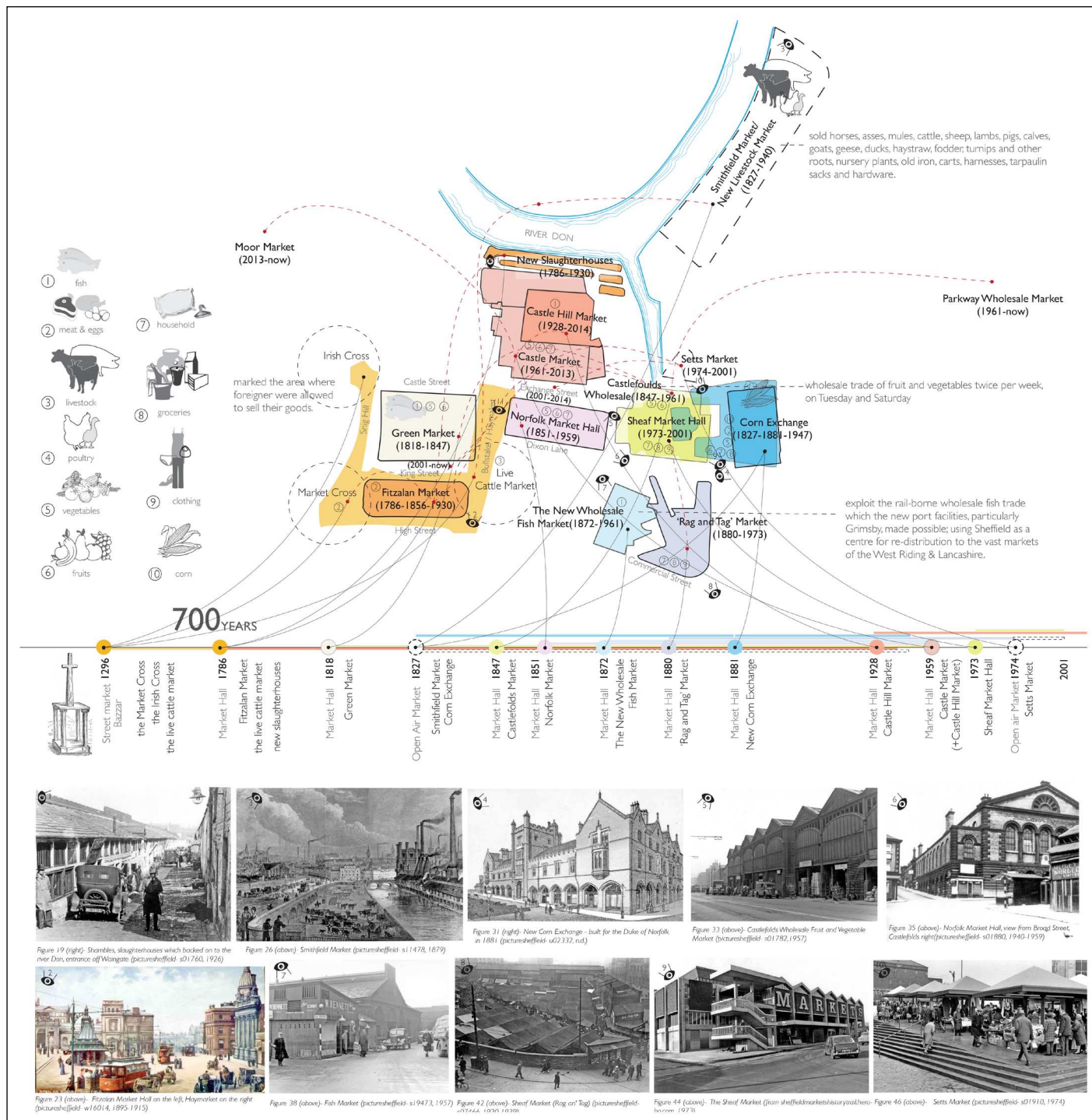
Source: University of Sheffield.

