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Article

What Role for Citizens? Evolving Engagement in Quadruple Helix Smart District Initiatives

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Abstract
Globally, smart city initiatives are becoming increasingly ubiquitous elements of complex, sociotechnical urban systems. While there is general agreement that cities cannot be smart without citizen involvement, the motivations, means, and mechanisms for engaging citizens remain contested. In response, this article asks what the role of citizens is in two recently established smart districts within the wider Smart Dublin programme: Smart Sandyford, a business district, and Smart Balbriggan, a town north of Dublin with Ireland's most ethnically diverse and youthful population. Using multiple methods (online and in-person interviews, site visits, a focus group, and participant observation), this article specifically examines how the "quadruple helix," a popular concept within innovation studies and one that is adopted in promotional materials by Dublin's emerging smart districts, is used by key actors as an overarching framing device for activities. It finds that, to date, the quadruple helix concept is being applied simplistically and uncritically, without attention to pre-existing and persistent patterns of uneven power and influence between the different actors involved. As such it risks inhibiting rather than supporting meaningful citizen engagement for smart and sustainable places that both smart districts articulate as a key driver of their activities.

Keywords
citizen engagement; Dublin; hackathon; Ireland; quadruple helix; smart cities; smart districts

Issue
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1. Introduction

Globally, the prefix "smart" is a powerful rhetorical and legitimating device for catalysing and lending coherence to a variety of practices (Caprotti & Cowley, 2019). It is increasingly appended to geographical spaces, such as cities and, to a lesser extent, towns, districts, and rural areas, by local authorities keen to attract investment for technical data-driven solutions to pressing (and often highly normative) societal challenges such as climate change, urban regeneration, air quality, and transportation (Baykurt & Raetzsch, 2020). However, these complex, sociotechnical "smart" responses have not led to unambiguously positive outcomes for citizens (Clark, 2020). As a result, there is an increasing need to understand how and to what extent, the citizens most affected by the social problems which these smart responses are purporting to address, are being engaged in decisions about their design and deployment. With scholars, such as Cardullo and Kitchin (2019) providing conceptual frameworks of engagement approaches in smart cities, what is needed now is more empirical data and an understanding of how citizen engagement in smart initiatives is actually practised in different contexts to test these frameworks. This means moving beyond a hierarchical ranking of methods alone (e.g., the scaffolding) to a greater understanding of how methods of engagement led by smart district initiatives are situated

within particular place-based contexts and wider political spaces (Chantry, 2022). In response, this article asks what the role of citizens is in emerging smart districts in Dublin, adding novel empirical insights to an expanding data bank of smart cities in practice.

Broadly, critics have argued that smart city developments have tended to be associated with top-down, technocratic, instrumental processes that serve the interest of states and businesses rather than citizens (Kitchin, 2014; Sadowski, 2019). Research indicates that people tend to be designed out of smart futures with citizen participation largely rhetorical; a way to legitimise technological solutions that support private interests and entrepreneurial modes of governance (Cardullo & Kitchin, 2019; Fitzgerald & Davies, 2022). Moving beyond a simple, dichotomous, top-down versus bottom-up view of actors, recent scholarship argues for a more fluid, interstitial positioning of actors that acknowledges that actors can, and do, occupy multiple and shifting roles over time (Burns & Welker, 2022) including active non-engagement (Soutar et al., 2022).

According to the All Ireland Smart Cities Forum (n.d.), a collaboration between Maynooth University and local authorities in Northern Ireland and the Republic of Ireland, eight cities across the island of Ireland are currently designated as smart including the capital, Dublin. Within the local authority-led Smart Dublin programme there are five smart districts, the first of which, Smart Docklands, was launched in 2018. Since then, the Smart Dublin programme has expanded to include: Smart DCU—a university campus; Smart D8—a health and well-being district; Smart Sandyford—a business district; Smart Dún Laoghaire—a coastal "climate" district; and Smart Balbriggan—a coastal town referred to as Ireland's first smart "community" district. All of the districts within the Smart Dublin programme state that they apply the quadruple helix innovation systems conceptual framework as a means for four stakeholder groups—government, academia, industry and citizens—to co-produce smart city projects (Nguyen & Marques, 2021).

