Article

Social Innovation in the Built Environment: The Challenges Presented by the Politics of Space

Donagh Horgan [1,*] and Branka Dimitrijević [2]

1   Institute for Future Cities, University of Strathclyde, Glasgow G1 1XQ, UK
2   Department of Architecture, University of Strathclyde, Glasgow G1 1XQ, UK;
    branka.dimitrijevic@strath.ac.uk
*   Correspondence: donagh.horgan@strath.ac.uk; Tel.: +44-141-444-7051

Abstract: This paper reports on social innovation systems for building resilient communities within different social and political contexts across four continents. It considers how social innovation in the built environment occurs over phases of network, framework and architecture and explores the linkages with the study of sustainability and resilience. It tracks the emergence of social innovation in response to social, economic and environmental challenges through nine case studies, using ethnography to probe the barriers and enablers of social innovation. Findings reveal the role that politics and ideological governance levers play in planning for sustainable, inclusive communities. An overview of the role of architecture in the politics of space from literature review is provided based both on historical and contemporary sources. Modern commentators who build on concepts such as the 'Right to the city' are considered, in the study of how networks can collaborate on frameworks for change that enable social equity in the built environment. Political themes have laid a foundation for both the literature review and investigation in the field—looking to enlightened policy, such as that based around the Right to the city, which may offer a theoretical framework for communities to effect planning and decision-making.

Keywords: social innovation; built environment; spatial inequality

1. Introduction

Contemporary spatial polemicists such as Harvey [1] and Rolnik [2], have echoed the ideas of Lefebvre [3–5] around collaborative practice that can address spatial inequality, towards scalable common solutions. While not new, the practice of social innovation has reemerged in recent years as a way to approach society's most intractable challenges, gaining particular interest for built environment scholars as a route to achieve more sustainable development [6]. Social innovation is required as a response to "an unmet social need" [7] or triggered by an event or crisis. Moulaert [8] writes how this "innovation often emerges from conflict: opportunity spaces at micro scales may make creative strategies possible at macro scales". It is closely linked to concepts of sustainability and resilience, and is often seen as a means to develop models, solutions and prototypes that provide for these conditions and support communities to become self-sufficient. Increasingly, social innovation is informed by political ecology and theories promoting complex diverse systems—that adapt in response to change and challenges [9–14]. The research aims to understand social innovation in so far as it relates to the built environment, examining its development over phases, and the barriers that emerge to its success in addressing spatial inequalities. Research questions look at how community networks for social innovation are established: what frameworks are used to support communities in developing solutions to the problems that affect them; what are key aspects of successful social innovation; what architectures (solutions) are emerging and what is the role of architects in social innovation related to the built environment? In doing so, the paper addresses a knowledge gap around the lack of a comprehensive understanding of social innovation in the built environment, and a

perceived lack of engagement of architects in same. Taking an international perspective, communities using social innovation to develop capacities for resilience are studied from around the world—in cities such as Christchurch, Dublin, Moscow, São Paulo and Belgrade. Through close engagement with citizens, ethnography is used to illuminate experiences of social innovation, and the emergence of insurgent citizenship to oppose political barriers to participation in spatial and social transformation. The aim of this paper is not to present the rich ethnographic material in detail but to provide insights on key barriers to social innovation based on this research—which could be better done in a separate article—considering that there were nine case studies (of which eight used ethnographic research). Such an article could give more space to personal narratives, focusing deeper on the political and cultural context in each case. The paper first provides an overview of research that aimed to identify how social innovation develops through networks, frameworks and architectures, followed by a discussion on the barriers presented by politics to successful social innovation in the built environment. The second part of the paper uses case studies to illustrate core themes presented in research, how the politics of space has affected development in the places examined.

The 2008 global financial crisis provided an important backdrop to the investigation that informs the findings of this paper. Emanating from a sub-prime lending crisis, the implications for the built environment and communities are not difficult to concede. Years of developer-led speculative development have resulted in displacement and isolation for many communities who seek ways in which they can manage their own resources to become self-sufficient [1,15]. As the nature of planning is transformed, architecture as a discipline is failing to fully communicate its value, and has been complicit in the abandonment of its social role. A wholesale neoliberalisation of the economy, the commodification of work and home, has pushed communities globally into conditions of extreme precarity [16]. As resources decrease and social, economic and environmental shocks threaten the community resilience, the practice of social innovation offers a strategy for developing sustainable solutions to seemingly intractable problems [17]. The research aim is to identify key factors that make social innovations successful when addressing environmental, social and economic disruptions that affect communities and their built environment, by increasing understanding of social networks; decision-supporting frameworks; and emerging solutions in different contexts across the world. The paper illustrates examples from a set of international case studies to show how community networks for social innovation in the built environment are established; what frameworks are used to support community engagement in developing solutions to the problems that affect them; and what architectures (solutions) are emerging through social innovation processes. It considers key aspects of successful outcomes, and looks at the role of architects in producing social innovation related to the built environment. Findings from ethnographic research in place with communities inform the insights generated in the paper. Narratives included are weaved from stories of communities struggling to address neoliberal spatial inequality in the contemporary urban fabric.

The growth of social innovation is set against the background of great leaps in technological innovation—the growth technologies that support networks, stakeholder ecosystems and communities of practice. By definition, social innovation is something that is collaborative—meaning that it requires input from a number of (often isolated) actors, sectors, domains or knowledge areas working together towards a common goal [6]. Solutions can take the form of 'software' like policy, platforms and services or 'hardware' such as buildings and physical infrastructure, that meet an unmet need in society. The problem is that not enough is known about social innovation in the built environment—how it develops, what decision-making tools are used in the process and what outcomes could be evidenced. There is a need for new knowledge to connect architecture into a more interdisciplinary and transdisciplinary context for both research and practice. Developing the hypothesis that social innovation occurs over phases of the network, framework and architecture [6], collective approaches to urban design can inform more holistic policy

development and inclusive growth are considered. The hypothesis of network, framework and architecture uses terms common to architecture and the built environment, but more common in recent times to describe features of software architecture and development. For built environment researchers, the hypothesis presents that collaborative activities inform coalition building, allowing stakeholders to arrive at a shared vision for social transformation and the co-construction of resilient infrastructures. This formula, while not to be found elsewhere in research related to the built environment, shares concepts and a language with the (Extended) Social Grid Model developed by researchers in Oxford [18]—based on earlier work by Beckert [19]. The hypothesis has helped considerably to structure the research, and aided in the analysis and comparison of the assembled case studies. What became obvious when considered together is the role of politics in these models, and how this can negatively influence the process of social innovation in the built environment—as elsewhere.

2. Social Innovation as a Response to Neoliberal Planning and Spatial Inequality

Owing to its interdisciplinarity, there can be many, sometimes conflicting, definitions of social innovation. Moulaert [8] surmises that, "when we talk about social innovation we refer to finding acceptable progressive solutions for a range of problems" and therefore understand it as a process of "fostering inclusion and well-being through improving social relations and empowerment processes: imagining [. . .] a community that would grant universal rights and be more socially inclusive". In this regard, we must recognise many collective actions that benefit and advance an equal society to be social innovation, not only as novel architecture(s)/solutions or systems, but also as frameworks, policies and behaviours. Mulgan [20] offers a simple definition for social innovations "as innovations that are social in both their ends and their means" [20]. In the context of urban (and rural) development, social innovation has become a process for communities to scaffold new infrastructures that overcome spatial inequalities and powerlessness. As a process, it is inherently social, bringing together multiple perspectives and sources of knowledge. The tools and mechanisms that communities use to pursue social innovation in the built environment focus a Joint Problematisation Approach (JPA) that includes network building, co-design and the creation of spaces in which alternatives can not only be imagined but enacted [17]. Joint problematisation means, "better connecting traditional scientific methods with participation and co-construction methods" [17].