The open-ended and additive method of experimentation continued to evolve through following phases of the UR. As part of the 2018 Experience Castlegate project, a digital model of Sheffield Castle was created in collaboration with researchers from archaeology and computer science, accessed via virtual and augmented reality (AR) interfaces. AR-immersive technologies helped to layer different temporalities—the historical and the contemporary—simultaneously through an installation that geolocated the digital castle model directly within a physical model of contemporary Castlegate. The entanglement of digital and analogue technologies served as another medium of speculative engagement with the site, this time aggregating conversations on diverse historical narratives. The embodied and virtual immersive experiences enriched the speculative field of design and enhanced translations across different temporal archaeological narratives. Speculative design proposals by architecture students became instrumental in closing the gap between the archaeology of the site, the more recent heritage of the markets and multiple visions for the future of the site. However, the reliance on individual expertise for the AR technology meant the mediation was more precarious, making it hard to replicate as a method when compared with the low-tech architectural models acting as open-source infrastructures of experimentation (Figures 3 and 4).



**Figure 3:** Castlegate augmented reality (AR) model.

Source: University of Sheffield.



The pop-up Castlegate Futures UR (2022), strategically located in an empty shop opposite the derelict castle site, brought together the Castlegate co-production archive composed of methods, artefacts and narratives accumulated since 2014. This included the AR model, historical and archaeological research from the Experience Castlegate project, outputs from earlier co-production workshops, development manifestos reflecting local community group aspirations, SCC's concept plan (SCC 2024), and speculative design proposals from architecture students. This assemblage provided a thick historical narrative of the co-production process illustrated in a timeline, exemplifying URs' infrastructural role of witnessing the regeneration process. The 'co-production timeline' articulated the invisible infrastructure of disruptive, generative witnessing that radically transformed the urban regeneration process by exposing it to multiple voices (Live Works 2024, 2025a).

**Figure 4:** Castlegate Markets: historic mapping illustrating seven centuries of markets in Castlegate.

Source: University of Sheffield.



The material entanglements of embodied witnessing with objects and thick archives immersed in spatial practices expands theories of witnessing going beyond the affective (Richardson & Schankweiler 2020). For Richardson & Schankweiler (2020: 242–243), mediation is fundamental to the practice of witnessing, allowing it to carry uncertainties and unknowability when making translations across different contexts and temporalities.

The engagement with material and embodied processes in the UR allows witnessing to take on propositional responsibilities, while maintaining multiplicities previously experimented and tested within the UR. The generative witnessing uses design tools such as models, drawings and artefacts to relay accumulating conversations across critical moments of the urban regeneration process, keeping pluralities intact (Figure 5).



**Figure 5:** Castlegate Futures  
Urban Room: shopfront.  
Source: University of Sheffield.

The UR as a generative witnessing infrastructure involved translations across disparate actors, spaces, knowledge systems and time frames. This allowed the UR to develop tactics for holding detachments (Yarrow *et al.* 2015), conflicting voices and positions of urban actors, together. For Live Works, this holding together–apart (Barad 2014) went beyond simply making multiplicities visible; it became about actively using disjointed views to mediate between grassroots organisations and city decision-makers. Initially, this ‘honest broker’ role aimed for ‘mutual exchange’ (Butterworth & Lawrence 2018), implying an arm’s-length impartiality. This impartiality was contested several times, including during a public event in the Castlegate Futures UR when a local authority member criticised Live Works for perceived partiality, underscoring the necessity for Live Works to be explicit about its support for marginalised voices and to directly counter assumptions of neutrality.

Through Live Work’s experimental approach, controversies were not suppressed but transformed into creative opportunities, generating an ‘inventory of what is at stake’ (Callon *et al.* 2011). For instance, Live Works’ translations created a dialogue between a group emphasising the medieval castle’s heritage importance with those who lamented the loss of working-class cultures following the market’s demolition. Furthering this multiplicity, one community partner advocated for cultural diversity and the celebration of diasporic communities, even as another spoke on behalf of newly arrived migrant and refugee voices. The skateboard community, for example, actively proposed creating safe and accessible urban spaces for all, demonstrating how design experimentation can articulate diverse aspirations. Powerful alliances emerged, such as a group advocating for

fish passes and river deculverting engaged directly with another seeking safe riverbed access for recreation, showcasing additive conversations in action.