Originating in innovation studies, the quadruple helix is a popular model used to describe the involvement of these four main actors in smart city projects: local authorities, academics, companies, and citizens (Carayannis & Campbell, 2009). While widely used as a proxy for familiar concepts of engagement, participation, and partnership, few initiatives that evoke the concept explicitly articulate where, how, and why certain stakeholders should be "involved" at various stages in smart city developments (Paskaleva et al., 2021). Rather than a criticism of the quadruple helix model per se, for there is considerable complexity to the original concept within innovation studies (see Carayannis & Campbell, 2009), this is instead a criticism of how it has been adopted and utilised in smart city initiatives.

Of course, implementation deficits are not the sole preserve of smart city developments. The challenge of creating and enacting meaningful participation, and in particular public or citizen engagement, has long preoccupied academic and policy practitioners in a range of fields (Hügel & Davies, 2020), with fundamental issues of democratic legitimacy, participation, and representation at their core (Avril & Neem, 2014). In particular, matters of deliberation and inclusion have been central concerns of urban actors, activists, and academics for decades (Malkopoulou & Hill, 2018). Many of these debates revolve around polarised readings of social theories of power and knowledge. For example, in the 1990s, the collaborative turn in urban planning reached out to Habermasian ideal speech situations, which call for extended deliberative democracy and emphasise communicative rationality. However, scholars responded with Foucauldian readings of knowledge-power which emphasise that there are no neutral spaces devoid of power relations (Tewdwr-Jones & Allmendinger, 1998). Tackling this polarisation led to the emergence of blended frameworks that sought to recognise the unavoidable, if fluid, nature of power relations in particular places. Examples range from attending to the power, politics, and partnerships in the state-led initiation of sustainable communities using place-based actor-network theory (Davies, 2002) to the development of new heuristics aiming to assess multiple and diverse spaces of citizen engagement beyond those normally considered; what Chantry (2022) refers to as post-political spaces of engagement. This is an important step theoretically because such framings—while normatively supporting the consensus view that citizens must be part of planning, enacting and inhabiting smart initiative spaces—do not accept that smart cities are depoliticised spaces.

Building on and extending previous research examining smart city engagement processes, in this article, we explore how citizens are being accommodated and involved in two emerging and contrasting Smart Dublin districts that explicitly embrace a quadruple helix partnership model, Smart Sandyford and Smart Balbriggan. In the first instance, this article sets out the research context by describing the socio-historical development of smart districts. Then, it outlines the methodological approach adopted to explore smart citizen engagement, with a focus on the perceived roles and responsibilities of citizens from the perspective of other quadruple helix stakeholders, as well as outlining the mechanisms of citizen engagement practice. Finally, the article concludes with recommendations for engendering meaningful citizen engagement.

1.1. The Research Context

The research focuses on stakeholders' views of citizen engagement within two contrasting, early-stage smart city districts initiated in 2020—Smart Sandyford and Smart Balbriggan—that differ in terms of how citizen engagement has been practised.

1.1.1. Smart Sandyford

Situated to the south of Dublin city within the Dún Laoghaire-Rathdown County Council (DLRCC) municipality, Smart Sandyford is synonymous with the area known as Sandyford Business District (see Figure 1). Prior to the Covid-19 pandemic in 2020, approximately 26,000 people commuted daily into the district to work in one of more than 1,000 companies including global technology providers. Around 5,000 people reside in the district, with most housed in high-rise apartment blocks rented from property developers (Power, 2021).

Launched on February 27th, 2020, a day before the first case of Covid-19 was recorded in Ireland, Smart Sandyford was described as a "smart business district" test bed, a partnership between the local authority (DLRCC), academics funded by the Science Foundation Ireland Enable Research Programme and the business community, represented by members of the Sandyford Business Improvement District, a volunteer-led organisation funded through a compulsory business levy (Smart Sandyford, 2020). Despite just these three key stakeholders being stated as partners, the district formally articulates its development pathway as that of a quadruple helix (Smart Sandyford, 2020). This raises a number of questions that form the focus of this article: Where are the citizens and what role are they envisaged to play in the smart district?