Genuine social innovation—that implies co-construction of solutions—is required to address persistent democratic deficits in the practice of planning and architecture in particular. Already at the end of the sixties, Arnstein [21] presented a credible critique of citizen participation in planning, using examples from US social programmes related to urban renewal and model cities. Performed correctly, participation in the design process should confront unequal power distribution in decision-making related to the built environment. Without addressing these imbalances, she concluded that participatory design exercises will render already excluded groups frustrated and powerless [21]. Arnstein [21] identifies several barriers to open dialogue—including ideological and political prejudices among powerful stakeholders on one side, and knowledge and skills deficits among citizen groups on the other. It is within this context of "power and powerlessness" that Arnstein [21] identifies eight levels of community participation—from manipulation; therapy; informing; consultation; placation; partnership; delegated power to full citizen control. Honest devolvement of power to communities produces greater ownership of the design process, allowing new governance structure modelled on deeper participation to emerge. In the evidence shared by Arstein, all citizens achieve from design consultation is that they have "participated in participation" unless there is a political will to give currency to their ideas and objections [21]. Her study found that among the programmes examined, no city's structure provided for truly shared decision-making, and that little thought have been given to ensuring continued citizen participation during implementation stages. Several contemporary authors have verified her findings on the limitations of tokenistic

participation, and the need for improved feedback loops—to facilitate knowledge transfer and collaboration among stakeholders, design team and users in order to confront power imbalances and short-termist politics in planning [22–25]. Among the case studies we see that even where participation is legislated for (as in the case of Brazil and France) that the process is often ignored by decision-makers.

While co-design processes with communities are inherently socially innovative, they will only ever be tokenistic if they do not lead to co-development of frameworks for change, co-delivery of solutions and co-management of infrastructure. Social innovation in the built environment represents much more than an invitation for stakeholders to participation in the design process, but involves stakeholders in the delivery of (building) solutions. Equally, socially innovative architecture(s) depend on insights generated from the sharing of tacit knowledge of stakeholders throughout the design process, from the design team to end-users. Bordass and Leaman [22] emphasise how frameworks for sustainable development are often incompatible with short-termist politics, and that while public-private partnerships can share risk, they too often value cost over social impact. For Bordass and Leaman [22], sustainability goals are closely related to professional ethics, meaning that built environment professionals must work proactively for the good of society. By focusing on shared outcomes, networks of stakeholders can employ what they call a 'soft landings' approach—bringing about community resilience by managing stakeholders' expectations during the design and construction process, and long after. Social innovation is considered as a pathway to strengthening communities by building their social, economic and environmental resilience [6].

Jung [26] defines community resilience as "a set of adaptive capacities that focus on resource mobilisation and facilitate successful adaptation to unpredictable adversities". Furthermore, in the study of urban settlements, the Local Governments for Sustainability network (ICLEI), provides an integrated definition for urban resilience as the "ability of cities to anticipate, prevent, absorb and recover from shock and stresses, and to improve basic response structures and functions, while integrating the different aspects of urbanisation, sustainability, development and climate change" [27]. In addressing (spatial) inequalities, social innovation is related to sustainability, defined by Pickett et al. [28] as a process "founded on the concept of equity across time and space". Pickett et al. [28] see sustainability as "a socially articulated set of desired conditions... to support the quality of life", meaning that environmental "hazards and vulnerabilities should not be displaced to future generations or to those who lack power or access to environmentally significant decision-making processes" [28]. In the context of urban settlements, resilience is "facilitated if wealth can be remobilised" and when "the disturbed system can again build structure and accrue capital" [28]. As per the ICLEI [27] definition, (community) resilience should not be viewed as a narrow response to the challenges of climate change adaptation, but as a holistic concept that brings together environmental and socio-economic aspects that include social equity and justice. Understanding what constitutes the 'social resilience' of a community, and what barriers—such as inequality and non-participation—may be impediments to achieving this, are key to planning adequate interventions. Sennett [29] emphasises the need for coordinated collective actions as the means to emancipate societies from the increasingly detrimental effects of unchecked neo-liberal capitalism. Challenges such as growing wealth inequalities—that precipitate migration and inclusion—are cited in literature as examples of same [27,30]. There is consensus that economic resilience, and the consequences of extractive growth models produce societal hazards that must be addressed by urban planners and included in relevant policy frameworks towards a holistic vision for resilience [27,30].

In their Advanced Introduction to Social Innovation Moulaert and MacCallum [17] emphasise the importance of transdisciplinarity for social innovation. Klein et al. [31] present the core concept of transdisciplinarity as "different academic disciplines working jointly with practitioners to solve real world problems... increasing its unrealised intellectual potential and, ultimately, its effectiveness". This follows Gibbons' [32] reading

that "cooperation… leads to clustering of disciplinary rooted problem-solving and… homogenised theory". Holistic and integrated planning is limited by the lamentable lack of feedback loops in the processes that are central to the design of contemporary technological systems. Feedback loops are also a feature in the study of resilience sciences towards an ecology for cities [33,34]. In their article on transdisciplinary urbanism, Rizzo and Galanakis [35] echo others in the call for architecture to become more relevant to society, both socially and politically [36] They remind us that transdisciplinarity in architecture encourages researchers to be more politically engaged and supported by a network of other practitioners [35]. As above, transdisciplinary urbanism as a methodological framework, allows communities of practice—consisting of various actors and disciplines—to build up in response to spatial inequality. Commentators such as David Harvey [1,37] and Rolnik [2] expand upon Lefebvre's [3–5] ideas on how networks can collaborate on frameworks for change that enable social equity in the built environment. With modern technology, communities can reimagine utopian visions of the commons through open-placemaking versus dystopian 'smart' cities of surveillance [38]. Lack of co-design through engagement with communities sometimes results in insurgent tactics such as occupation and civil disobedience to challenge the status quo and provide alternative narratives to top-down development approaches. Theories around the co-production of knowledge call for insights that might be gained outside the discipline of architecture to understand root causes of spatial inequality [39]. Following Lefebvre [4], researchers such as Lucas [40] recognise the city as a socially produced space and that "the process of production is a social one, a collaborative one, a relational one". Writing at the same time as Lefebvre, Debord and the Situationists' criticisms of authoritative decision-making in urbanism laid bare the unbalanced power relations in capitalist spatial development, already in the middle of the twentieth century [2,41,42]. Lucas [40] writes that "a complex, multifaceted activity such as architectural design and construction is a deeply entrenched political endeavour".