In line with its evolving mediator role and methods of witnessing, Live Works has actively sought to transform decision-makers' and community stakeholders' understanding of the potential impacts of co-production. Drawing on Ersoy's assertion that democratic involvement not only generates change in policy processes but also empowers community-oriented practices (Ersoy 2018), Live Works has advocated for a fundamental disruption of dominant urban-transformation processes, demanding a far more substantial community role in decision-making. This has resulted in tangible transformations evident in changes to both policy processes and community-oriented practices. Policy processes now incorporate a tiered governance system, comprising the Castlegate Area Board, the Castlegate Partnership and various working groups. Live Works acts as mediator within the hybrid governance structure to empower community-oriented practices through the deliberate inclusion of diverse community representation at all levels of this governance structure, alongside SCC and other civic institutions. The transition to a hybrid governance model has shifted decision-making from traditional, opaque methods towards a coalition of public and third-sector bodies, with meetings often held in community and creative spaces, including Live Works UR.

A potent example of this transformation is the Events, Stewardship and Pioneers (ESP) working group that emerged from Live Works' generative witnessing translating into sustained advocacy on behalf of local pioneers<sup>6</sup>—groups representing Castlegate's diverse communities and grassroots initiatives. The ESP group of pioneers, council officers and industry professionals meets at the Live Works UR and holds detachments together—apart sustaining inherent differences in positions, agency and agendas. The pop-up and permanent URs have thus created environments, methods and infrastructures where spatial imaginaries and novel forms of governance are explored simultaneously, bringing a speculative openness to both.

The Live Works UR case study demonstrates a significant methodological evolution in UR and ULL practices showing how to embed open-ended design speculation directly into live community dialogues. By developing generative methods of witnessing within UR methodology, Live Works has effectively expanded the public's capacity to collectively envision, debate, and influence provisional and uncertain imaginaries of Castlegate regeneration processes. This has resulted in experimentation with, and innovation of, governance systems reimagined as hybrid and linked to dialogical spaces. This methodological toolbox could be used to expand the scope and interactions between ULLs and URs.

## 6. DISCUSSION: URBAN ROOMS AND LIVING LABS

This section brings forth dialogic methods (Callon *et al.* 2011: 158–164) to highlight the capacity of the Live Works URs to act as 'hybrid forums' through ongoing involvement in the Castlegate co-production process. Three methods—generative witnessing, speculative openness and inhabiting detachments—are suggested as key findings to pluralise and expand the ULL methodologies, making them more resilient through diversifying co-production processes.

### 6.1 GENERATIVE WITNESSING

For Haraway (1997), witnessing is a collective practice of becoming accountable and visible through nurturing relations, contesting 'the world constructed as laboratory' (Haraway 1997: 268–269). The UR method emerging from the diffractive analysis contests the laboratorisation of urban life through generative witnessing. Through this method the UR facilitators use their role as witness to keep present the multiplicities generated in previous iterations of co-production processes. As such, multiplicities, narratives, objects and partnerships travel from one space to another, accumulating trust and legitimacy that gets entangled into the material infrastructure of the UR. This goes beyond 'affective witnessing' which focuses on analysing the material and embodied relationality of the act of witnessing (Richardson & Schankweiler 2020). Generative witnessing mobilises material and embodied relations using artefacts accumulating in the UR, such as physical and virtual mobile models. These material objects carry the weight of collective

witnessing which is mediated across different territories and time frames holding together spatial and agential assemblages. The material artefacts bring together otherwise detached multiplicities that move across time through the act of witnessing which is not neutral but an agential and generative practice. Witnessing advocates for the collective voices of multiplicities to be preserved, both in the embodied body of the ‘modest witness’ (Haraway 1997) and as physical repository that is sustained and reproduced within the UR.