Workshops with business representatives prior to the launch of Smart Sandyford identified improved

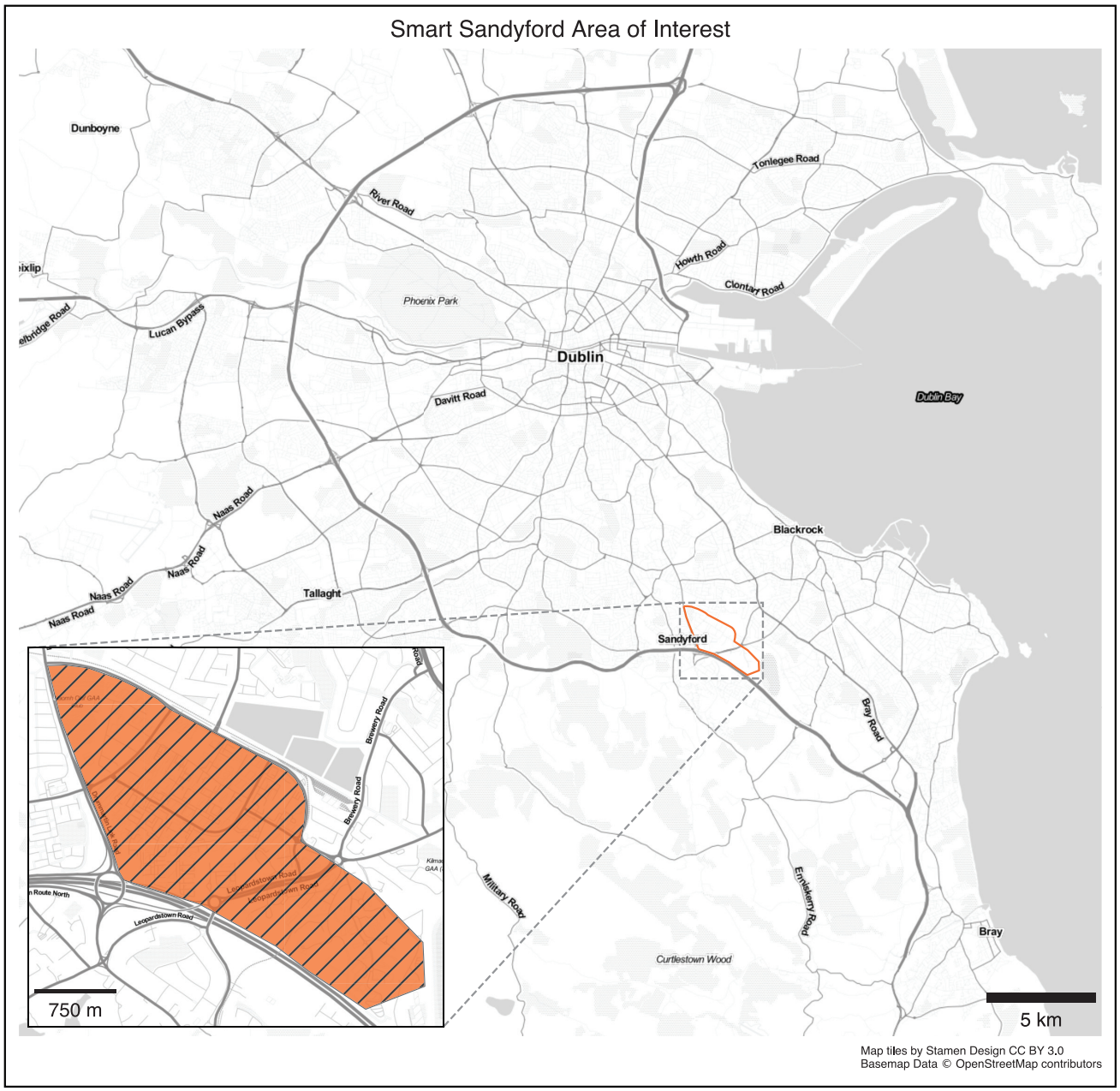

Figure 1. The location of Smart Sandyford. Map designed by Stephan Hügel.

liveability and placemaking as key challenges for the district. However, the projects that emerged in Smart Sandyford focused primarily on mobility, a trend that can be traced back to DLRCC's first Smarter Travel Community established in the Sandyford Business District in 2010 (DLRCC consultation hub; Sandyford Smarter Travel). Examples of Smart Sandyford mobility projects to date include the installation of a "smart" bench at a bus stop (powered by solar energy and hosting USB charging ports, wireless charging points, electrical sockets, an air compressor, and cycle maintenance equipment), the loan of e-bikes to health workers during the pandemic, and an eCargo bike leasing scheme for local businesses. In essence, the needs of the local business community, represented by the Sandyford Business Improvement District, were prioritised (Sandyford Business District, n.d.).