An understanding that a capitalist mode of production produces an unequal (neoliberal) configuration of space informed interpretations of the research and provided a lens with which to view the case studies. A comprehensive literature review into the political and cultural context of spatial inequality in the twentieth century informed the research in each case study, revealing commonalities in how communities approach the issues across the world. Some previous political systems such as those relying on forms of self-management—as in former socialist Yugoslavia, had some success in planning housing for all to build an egalitarian vision. The global capitalism of today means that more often than not, home has become a commodity—increasingly out of reach for many as governments continue to favour the market in practice. While overarching policy may be socially or ecologically-minded, the underlying political system often prioritises economic growth at the expense of more holistic investment. Capitalist values, promoted by neoliberal governments, inhibit nuanced conceptions of public value that promote alternative measures of social capital [43]. Neoliberal governance embraces tokenistic participation in planning, with simultaneously seeding disillusionment and disengagement—and eventually post-politicisation of the built environment [44]. Literature review identified architects collaborating in insurgent community activism to defend spatial rights and agile approaches to obtaining those rights—borne out of engagement led research and practice [45,46]. Environmental, social and economic disruptions trigger displacement of people and create the need for an agile provision of affordable housing and other social infrastructures. Writing in a paper on agile planning methodologies for kinetic urbanism, Dimitrijević [47] outlines how 'ephemeral urbanism' [48] provides a means for an efficient provision of affordable housing in the context of global population growth and migrations from rural to urban areas. "Agile" is used by Dimitrijević [47] to indicate iterative planning process that understands an implicit requirement to make changes as they are needed (Cambridge Dictionary)—flexible and informed by feedback loops. Figure 1 provides a conceptual framework setting out these core concepts with regard to phases of social innovation in the built environment, as identified in research.
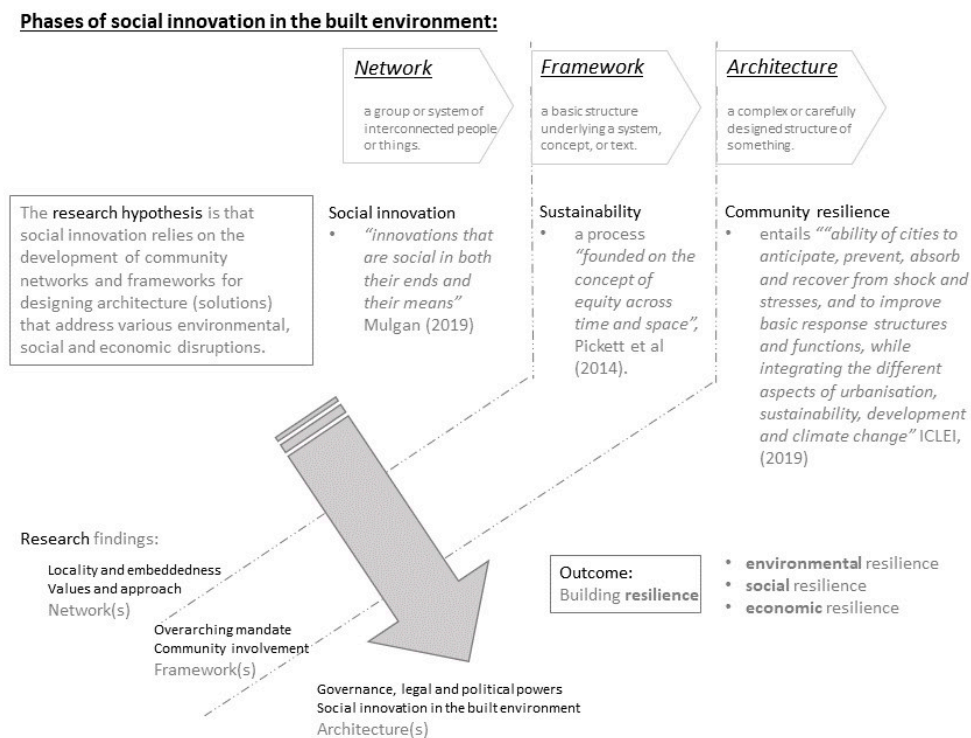
Phases of social innovation in the built environment:

Figure 1. Conceptual framework showing phases of social innovation in the built environment.

Writing on social innovation, Garcia [49] reminds us of Thorstein Veblen's [50] classic work 'The Theory of the Leisure Class' which presents his concept of societal progress originally published at the close of the nineteenth century. In it, Veblen [50] explains how "institutions are products of the past process, are adapted to past circumstances, and are therefore never in full accord with the requirements of the present", and of how political conservatism acts to preserve old habits and resist social change [50]. For Garcia [49], social innovation can be seen as a displacement of 'antiquated institutions', which is not in the interest of the powerful and wealthy. Indeed, Veblen [50] writes how those "absorbed by the struggle for daily sustenance, are conservative because they cannot afford the effort of taking thought for the day after to-morrow; just as the highly prosperous are conservative because they have small occasion to be discontented", concluding that "the outcome of the whole is a strengthening of the general conservative attitude of the community" [50]. The political nature of innovation society, and how closely linked development is with systems of belief, was obvious even in 1899. Public investment and socially progressive approaches to planning for vulnerable communities can have the greatest impact. By admitting that our politics is the greatest barrier to social innovation in the built environment, architects—and their partners—can support more open and holistic policymaking to create thriving places. As examples of hostile relations in urban design are common, Calderon [51] calls for a "greater awareness of hegemonic politico-economic articulation that determine the specific configuration of a society" in the built environment. Much of the literature to date remains normative and procedural—focused on methods and best practice. In addressing the knowledge deficit, there are opportunities for genuine community participation involving innovative approaches to governance, ownership and participation [52]. A more reflective analysis, and honesty about the winners and losers in spatial decision-making, will help "participants better understand (the legitimacy of) their own claims and those of their opponents... without having to necessary aim at, nor reach, consensus" [52]. The above understanding and awareness of different political contexts have influenced research methods applied in the case studies that follow.

3. Joint-Problematisation Approaches to Building Capacity for Resilience in Communities

Moulaert and MacCallum [17] explain that in coherent social innovation research "an ontology is not given but is built up interactively between the actors involved through a joint problematisation process". They refer to research methodologies that connect social innovation with participatory approaches to social design and co-construction in the built environment [17]. The authors note the similar approach put forward by Manzini [52] that positions placemaking as a form of inclusive activism, but that Manzini "does not address the institutional-political context and the socio-political transformative power of social innovation" [17]. According to Moulaert and MacCallum [17] the Joint Problematisation Approach (JPA) developed by Miciukiewickz et al. [53] allows for a symbiosis between a holistic and pragmatist perspective in social innovation (action) research. They write that joint problematisation is about "the collective problematisation of a social problem... leading to the collaborative design and cocreation of a solution" [17]. While participation in planning and architecture has been promoted in Western societies for decades, the evolution of community co-design in recent years has been driven in the community planning area— around public service innovation [25,54,55]. This notion of co-production leans heavily on user-centred design methodology in software development, where agile development processes mandate close consultation with end-users, supported by feedback loops and open dialogue [52]. Mindful of theories of design thinking and transdisciplinarity, a network develops around a social need, arising from social, economic or environmental challenges. If ideas and solutions are shared across this network, sharing contributes to an overarching framework, or strategy for sustainable development. Based around an open and agile interpretation of this framework, what may emerge is a set of innovative architectures— urban design solutions, digital environments and social service infrastructure that work in concert to promote greater community resilience. This hypothesis resonates with the view that community and built environment infrastructure should not be designed in isolation, but conceived of together in order to develop genuine social value and achieve real social impact.

In order to be able to challenge speculative development, and devise strategies for resilience, communities also need data—in the form of an evidence base—that considers indicators of social value in public investment. Spaces for social innovation may invite contributions from groups of subject-matter experts through facilitated sessions or co-design programmes—drawing on insights developed in other sectors and knowledge areas in order to identify best practice from outside the realm of the built environment. Urban living labs provide a model for communities to collaboratively build alternative visions for their future, by engaging with real world problems, building an argument or business case with variable measurable data [56]. The importance a participatory approach in acquiring for the community what Sennett [29] describes as "embodied social knowledge" is emphasised by authors such as Mason [57] and Monbiot [58] as a feature in developing capacities for resilience. What becomes clear is that knowledge exchange between disciplines, and collective decision-making based on a large variety of data sources and opinions, are key to developing more strategic plans for growth and development [59]. While there is rarely any shortage of radical or progressive solutions among creative designers, politics often puts obstacles in the way of socially innovative typologies or concepts scaling widely in the built environment. A diversity of views may agree that innovative typologies of mass public housing offer a scalable solution to persistent poverty and inequality in our society for example, yet such strategies are rarely pursued by government in favour of more market-based solutions. Spencer [60] presents how a prevailing belief that "the market liberates us for the tyranny of planning", has meant that architecture, "has legitimated its alignments with and servicing of neoliberal projects for the reorganisation of labour, education, culture and public space". Spencer's volume on The Architecture of Neoliberalism [60] brings together views of Harvey [61] and Dardot and Laval [62] to surmise that neoliberalism acts as mode of power that controls the population, and directs

its behaviours—where the state "is reassigned to a role facilitating the market through the construction of policies and frameworks". This would indicate the part (neoliberal) governance plays to block or support social innovation—"through which architecture has come to serve as an instrument of control and compliance" [60]. Literature review also identified a number of short-term and temporal interventions—ephemeral architectural solutions that counter the architecture of neoliberalism [60].