## 6.2 SPECULATIVE OPENNESS

Openness for Callon *et al.* (2011) relates to the diversity of the social composition and its capacity to negotiate and contest within the research context. Their first axis of openness considers the degree of ‘autonomy’ and ‘diversity’ of the groups involved; the second axis, the procedures, protocols and tactics put in place to ensure that the representatives could contest their and others’ abilities to transform the composition of the group (Callon *et al.* 2011: 159–160). The case study demonstrates the ethical principles underpinning the mediator role of the UR. This role is used to enhance the multiplicity of voices and encourage contestations and controversies to question official narratives. This position is made clear through the ethics of ‘open door’ which asks at different stages: ‘who is not included or represented in the room who is affected by our conversations?’.

What differentiates the URs’ openness from Callon *et al.*’s framing is the proliferation of the ‘what-if’ at every scale and temporality of the project that cuts open urban regeneration narratives, making them susceptible to a plurality of concepts and imaginaries. Architectural propositions are mobilised to support communities and stakeholders to generate their own propositions regarding the future of the place, and the future of partnerships and governance. The transformations section illustrates how the slow dialogical processes are articulated through sustained co-production that involves speculative design practices animating and enticing multiplicity of voices.

## 6.3 INHABITING DETACHMENTS

Detachment as a critique of relational thinking is a concept that inhabits the productive spaces where disconnections generate new ways of acting (Yarrow *et al.* 2015). Simone & Castán Broto (2022), as explained above, have also identified the increasingly detached nature of urban life and the necessity for recognising and developing ways of engaging with detachments. The diffractive analysis shows how the quality of inhabiting detachments relates to the sustained capacities of diverse voices to present their views and the temporal scales in which different social groups can use their capacity to contest and raise concerns (Callon *et al.* 2011: 160). This capacity of the UR ensures that social diversity is sustained through processes and procedures to encourage controversies, contestations, and disagreements in the dialogical space. The transformation and mediation sections of the diffractive analysis illustrate how the UR facilitated governance conversations that tested and experimented with partnerships between the public, communities, civic institutions, experts and private actors. These partnerships support divergent voices, actors and positions that are often erased due to an inability to hold and sustain such diverse positions.

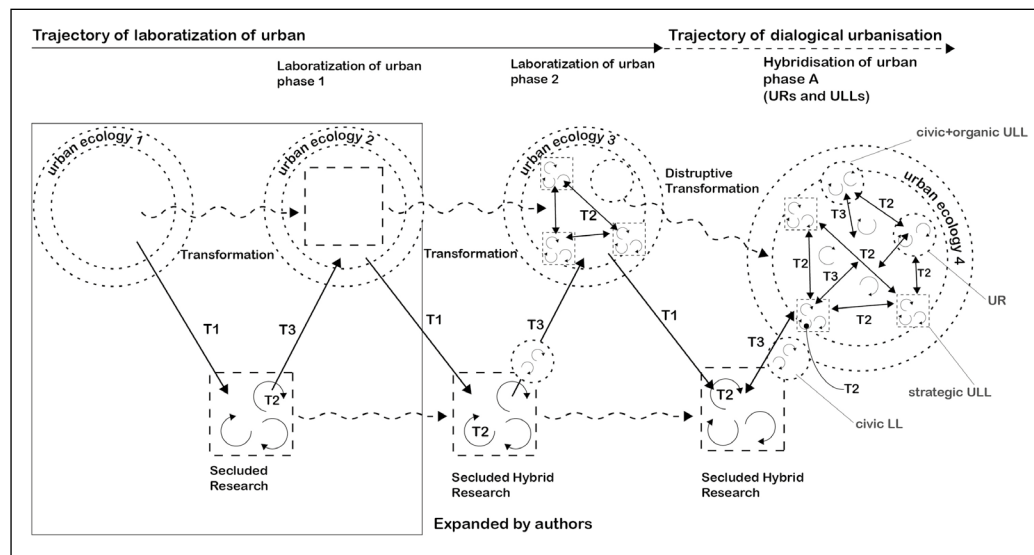
The UR has developed creative methods such as additive architectural models—where it is not possible to remove an idea but only to add more—and layered historical maps that cut across multiple views. This makes it possible to inhabit otherwise disconnected spatial imaginaries.