In late 2021, online presentations led by the Smart Sandyford project manager started to shift from a focus on projects delivered within the Smart Sandyford district to projects within the wider area of Dún Laoghaire. Whilst legacy reference was still made to Smart Sandyford within the text of the Smart Dublin website until summer 2022, Smart Sandyford as a separate smart district ceased to exist in late 2021.

1.1.2. Smart Balbriggan

Situated on the east coast, north of Dublin (see Figure 2), Balbriggan is Ireland's most youthful and ethnically diverse town, home to approximately 25,000 people, of whom 11% classify themselves as Black or Black Irish (MacNamee, 2020). In the last 20 years, rapid population growth has been matched by a proliferation of new housing estates built on the edge of the town with limited facilities or amenities ("Balbriggan population set to grow to 25,000," 2000). According to a local Fianna Fáil councillor, a lack of facilities and reductions in the number of Gardaí (police) in Balbriggan, has fed local concerns about violent, place-based, "Eircode [postcode] wars" (Foy, 2020) attributed to young men who have been negatively represented in traditional and social media as "lawless thugs," "gangs," or "feral rats" (Berry, 2020). However, Fingal Communities Against Racism has argued that these narratives are part of a deliberate misinformation campaign by the far-right to problematise diversity within Balbriggan (Phelan, 2021).

Balbriggan has embarked on a programme of urban redevelopment, the *Our Balbriggan 2019–2025 Rejuvenation Plan* commonly abbreviated to *Our Balbriggan*. Estimated to cost €33.9M, *Our Balbriggan* is partially funded through the local authority, Fingal County Council (FCC), participating in EU programmes (for example, the European Urban Regeneration Fund and the EU's Sustainable Integrated Urban Development iPlace project, URBACT). The *Our Balbriggan* plan was informed by a public survey designed by FCC and administered online for a statutory consultation period of three weeks in 2018. The survey was completed by 4,000 people—approximately a quarter of Balbriggan residents—and lauded in the local and national press as a "historic community engagement" (Manning, 2020). Described as "a citizens" assembly for urban regeneration" (Hilliard, 2019), *Our Balbriggan*'s approach to citizen engagement was predicted to become "a model for towns around the country" ("Balbriggan plan one year on," 2020).

In June 2020, FCC launched Smart Balbriggan, Ireland's first Smart District town, as a digital adjunct to the Our Balbriggan programme. According to the initiative website:

> Community is at the heart of Smart Balbriggan, with residents invited to participate in the design and implementation of the programme through workshops, events, surveys and focus groups. From developing a 3D model of the Harbour Redevelopment to facilitate community consultations, to supporting citizen science projects, Smart Balbriggan strives to deliver tangible, positive outcomes for local residents. (Smart Dublin, n.d.)

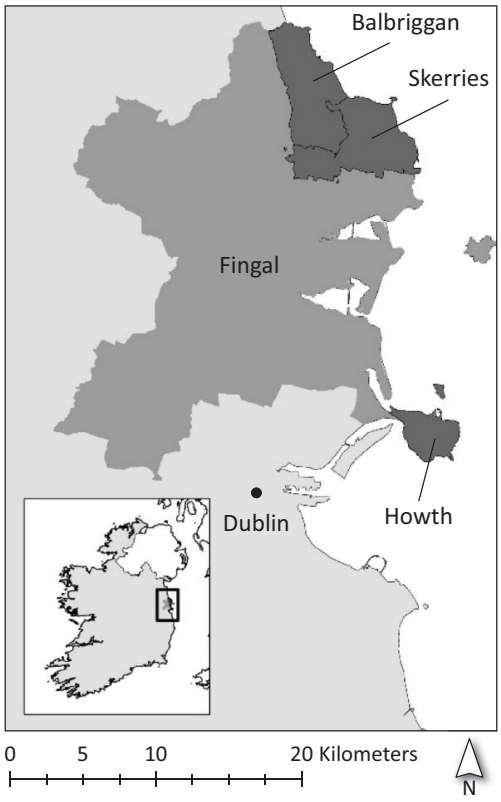

Figure 2. The location of Smart Balbriggan. Source: Dalla Pria et al. (2022, p. 164).