The main identified knowledge gaps are related to the limited research pool of examples and evidence related to past and emerging social innovation networks, frameworks and architectures that can inform research and practice. There is the need for providing additional evidence on the barriers networks face and methods for overcoming them—and comparative studies that look at a common set of key indicators (such as health and well-being). There is a persistent lack of insights into some past examples of social innovation and explanations as to why they 'failed'. In addition, literature review has not identified comparative studies on the quality of different frameworks in terms of their usefulness in community engagement and decision-making. Finally, there is also a lack of evidence on different architectures resulting from social innovation, their quality and transferability to other contexts. These identified knowledge gaps informed the selection of the case studies in this investigation, many of which take place within a politically sensitive context, meaning that in documenting the scenarios the researcher becomes part of these movements toward social change. The hypothesis of network-framework-architecture phases in social innovation provides a model by which other academics can develop research on the process of social innovation in the built environment. The knowledge on each concept is enhanced by examining some past and current examples of social innovation in different socio-political contexts that addressed environmental, social and economic disruptions to provide evidence on commonalities or differences between their development and application.

Moulaert and MacCallum [17] note that significant progress has been made methodologically within the field through the 'critical realist approach'—concerned with how we live and dwell, and offers ethnographic methods for bringing forward different perspectives in the study of spatial production. As a research methodology, ethnography is used by a wide range of disciplines, but is still peripheral in the research of architecture [40]. Ethnographic research is common in fields such as informatics, where engaging users in the design process is important [63]. In architecture, this research approach allows for the collection of tacit knowledge from the grass-roots, informing greatly on the context being examined. Pardo and Prato [64] explain that ethnography provides a tool for comparison of complex, rapidly-changing settlements important in urban research. Kellett [65] writes about the ethnographic experience of place, and the "idea of the field as socially constructed through the act of research". This approach, means new voices can be heard that illuminate much more than the familiar and accepted aspects of a given spatial scenario. The ethnographic approach taken in this case prioritises one-on-one interviews and shadowing over lengthy observation—is rare but growing—in architecture and urban studies. This was important in bringing revealed narratives to the surface, demonstrating both the nuance of particular scenarios, and the global nature of societal challenges. Cases were selected to explore social innovation pursued to address social, economic and environmental shocks in a given community. Community resilience—which is reliant on environmental, social and economic resilience—was explored early on to understand how it may be produced through the process of social innovation. Equally, the role of the architect in phases of social innovation was something that was looked at again and again, in both desk research and ethnographic studies. Choosing an environmental, social and economic case for each stage allowed for coherent narratives to be traced at different stages in the process of social innovation. Ultimately, the core themes of governance, ownership and participation are present across all cases studies, as indeed the concern that much decision-making in the built environment is political, and that planning is often influenced by particular values and belief systems. Table 1 below provides a matrix of the

nine case studies that comprise the wider investigation, explaining the context of need in each case.

Table 1. Matrix of case studies.

	Networks	Frameworks	Architectures
Social	Dublin—community undergoing regeneration locked out of the planning process, increasing social isolation.	Moscow—a technology platform developed by the city government for citizens to engage with spatial decision-making.	Belgrade—New Belgrade and mass housing typologies built under the Yugoslav system of self-management.
Economic	Recife—distributed technology park developed in redundant port area in response to economic brain drain in Northern Brazil.	Chicago—a community seeking energy independence through the location of a solar farm on a redundant railway asset.	São Paulo—engaging with the social innovation and spatial activists' community based in two housing occupations
Environmental	Christchurch—city that developed a bottom-up approach to post-earthquake regeneration within days of the catastrophe hitting the city.	Gaelic Ireland—historical understudied example related to the management and governance of a commons in precolonial Ireland	Lille—development of a vacant brownfield site in the city centre-contested by a number of community and environmental groups.

As the research investigation was planned over three distinct stages, at each stage research questions evolved based on feedback from the previous phase. Research questions—and data collected—during the network phase informed the nature of questioning in the framework phase, similarly and subsequently in the architecture phase of research. Following an iterative study design process, interview questions were refined as themes emerged connecting phases in a feedback loop. The action research carried out at each successive location—including format and interview questions—benefited from the researcher's experience with the previous case studies. Close engagement-shadowing, and participation in group meetings, symposia and social activities—helped the researcher initiate more durable relationships with those interviewed. For periods during the investigation, the researcher was embedded within a number of communities, often for weeks at a time as in the case of the Moscow and Belgrade research. In São Paulo and Chicago, the researcher lived at the home of the subject(s), following them in their duties throughout their day. The accounts collected through ethnographic methods permitted the researcher to allow for community voices to be present in later analysis and interrogation. The contextual parameters of each field site meant that research methods, tools and surveys needed to be tailored resulting in each location having its own bespoke research methodology—from more formal interviews and shadowing, to cohabitation with stakeholders. Table 2 provides a headline description of the ethnographic methods used in action research across the case studies except for the case study on Gaelic Ireland based on desk research.

Over the course of the study, the researcher was able to verify the hypothesis that social innovation in the built environment takes place within three broad phases of the network, framework and architecture. The Extended Social Grid Model which was identified to support the hypothesis, can be adapted specifically to the spatial context, allowing environmental, economic and social needs to frame a joint-problematisation approach (JPA), and inform the innovation process. Social forces in the Oxford model can be replaced by these phases and retain their ontological meaning, while sources of power are replaced by inputs that represent the need (shock) within a given community—be they social, economic, environmental, or political. Factors that impact the individual level in the Oxford model are replaced by those impacting the community level. Fittingly, the model shows that the politics of space and the reproduction of dominant power structures are barriers to addressing spatial equalities across phases of social innovation (in the built environment). Findings from across the global set of cases demonstrate that net-

worked approaches can lead to open policy making where a diverse set of stakeholders can work together to build coherent actionable policies—moving from network to framework. Through collaborative policymaking, a stakeholder ecosystem comprising multiple actors (organisations and groups) may coproduce a framework for change—based around shared outcomes, and agreed spatial outputs. This type of interdisciplinarity can produce resilient architecture—whether actual buildings, or community assets such as social services or supporting infrastructure.

Table 2. Research methods used in case studies.