The resulting UR methodology expands ULLs into plural knowledge ecologies through four tactical gestures:

- Ensuring multidirectional translation across experts, citizens and civic actors.
- Slow dialogical transformations that build on translations and collective experimentation based on speculative openness.
- Situating experimentation by design and creative methods that valorise embodied politics, spatial proximity and researching nearby through generative witnessing.
- Preserving and enhancing multiplicity through dialogical and agonistic infrastructures of mediation sustained by inhabiting detachments and divergent voices.

This methodology is aligned with citizen science, community knowledge and indigenous practices, supporting them to gain prominence in resilience and adaptation policies and actions (Albagli & Iwama 2022). The story of Live Works has provided a rich inventory of actors, objects, and processes expanding and infrastructing resilience (Frangos et al. 2017). An expanded ecology of ULLs and URs could enhance the hybrid forums to enable just adaptation and resilience. The emerging UR model could expand and complement the hybrid typology of organic/civic ULLs to bring about disruptive transformation of urban knowledge ecologies.

Figure 6 illustrates this speculative trajectory that contests the trajectory of the ‘laboratorisation’ of urban ecologies. The speculative trajectory of dialogical urbanisation is initiated through the disruptive transformations within the expanded ecology of organic/civic ULLs and URs.



**Figure 6:** Speculative trajectory of dialogical urbanism.

Note: Extractive translation processes (T1) are minimised, and multidirectional translations (T2, T3) take over across the dialogical spaces initiated at border spaces of urban rooms (URs), urban living labs (ULLs) and urban ecosystems. LL, living labs.

Source: Adapted from Callon et al. (2011: 69).

## 7. CONCLUSIONS: WHAT NEXT FOR URBAN LIVING LABS AND URBAN ROOMS?

This article argued that urban living labs (ULLs) have contributed to the ‘laboratorisation of the world’, where laboratories have expanded into everyday spaces, with urban lives becoming laboratorised as integral parts of research. The United Nations’ Sustainable Development Goal (SDG) 11 (Sustainable cities and communities):

has the highest proportion of insufficient data at 60% to assess progress related to the SDG targets [in comparison with other SDGs].

(Singapore Global Centre 2025)

Scaling up ULLs to address this gap in urban data for sustainable transitions and urban resilience will demand a distributed, hybrid approach for the just diffusion of the methods and tools to diverse contexts. ULLs will need to be adaptive and responsive to multiplicities and flux of population due to climate change. The trajectories of co-production and co-design in ULLs should be encouraged to generate alternative pathways within urban transition and transformation frameworks through enhancing ‘dialogical spaces’. This paper has articulated novel urban room (UR) methods, enhancing their capacities as hybrid and adaptive infrastructures, and provided the dialogical spaces required for co-producing knowledge from otherwise invisible urban environments.

This paper has articulated methods for contesting and disrupting the trajectories of urban laboratorisation by analysing a situated practice of Live Works UR in Castlegate, Sheffield, to highlight potential ‘hybrid forums’ for enriching urban knowledge ecologies. The diffractive analysis of UR practice reveals spaces, processes and methods for multidirectional translations, experimentations for dialogical imaginaries, mediations that are disruptive and plural, and transformations that are long term and form a shared ground of what could be called a ‘minoritarian ethics’: taking actions that give voice and agency to minority needs and views (Braidotti 2013: 344–346).



The following contributions to theories of urban knowledge co-production are made in this paper. Speculative openness is proposed as a contribution to Callon *et al.*'s (2011: 159) definition. This suggests the quality of dialogical debate depends on the diversity of views present within the dialogical space. Speculation and design tools could enhance the quality of openness by mediating the additive capacity of dialogical spaces. Generative witnessing transforms the understanding of witnessing, an integral part of translation of knowledge in sites of experimentation, making it relational, affective and an agential infrastructure that not only carries the multiplicity of voices across territories and temporalities within the city but also regenerates the conditions of multiplicity with the help of material infrastructures of the UR.