2. Methods

Ethical approval for the research was provided by Trinity College Dublin. Site visits were made to both locations.

A total of 30 people participated in research interviews. Due to Covid-19 restrictions, 26 semi-structured interviews were conducted online and in person to allow for comparability but also flexibility, allowing participants to articulate their experiences in their own words (Devine-Wright, 2020; Hoggart et al., 2014). There were 15 interviews conducted in Smart Sandyford—four industry actors, five academics, five government actors, and one civil society actor. In Balbriggan, 11 interviews were conducted—one industry actor, two academics, three government, and five civil society actors as well as an in-person focus group with four members of a civil society group.

Participants were selected using a snowball method initiated through an introduction by the smart district project manager in each location. The snowball method was sustained through interviewees recommending other people to interview and continued until all those recommended had been approached for an interview. The interview and focus group used a protocol that included questions exploring how respondents understood the term "smart," how the quadruple helix was understood and actioned within each district, how engagement was comprehended, and how citizen engagement was practised. In October 2021, the first author joined a hybrid hackathon in Smart Balbriggan commissioned by FCC and attended by 11 people.

With the prior permission of the participants, an audio-visual recording of each interview was created using Microsoft Teams and transcribed using VTT software. Transcripts were subject to reflexive thematic analysis (Braun & Clarke, 2019) as a means to identify rationalities associated with the quadruple helix and citizen engagement practices. The next section interrogates stakeholder responses to these topics and presents key observations from participation in the hackathon.

3. Results

This section presents the results derived from interviews exploring the core concepts of the quadruple helix and engagement practices to better understand the perceived roles and responsibilities of citizens in both smart districts, Smart Sandyford and Smart Balbriggan. Four key findings are detailed here: an uncritical application of the quadruple helix, an instrumental and predominantly extractive logic driving citizen engagement, superficial treatment of engagement in practice, and leading to engagement being seen as primarily a box-ticking exercise.

3.1. Uncritical Use of the Quadruple Helix

The Smart Dublin website described the quadruple helix as a "novel approach" that "helps ensure that a diversity of perspectives, experiences and voices are part of each district programme—essential ingredients for impactful innovation" (Smart Dublin, n.d.). However, although frequently referred to during online presentations, the term quadruple helix was typically used to describe an unstructured "coming together" (Academic, Smart Balbriggan) of government (local and national), citizens, business, and academia. For example, responses included statements like, "[w]e use that quadruple helix" (Government, Smart Balbriggan) and:

> We try and engage with four 4.5 slash 5 actors, main actors…central government as well as local government, citizens, academia, and industry so when I say demonstrating value, its value from the perspective of those stakeholders…value to a local government stakeholder that'll probably ultimately improve citizen's lives. (Government, Smart Sandyford)

As such, the quadruple helix was used only as a rhetorical device to describe broad stakeholder groups, without interrogating the criteria for ascribing membership. It was not used as an operational framework. Nor was the composition of the four stakeholder groups detailed. In each location, the views of citizens were seen to be those derived from previous events, networks, and processes, such as the Public Participation Network in Smart Sandyford, or the *Our Balbriggan* survey in Balbriggan. No attention was paid to the state of relations between the four stakeholder groups or to patterns of historical participation, power, and influence.

3.2. Instrumental and Extractive Logic

3.2.1. Smart Sandyford

A variety of factors were cited for the limited engagement with local residents in Smart Sandyford, including structural factors such as the design of residences (large apartment complexes) and associated access rights, as well as temporal issues associated with the Covid-19 restrictions that were evolving over the time period of the fieldwork. As one actor said:

> I think our approach to citizen engagement has been a little bit sporadic….I just find that no matter who you're engaging with, citizens or otherwise, always have to figure out what's in it for me? And that's hard to do sometimes with the citizens. And I think that's why previous interactions have just turned into the kind of an airing, 'Tell us your challenges…just shout them out.' Which maybe is not 'robust citizen engagement.' (Government, Smart Sandyford)