	Networks	Frameworks	Architectures
Social	Dublin, Ireland, 2016–2017	Moscow, Russian Federation, Jun–Jul 2018	Belgrade, Serbia, Jan–Jun 2019
	Shadowing and facilitation with stakeholders in strategy workshops with the Dublin Docklands Cultural Forum (DDCF) network	Interviews with citizens and local government in 7 face-to-face interviews (5 via social media; 1 local government)	Interview and survey with academics on planning and housing production in the former Yugoslavia
Economic	Recife, Brasil, Mar 2016	Chicago, USA, Apr 2018	São Paulo, Brazil, Dec 2018
	Interviews and shadowing of two key stakeholders from Porto Digital at Porto Digital network	Series of interviews, shadowing exercises, meetings with stakeholders in Bronzeville Urban Development (BUD)	Twelve interviews over two weeks visiting housing occupations, spending time with residents at events and observing activities.
Environmental	Christchurch, New Zealand, Apr 2017	Gaelic Ireland	Lille, France, Dec 2019
	Interviews with networks for a resilient regenerated Christchurch	Desk research	Interviews with stakeholders associations, opposition groups, local residents at Saint-Sauveur and local government

4. Research Findings: Network, Framework and Architecture Phases of Social Innovation in the Built Environment

The social innovation actions observed across the set of case studies are similar enough to be categorised, with some advancing further towards their goals than others—depending on the level of financial (and political) support. Even though research was structured by phases of network, framework and architecture—activities are broadly consistent across the cases—and range from the building of networks of stakeholder; strengthening systems for open decision or policy-making; to the management or construction of physical architecture. In this study, each case begins with a network stage—where a network is formed by like-minded stakeholders in response to a specific social need. These networks then collaborate on policy formation and the development of a framework—within which actions and strategic processes can be planned and coordinated. Whether these involve actual co-design or planning activities, the result is often a plan or strategy for intervention—whether spatial, service or policy related.

Table 3 below shows findings from case studies, giving an indication of the tools used by each community. Depending on the unique set of requirements, the response and social innovation actions pursued by communities in practice are different across the set of cases. What was not apparent at the beginning of the investigation was the role that politics plays in facilitating genuine social innovation—or preventing same—in each case. The political context is an important feature of the Extended Social Grid—labelled as 'sources of power' in that model.

Table 3. Research findings from case studies.

	Networks	Frameworks	Architectures
Social	**Dublin, Ireland**	**Moscow, Russian Federation**	**Belgrade, Serbia**
Actions	Network building, Cultural programme;	Network building, Incremental regeneration, Start-up ecosystem;	Network building, Self-management, Prototyping Space
Impact	None	None in real terms	Ultimately failed
Economic	**Recife, Brasil**	**Chicago, USA**	**São Paulo, Brazil**
Actions	Online engagement platform, Citizen decision-making;	Network building, Energy Commons, Community micro grid;	Commons, Citizen Assembly, Legal Innovation, Rights-based
Impact	Measurable social and economic benefits	None—No political backing, Death of community leader	Dignified housing, Popular support, Resilience
Environmental	**Christchurch, New Zealand**	**Gaelic Ireland**	**Lille, France**
Actions	Commons, Citizen Assembly, Legal Innovation, Rights-based	Occupation, Network building, Protest, Cultural programme, Rights-based	Occupation, Protest, Network building, Cultural programme
Impact	Bottom up strategy for regeneration—not adopted by regional government	Ultimately failed	None—project stalled

4.1. Network: Network Building

In terms of the network phase, effort was concentrated on Christchurch—the environmental case study-looking closely at the network dynamics around Regenerate Christchurch—and identified new knowledge related to the role of the architect, both within the community network and a coalition of action. Findings from Dublin, São Paulo and Lille call for more activism among the profession, and require new skills (and possibly protections) to support taking critical positions, and translation between stakeholders. This raises important questions around the contribution of the architect to society, and their position as a midwife of speculative planning. It suggests that as a profession, architecture should use its position to be a vocal critic of spatial inequality. Insights shed light on how networks of stakeholders at the grass roots can be constrained by local governments and political systems—and the roles of intermediaries and the private sector—within this ecosystem. Regrettably lessons from Christchurch suggest that instead of bringing forth enabling strategies, governments can often limit social innovation and create competition between a hitherto united group of organisations.

In interviews with informants in Christchurch in 2016, architects within that network of social innovation highlighted that, "One can't just be an architect . . . you also need to be a local citizen", and how "openness is required of architects to look beyond their own four walls, to recognise the opportunities" to participate in social innovation. "The architect is a natural lead and coordinator of process design teams, be brave!". Connecting subsequently with stakeholders from the same group in late 2019, it was unfortunate that, "despite colossal effort [. . .] the city's philanthropic sector is tapped out and the appetite for these projects/transformations is closing fast. Delivering these visions [. . .] was bogged down by years of red tape". In response, the group of creative, out-of-the-box practitioners "are shaking off their institutional shells and are creating a bid to get shit done" (A figure of speech indicating the act of working efficiently, achieving set goals and being generally productive). In order to loosen political monoliths blocking the path of social innovation, they come, "armed with the knowledge of successes and failures, [. . .] coming at it from a public-private angle rather than through government". Networks grow out of a need, which necessitates the bringing together of a host of skills and competencies from within the community itself.

4.1.1. Locality and Embeddedness

The immediate damage of the Christchurch earthquake meant that a network grew organically in response to the clear and present need to make buildings safe, create (new) public spaces for assembly, and initiate a dialogue around the reconstruction. Interviews with key stakeholder organisations reveal how they collectively developed transitional strategies in dialogue with residents (before this coalition of action became more formal through working with local authorities). That network grew from the grassroots, and included architects who went on to work with Regenerate Christchurch, a body later established by government to engage communities and stakeholders around the regeneration. Much of the social innovation produced in the initial period-informed by tacit knowledge, and lessons learned during the transitional phases—led to radical spatial and service concepts for the new city. However, the creative aspirations and momentum of the network have been dampened by the government bureaucracy, and the in-between layer created by Regenerate Christchurch.

In other cases where speculative development—also positioned as regeneration—is seen to be a threat to community resilience, similar network building is seen as an important first step towards resilience. The Dublin Docklands Cultural Forum was envisaged as a mechanism to give a voice to unheard local communities whose livelihoods are impacted by the scale and shape of regeneration in their neighbourhood. In the same way, the formation of Bronzeville Urban Development (BUD) came out of a need for that community to develop similar capacities for resilience (energy independence) when faced with speculative development and foreclosure in South Chicago. As in Dublin, BUD has struggled without tacit local government support.

4.1.2. Values and Approach

The approach of networks can differ, with some choosing to align themselves more closely with the objectives of government (growth) as opposed to the values inherent within the local community (inclusion). For Porto Digital in the port of Recife, socio-economic regeneration is actively pursued in coalition of public-private partnership. There the network consists of many local government and state agencies alongside the university and start-up enterprises themselves—a joint effort between public and private stakeholders supported by the Inter-American Bank. It can be said that this coalition has been assembled top down as opposed to being built bottom up through community actions. In fact, community stakeholders have come later to this grouping as incremental regeneration necessitated a deeper engagement with them.

Similarly, the network of stakeholders working with Moscow's Smart City team, are mostly state actors, or hybrid organisations—joint ventures-funded by state coffers. This is a closed network, and while the Active Citizen platform is designed to open up decision-making in theory to all citizens, the underlying network is populated by government actors. Equally, while in former Yugoslavia enterprises worked closely with architects and construction companies in the development of mass social housing, this network building took place in an admittedly top down way. This was due to—as in Moscow—the state, in this case being the Communist Party, having ultimate power over the shape and process of collaboration.

4.1.3. Outcomes and Successes Related to Networks

The most successful coalition of partners examined was found to be the Movimento Sem Teto do Centro (MSTC) in São Paulo, itself a network of networks—including the residents of housing occupations, activists, professionals in service of 'the struggle' and co-opting relevant subject-matter experts (lawyers and electricians, as well as architects). It was formed of like-minded people in precarious housing situations seeking to defend their rights as guaranteed by law, sharing values of solidarity and circularity. The MSTC's success may be linked to the level of engagement between residents and external partners,

their unwavering commitment to social equality, and a willingness to challenge risk-averse or failed governance.