Inhabiting detachments follow on from the two preceding methods as it relies on the generative act of witnessing and the speculative tools to prepare the dialogical space within the UR for accommodating and attending to detachments. Although others theorise detachments as an analytical framework for understanding the complexity of urban life, the current paper proposed ways of acting with, and inhabiting detachments within, knowledge ecologies of cities. These methods enhance research ecosystems across ULLs by increasing the quality and capacity of co-production by the following propositions:

- Making space for 'agonistic pluralism' URs enhances infrastructural resilience by co-producing governance innovations.
- Multiplication of boundary objects provides infrastructures for 'many-to-many translations' (Star & Griesemer 1989).
- Experimentations through mediated co-design processes open pathways for alternative futures.
- Transforming the horizontal networks of ULLs, which could privilege powerful actors, into plural ecologies shaped by a minoritarian ethics.

A conceptual link between ULLs and URs was shown, based on the co-production of knowledge in urban environments. Future research is required to focus on comparative analysis of URs and ULLs. There is a need for empirical research into URs in order to have a coherent comparative analysis.

URs themselves are multiplicities and hybrid typologies at risk of being reclaimed by institutional planning bodies, university research centres and other extractive knowledge apparatuses. This would effectively make them ULLs used to diffuse research into urban milieus. There is a need for continued disruptive agency grounded within URs to make sure hybridisation of research is aligned with dialogical and agonistic pluralism through enhanced co-production where the inhabitants of cities co-design the very questions, controversies and governance structures that will drive urban transformations within an increasingly uncertain world. This challenge will not be addressed by diffusion of scientific knowledge through the further expansion of institutional knowledge infrastructures such as ULLs. Instead, it requires transforming where and how the problem definitions are articulated and by enabling publics to be part of the articulation of the question 'what next?'

## NOTES

- 1 Live Works is the project office and Urban Room (UR) of the School of Architecture and Landscape, University of Sheffield; <https://sites.google.com/sheffield.ac.uk/live-works/home/>.
- 2 Those curating the UR and facilitating these discussions also need knowledge of the processes of urban production—planning, architectural design, sustainability, regeneration, *etc.*—to focus conversations on 'placeshaping' (see note 4) and to nurture productive dialogue in this area.
- 3 The review proposed that UR should be branded as 'place spaces' under the Outreach and Skills section 1B.
- 4 Rather than the more commonly used term 'placemaking', 'placeshaping' is used here to reflect the inductive nature of the process described. Rather than implying a place can be 'made' by via an overarching plan, UR practice recognises that community places are, instead, collectively 'shaped'.

- 5 The Castlegate Co-production Index collates outputs from Live Works, Live Projects and MArch studio projects engaging with Castlegate regeneration processes. The paper focuses on the Live Work UR section for the diffractive analysis; <https://sites.google.com/sheffield.ac.uk/castlegate-index/home?authuser=0/>.
- 6 In Castlegate co-production, the term ‘pioneers’ was adopted to describe the community groups and creative enterprises that have operated in Castlegate for many years, sometimes decades. They represent the diverse and innovative do-it-yourself cultures of the area that are vulnerable to the processes of gentrification. Through sustained co-production, the pioneers have moved from the margins to the centre of civic conversations about the future of Castlegate.

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## COMPETING INTERESTS

The authors have no competing interests to declare. E.A. has been part of the Live Works team. C.B. is a director of Live Works, and co-chair of the national Urban Rooms Network (URN).

## DATA ACCESSIBILITY

Data supporting this publication include personal information and can be obtained by emailing C.B. at [c.butterworth@sheffield.ac.uk](mailto:c.butterworth@sheffield.ac.uk). A signed data-sharing agreement may be required to comply with participant consent.

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