Consisting of a majority of private sector stakeholders, the development partners in Lille have assembled through another top–down process. To counter this, network-building has occurred among grass-roots environmental organisations to oppose development. This said, however, operating in direct opposition to local government has meant that while the environmentalists have been able to stall development in the courts, they remain locked out of any meaningful dialogue with the city around the fate of the project at friche Saint-Sauveur (Saint-Sauveur brownfield site). Through networked collaboration, these communities have been able to organise activities that work towards building a consensus (at least around what they do not want) and work toward strategies, proposals and actionable frameworks that can help them realise their ambitions.

4.2. Framework: Planning and Programming

At the framework phase, Moscow—the social case study—became the focus of investigation in which the role of local authorities and policy actors comes further into question. Research considered approaches to open policymaking through genuine or tokenistic ways, and how as governments see themselves more and more as a platform social innovation, fundamental political structures and value systems become influential. Tools can help to build consensus among stakeholders, yet decision-making remains concentrated in the hands of an elite cadre of actors. In Moscow, findings point to ways in which public opinion can be manipulated to support the ambitions of government, using technology as a smokescreen to sanction speculative development and displacement. More democratic approaches—citizen assemblies—are required, such as those identified in former Yugoslavia and Gaelic Ireland that supported inclusive growth strategies in past societies. In Chicago, powerful agents such as utility companies have ultimate control over whether a community microgrid will be allowed to be prototyped, which may in itself be a mask to divert from speculative development elsewhere in that neighbourhood. Openness and transparency that can hold government proposals to account is again dependent on the shape of ownership, participation and governance.

Activities that bring communities closer to a framework for transformation primarily include engaging stakeholders in visioning, decision-making and participatory planning.

4.2.1. Overarching Mandate

In Christchurch, a deep and comprehensive programme of engagement begun by the council working with residents to build a detailed strategy for the rebuilding of that city. Based on ideas sourced through grass-roots engagement, a people-centred strategy was shelved when regional government assumed powers over regeneration. In pursuit of a more economically-driven recovery, the mandate laid out by the community was discarded in favour of a document more aligned to the needs of business [66]. Subsequently, the establishment of Regenerate Christchurch, while designed to maintain community engagement, ultimately grew a greater distance between the wishes of the community and that of the regional government. In Chicago, the energy policy of the Trump administration cut funding to a scheme that would have allowed the community microgrid to be prototyped in Bronzeville [67]. Indeed, Commonwealth Edison have engaged limited community involvement—and obligations to same—in the concept since political winds changed.

4.2.2. Community Involvement

Across the cases, this phase of planning for social innovation in the built environment is generally a closed process-exceptions to this being the initial consultation in Christchurch and the early planning activities in Recife. Dublin Docklands Cultural Forum has managed to get a seat at an oversight group—Docklands Oversight and Consultative Forum (DOCF)-looking at development in the docklands, but any deeper participation in planning is limited. Local residents remain at the mercy of rampant development, which has

irrevocably changed their built environment. While promoted as a successful tool for open consultation, users of the Active Citizen platform in Moscow—developed by the metropolis's Smart City team—are significantly limited in terms of their options to shape decisions in that city. Significantly, genuinely open decision-making was a crucial function of the Gaelic system examined, through triennial assemblies collocated with trade fairs and cultural events. Evidence of this can be seen in place names of Ireland and Scotland, such as An Aonach (Anglicised to Nenagh), meaning the (place of) assembly in County Tipperary (Logainm.ie, n.d.). Joint-decision-making through assemblies is equally a feature of the housing occupations (and MSTC) in São Paulo, as with the mesna zajednica (local assembly) of Yugoslav housing schemes.

4.2.3. Outcomes and Successes Related to Frameworks

In Lille, the political context has stalled social innovation from progressing towards solutions. While regional and local government have committed to an ecological approach to development on paper, they are not open to inputs from community stakeholders, impacting ultimately on ownership. If political will to engage—to act on the ideas at the grass roots, and incorporate them into strategic frameworks—is lacking, then communities will be reticent to embrace development plans, no matter how sustainable, or ecologically sound. On the other hand, in Recife, Porto Digital, through its urban-design spinout ARIES contributes quite significantly to planning discourse both for the city of Recife and surrounding regions in Pernambuco—its main audience for engagement is not community but enterprise. ARIES takes a transdisciplinary approach to facilitate long-term visions of the future of Recife—working cross-sector on design and public policy development in the planning area—yet with limited community participation. This points to success in enacting frameworks being linked (or even dependent) on political buy-in, and systems of governance. Engagement with stakeholders in the process of framework formation—building ownership through participation—has an impact on the successful delivery of strategies, be those community, public or private sector stakeholders.

4.3. Architecture: Prototyping Solutions

A number of typologies—systems and solutions—presented in findings from the architecture phase. Research was concentrated on São Paulo—the economic case—and how to support urban communities in their livelihoods. The need to build structures outside of traditional frameworks—sometimes illegal or extra-legal—emerges as a core theme when considering built solutions and services for disempowered groups. Again, governance systems came to the fore as the primary obstacle to social innovation, with oppositional approaches demonstrating the greatest capacity for resilience in these communities-alongside models for community self-management. The São Paulo case shows that an activist architecture— 'architect-activists' and 'anarch-itects'—is needed to challenge spatial inequalities and guarantee already legislated rights for citizens to a dignified economic life. The case of Yugoslavia cautions us against too much 'withering away' of the state, and the importance of well-nested enterprises in decision-making. The final case study in Lille brings a new response to answer the aims and objectives of this study, and lays out new pathways for research around identity politics in space, and post-politicisation of planning. The intersection of political thinking with community planning and social design is one such area where a transdisciplinary approach to research should include architecture.

When looking to the outcomes of network building and framework formation, delivery of solutions is reliant on the will of governments to take forward plans and spatial strategies.

4.3.1. Governance

Resilient architectures can be facilitated by progressive policy frameworks supported by open and ambitious governance. The participation of governmental stakeholders would seem to have the most positive or negative effect on innovation—the closer that govern-

ment stakeholders are to social innovations activities—the less likely they are to succeed. For example, in Christchurch, a series of events at the grassroots, facilitated prototyping of spaces and canvassing stakeholders as to their vision for the regeneration. However, when the regional (Canterbury) government assumed responsibility for the regeneration, they produced their own strategy—printed in a similar style—but based on no consultation whatsoever. The socially innovative approach taken at the beginning, based on participation—was essentially negated by the regional government, reducing the level of ownership over the eventual reconstruction. While a number of project ideas were later devolved to development body Regenerate Christchurch—established under the Greater Christchurch Regeneration Act 2016—few have led to realised spatial outcomes.

In the case of the Moscow, the technology platform developed to allow citizens to participate in decision-making was designed in such a way as to exclude contentious spatial questions that had any real impact on planning. While the platform gives the veneer of citizen participation, citizens soon realised that they had no power to effect any real change. Public support can be lost if there is no trust in the (formal) engagement process, or if choices available are limited to what is already defined as in scope by governments themselves. In Moscow, demolitions continue apace, while outcomes of decision-making on Active Citizen platform are rarely manifest spatially.

4.3.2. Legal and Political Powers

Legal capacities—alongside expertise from planning and architecture—are in demand across many of the networks, and for São Paulo in particular, where a rights-based argument is used to justify occupation. When considering the Lille case, stakeholders have been intentionally excluded from discussion, and debate shut down entirely when opposition to spatial proposals was given a legal support in court. Local governments in France are obliged to engage stakeholders but not to listen to them. Past examples from both Gaelic Ireland and Yugoslavia are evidence of more bottom-up approaches, yet the underlying economic systems which facilitated these models were eventually superseded by (neo)liberal systems meaning that decision-making was transferred to individuals or land-owning households from collective groups or organisations. In Christchurch, a deep and extensive programme of engagement was essentially ignored when it came to producing actionable strategies. In both Recife and Dublin, engagement with community stakeholders did not take place, or was minimised in favour of engagement with experts. In Chicago and Lille, the community organisations are locked out of decision-making entirely, with plans dominated by opaque actors. While Bronzeville Urban Development put together a board with academics, engineers and architects, their proposal for a community energy grid is only mildly entertained in practice by utility company (and regulator) Commonwealth Edison.

4.3.3. Outcomes and Successes Related to Architectures

Recife has provided a good model for incremental regeneration based on underused or redundant built assets. While economic development has brought wealth into the port neighbourhood, the main beneficiaries of this are private sector stakeholders—developers, business and enterprise. As community engagement increases, it is hoped that the local community can participate more fully in decision-making related to spatial planning (and investment). The São Paulo case represents the most active engagement between stakeholders at all levels, with the occupations seeking to engage with the public to improve visibility, with involvement of governmental organisations to guarantee their spatial rights. This includes a comprehensive programme of events for local communities in the centre of the city, but also inviting in supportive individuals from complimentary social movements. A weekly Sunday lunch event, Cozinha Ocupação 9 de julho extends an open invitation, while concerts with superstars such as Caetano Veloso raise the profile of the occupation in the media. This publicity has helped to generate support while MSTC leaders are pursued in the courts.

Overall, engagement with communities on spatial development can be bottom-up or top down, or even a mix of both. However, as the discussion over neoliberal approaches to planning given in this paper indicates, any participatory activity—network building, planning and programming or prototyping solutions—can be ultimately tokenistic if it is incompatible with the will of government and unable to influence real decision-making. In São Paulo, residents of 9 de julho welcome in the curious to participate in the occupation. In Chicago, concepts for the microgrid are made credible through collaboration with imaginative students at Illinois Institute of Technology. In Lille, the associations guarding the Friche have erected a big middle finger faced in the direction of the town hall, next to a self-built space that hosts their assemblies. Social innovation actions that happen contrary to the 'source of power' may have more success in bringing about community resilience, and be more scalable through open-source collaboration at a global scale.

5. Discussion: It Is all Politics! Core Themes That Impact Social Innovation in the Built Environment

The outcomes and successes presented in the preceding section emphasise the political context to development, and the often-buried truth that all architecture is political. Across the global set of case studies, three core themes presented again and again which suggests that the challenges faced in the pursuit of social innovation are shared across multiple contexts and geographies. For all communities—the impact of networks, frameworks and architectures on building resilience is dependent on the systems of governance, ownership, and participation.

5.1. Governance

First and most importantly, the underlying political system, its values and how the rights of communities are upheld broadly impact social innovation in the built environment. As evident in Christchurch, while close networks emerge within communities of like-minded stakeholders, the social impact of collaboration depends on political support. A framework for transformation may emerge from the grass-roots but can dissolve once it faces fiscally conservative or liberal governments. As seen in Gaelic Ireland, codes that favour the collective can enable legal frameworks for the commons, and can be made more resilient through self-management as in the case of Yugoslavia. Opaque and closed governance, as seen in Moscow, Lille and Dublin, erects barriers to networked social innovation. The power dynamics associated with neoliberal policy, where the invisible hand of the market shapes spatial inequality justifies closer examination of their impact on space. It is nature of governance that has the most impact—negative or positive—on social innovation. Government support can provide social entrepreneurs with the space to take risks, invest in prototyping and scale solutions. Concepts such as living labs allow cities to become literal platforms for innovation that host networked collaboration between diverse disciplines. Governments can choose to be open with their data, and share decisions on their budgets that fund testing of new ideas. However, governments can also stifle innovation, not only through withholding funds, but by pursuing unsustainable policies or opaque planning process.

5.2. Ownership

Findings indicate that the theme of ownership is important for communities looking to build resilience—in terms of their ability to shape decision-making in the planning area themselves, and the ability to reimagine underperforming social assets, including buildings and space. Community ownership leads to the sharing of public value—and brings into question how common resources are managed and distributed within a community—and the structures of collective risk and reward. Across the majority of case studies, community networks sought to maximise best use of their common resources—be they physical in the shape of redundant infrastructure or vacant buildings; human, social or cultural capital; or less tangible resources such as opportunities. Communities who firstly exercise ownership over local assets and subsequently make use of these assets to develop

social innovation are generally more resilient, becoming more self-sufficient in the process. Strategies that support social innovation are those that take a networked approach to (built environment) planning, taking advantage of collective resources and tacit knowledge within the community. Strategies for developing a commons and circular economy systems are based on principles that repurpose shared assets—and maximise public value. In Chicago, this is envisaged by a solar farm built on a railway embankment; in Recife, fashioning an abandoned neighbourhood into a distributed innovation park; and the transformation of the brownfield Saint-Sauveur area in Lille. These examples demonstrate the link between creating public value and growing social capital.

5.3. Participation

Finally, the nature of participation within communities (and the networks they create) has significant implications for their capacity for resilience, and the legacy of social innovation. Networks that comprise multiple actors—social champions and experts—allow risk to be shared alongside tacit knowledge, skills and expertise. A closer analysis of network dynamics—bond formation and behaviours may yield a more forensic understanding of this. Personalities are important and can take stakeholders with them or harden opposition. Lille being a case in point, where a single politician can be seen to wield too much power to either block or enable social innovation. In the case of São Paulo, arguably the most resilient community studied, the invitation to participate extended to the wider community actively helps to develop resilience among residents of housing occupations—meaning that targeting the leaders with imprisonment has not damaged the wider cause, but strengthened it. Openness and genuine participation—involving feedback loops—may safeguard communities from negative portrayals of them and allow new narratives around public value—and Rights to the City—to grow and solidify. New technologies can play an important part in connecting communities of practice, the sharing of tactics and knowledge transfer.

5.4. Barriers to Social Innovation

Social innovation is understood as a process, and while many communities have been unable to generate sustainable transformation, they have built up capacity through their actions that nevertheless contribute to their social, economic and environmental resilience. Short-sighted politics can scupper transformative social innovation at all scales. By co-opting neoliberal agendas, communities such as that in Recife and to a lesser extent Moscow, can still contribute to incremental change—if they have the ability to input. However, as documented in many of the cases, participation can lure communities into giving tacit consent to speculative development projects that are not in their interest, and will in fact negatively impact their capacity for resilience in the longer term.

Models such as self-management and insurgent activism tactics devolve ownership over spatial challenges to communities—and have proved more effective in trying to overcome the barriers to social innovation—often erected by those in power, who claim to seek a redress to wealth and opportunity imbalances. Tokenistic engagement and pointless participation as previously highlighted, are found to be barriers to social innovation, and can be manifest in many ways. A lack of ownership over decision-making—not limited to planning but including other social spending—further alienates communities, already suffering from neoliberal policies and globalisation. Polarisation and populism contribute greatly to the growing democratic deficit across the world, which is manifest most obviously in a housing and homelessness crisis. By opening up their doors, and letting the public in, communities aiming to build greater resilience—such as the occupations in São Paulo—can build new alliances that can buttress their movements. Communities often see themselves better able to bring about a sustainable community resilience in light of government failures but lack the adequate tools to do so.

Self-management—where communities assume responsibility for the planning and distribution of their own collective resources is employed as a method to overcome these barriers in many of the cases studies. Most significantly in former Yugoslavia, São Paulo

and Chicago, but also in the Gaelic Ireland example, which demonstrates a precedent in pre-Enlightenment Western Europe. The Yugoslav case offers a high-level example of how self-management can be employed to allow communities to manage how and for whom settlements are both designed and managed. It also provides insights into failures of the policy, and how it may be refined in light of both our current challenges and the opportunities presented by new technologies for transparency and accountability. Chicago's Bronzeville Urban Development (BUD) could develop a similar system to make best use of their resources, and use legal precedence from Gaelic Ireland to protect their assets and rights. For the occupations in São Paulo, where an ad-hoc yet sophisticated form of self-management has been put in place offers enormous hope to communities seeking to build an (urban) commons as strategy for resilience. In that city, models of self-management developed by movements such as the MSTC are spreading to the disenfranchised periphery. They are employed by those communities to self-mobilise, and build new and manage social infrastructure—public realm and community buildings. Ironically, some liberal administrations view these self-sufficient communities as less of a burden on the state and are willing partners to support bottom-up community actions.

Insurgent activism is becoming more widespread as communities feel increasingly unable to confront spatial inequality through traditional democratic means (such as voting). In the case of Moscow, where political association on the street is criminalised, groups have used Facebook and other social media platforms to publicise their cause, and fight against eviction and demolitions. The Active Citizen platform, used to sanction decision-making as supported by the community, is an example of how innovation can be used to shut down open public discourse on planning. The Москвичи против сноса (против закона о реновации) public group on Facebook presents a vision counter to that the city government wishes to present, therefore overcoming barriers to social innovation set up by the state. Social technologies outside of the control of government allow citizens to monitor spatial injustices-such as demolition, substandard construction, planning infringements and the decanting of residents to the periphery. Above all, it is a commitment to greater openness and transparency visible in bottom-up actions from Christchurch to Lille that offers the most useful tool to counter these barriers.

5.5. Politics of Space

A lack of government support for social innovation remains the biggest barrier to greater spatial equality—and therefore resilience—in our communities. An even bigger threat is a neoliberal model that commoditises home as an asset to be traded, and brings architecture and built environment assets into the market. In the Dublin Docklands case-without adequate funding from Dublin City Council, the Dublin Docklands Cultural Forum has been unable to get off the ground, while rampant speculative development continues apace—with explicit government (financial) support in the docklands. In the port of Recife, residents have on one hand reaped the benefits of incremental gentrification of their area while simultaneously raised suspicions about the benefits of same. As the stakeholders involved in Porto Digital take responsibility for wider planning decisions in the city (and State of Pernambuco), close monitoring of regeneration will be required to keep neoliberal development in check. In Christchurch where commentators lament that the earthquake facilitated the development of a world class twentieth century city in the twenty-fist century, it would appear that the chance has been lost to deliver the type of social innovation envisaged by Regenerate Christchurch and their partners. This said, however, the activities of the network continue, realising ambitious concepts such as the Ōtākaro Orchard through relentless agile prototyping and collaboration.

What is missing from government is the social brokerage required to install creative partnerships to fund and sustain social innovation. The decision-making platform studied in Moscow demonstrates a dangerous precedent for how technology is used to manipulate and distort public opinion on planning, and stifle social innovation. Similarly, in Chicago, autocratic governance practices favour the interests of opaque actors—utility companies

and neoliberal universities cum-property developers—over the desires of the citizens of Bronzeville to manage their own resources and development pathways. Adequate legal provision—the likes of the type provided in Gaelic Ireland through Brehon Law-is required to guarantee the Right to the City and to the commons. The decimation of the Gaelic system following Cromwellian conquest (and Elizabethan enclosure) in Ireland does not bode well for the adoption of these rights in contemporary societies. In fact, similar guarantees afforded by the Yugoslav system were allowed to disappear following the dissolution of that system—with devastating effects for the successor states. The stalemate observed in Lille represents a dangerous precedent for how participatory dialogue can be shut down entirely if it runs counter to the vison of the prevailing government. Within a context of post-politicisation, it can only serve to disenfranchise communities further in the face of speculative development approaches. In fact, only the communities in São Paulo have managed to achieve greater resilience through their social innovation actions, and this is threatened by proposals under the current far-right administration-while the numbers of homeless increase exponentially [68].

6. Conclusions

In conclusion, to achieve social innovation in the built environment, communities must pursue an insurgent activism—bringing with it new roles for the architect as activist—where disciplines, interest groups and individuals come together to collaborate on an alternative vision for society-one that is more equitable, and that does not threaten the very existence of humanity. In order to get closer to enacting such a vision we must present new popular narratives that promote circular economy, shared resources and inclusive growth models. What stands out as a common theme across all the cases examined is how increasing inequality is manifest in the built environment. The COVID-19 pandemic has laid bare the political nature of spatial inequality, and the precarity of unsuitable and undignified living conditions. Commodification and the monetisation of home has exacerbated acute housing crises in a number of cities and territories, while trends towards populist governance decreases our ability to act. Information and communications technology can be both a force for good—connecting communities of practice united in the struggle for spatial rights yet can also be tools to advance neoliberal policies and planning orthodoxies. In order to counter this front, architecture and planning research must continue to engage—using deep ethnographic tools—with those communities who are on the front line in terms of building a more resilient future. Future research in this area—over longer periods, and inviting in new critical audiences-is required in order to influence policy and urban governance. The future of architecture may indeed be less about bricks and mortar, and more about digital platforms, experiences and spaces for dialogue or assembly. The internet has democratised online space, meaning that citizens will come to expect the same democracy within their communities and places. The growth of populism brings new challenges to the concept of (shared) place, and will require new understandings of placemaking [69].

Across the research, the role of architect as community advocate is questioned against behaviours within the profession that favour developers. The repositioning of architecture towards the market has meant a loss in both status and position of the architect as an agent of positive social change. The sustained silence of the profession with regard to evidence-based policy making is evident in proposals that lack the type of joined-up thinking that encourages social innovation. Many of the cases chosen are related to regeneration—or areas under pressure from speculative development or gentrification. Together, the case studies sought to understand the social impact resultant from design interventions—be they digital, physical or otherwise—alongside ways in which the built environment professions could better articulate their practice towards shared outcomes towards a lasting and sustainable social impact. Findings confirm what authors such as Lefebvre and Harvey have pointed out in relation to capitalist forms of spatial development, and the exclusionary power of politics to support an economic model of unsustainable,

unending growth-for-growth's-sake. Decision-makers favour models that align to short-term political priorities, derisking planning for funders, yet excluding social innovation at the grass roots.

One prominent finding is the need for new narratives around sustainable development that challenge the accepted political orthodoxies that inhibit social innovation and discourage robust public investment in the built environment. New narratives are important to support social innovation in the built environment—that challenge the perception that the capitalist mode of production is the only way to organise our politics, space and society. Indeed, within the profession of architecture itself new-and more positive—narratives of the role of the architect—as activist, as community partner and as agitator—are required to offset negative connotations of the architect as collaborateur in harmful speculative development. Space is political, meaning that no longer can the architect feign neutrality in mediating or participating in spatial conflicts. New voices and views that challenge old beliefs about the role of the state in facilitating innovation, investing in people and community are also beginning to penetrate. Networks are making steps towards autonomy, self-reliance and resilience, yet further research is required to understand if these networks have any lasting impact on decision-making in the medium to long term. Longitudinal studies will help to understand the social impact of networked action. What is common across the phases of social innovation studied across the research is that no matter the depth of participation and ownerships of the process of social innovation, strong supportive governance systems must be in place in order to deliver sustainable lasting impact for communities. Tokenistic forms of engagement will only serve to further alienate the victims of spatial inequality and encourage them to pursue insurgent and extra-legal forms of opposition, including organisation, self-management and occupation. These are tools with which we can challenge the politics of space.

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