Additionally, residents in the area were described by respondents as "very disparate" (Civil society, Smart Sandyford), multicultural, unorganised, transient, and, as a result, difficult to engage with. As the area is not a socio-economically deprived district, there are few active public sector-led community groups or services, although there was anecdotal evidence of emergent

self-organised activities relating to particular nationalities and religious affiliations. However, the housing mix (predominantly apartments) and the lack of local social provisions such as playgroups, community centres, schools, and green spaces shape the household mix in the area and lead to transience when household sizes grow. This means the expectations, concerns, and experiences of those living in the district are largely invisible to other actors in the Helix: "There's no-one really talking for them on their behalf, and so even to try and engage them and get surveys out of them, it's quite difficult actually" (Civil society, Smart Sandyford).

The challenges of engagement outlined above created an instrumental and extractive rather than deliberative logic to involving civil society. This combined with the focus on issues that had technical "smart" solutions were seen as an explanation, and a justification, for the lack of meaningful citizen engagement since the launch of the initiative:

> [We are proposing to use] lots of sensor data from the embedded stuff that's in roads…lots of drone data…lots of cell mobile phone data that we're going to use to see where people travel to and from….I'm not sure if even you could call that engagement, but it's collecting of information. (Academic, Smart Sandyford)

Faced with the need to secure the cooperation and permission of landlords, as well as tenants, to site sensors in residences and additional delays associated with the Covid-19 pandemic, academics "just gave up on that pilot…we were hoping that the situation would change, but then it never happened" (Academic, Smart Sandyford). Then quietly and without ceremony, plans for citizen science projects and smart projects more generally within Sandyford, were abandoned.

3.2.2. Smart Balbriggan

According to the lead of Smart Balbriggan, the community is at the heart of Smart Balbriggan. Indeed, they stated that "the theme which we have gone in [with] is around community involvement and participation" (Government, Smart Balbriggan). In practice, this was equated with residents being "invited to participate in the design and implementation of the programme through workshops, events, surveys and focus groups" (Smart Dublin, n.d.). FCC invited those who had attended the online launch of Smart Balbriggan to participate in an online community survey in July and August 2020 (Fingal Consult, 2020). The submissions were considered by members of the Smart Balbriggan Steering Committee which had been established by FCC with representatives from the local authority, businesses, academia, and two people identified as being from the community. The committee then came up with the Smart Balbriggan Programme Framework which has three strategic priorities that reproduce pillars within the existing *Our Balbriggan* strategy: community building, job creation and economic growth, and improved services and public realm. These were linked to five programme objectives listed on a Trello board for openness and transparency.

Despite goals for Smart Balbriggan engagement to be "inclusive, accessible and reflect an ongoing two-way community conversation" (Smart Dublin, n.d.), the mechanisms for engagement were articulated as extractive—a way to mine potential:

> So there is what I'd consider to be a weakness around the fact that on the one hand, we have this very strong narrative, like a defining feature, but on the other hand, we are still grappling with bringing [youth] voice to the fore in a meaningful way….I think with the Smart Balbriggan it gives us more of an opportunity to go directly into schools, to use technology in a more creative way, to look at means of storytelling, music, I mean creativity of which there's bags of in this town and really *mine that whole potential* there. (Government, Smart Balbriggan, emphasis added)

3.3. Smart Washing

Smart Balbriggan's second programme objective was to "enhance citizen engagement and community building" and three related actions were specified: "to create opportunities for all citizens to get involved in Smart projects"(e.g., via the Smart Balbriggan hackathon activity); "to improve communications and decision-making using new and existing technology" (e.g., an interactive, online open data 3D model to showcase Our Balbriggan public realm projects funded through the 2020 Public Service Innovation Fund); and "to explore tech solutions to tackle anti-social behaviour" (e.g., via digital light art installations; Smart Dublin, n.d.). However, during interviews these interventions were seen as only lightly addressing the symptoms not the root causes of the issues faced by the community in Balbriggan:

> I was looking at the smart thing, it was just like facial [superficial] beauty, nothing deep and that is so sad because this is the second consultation I'm aware of that is ongoing for the Balbriggan area and it's still not listening to what the people truly need. (Civil society, Smart Balbriggan)

There were concerns among civil society interviewees that there was a fundamental lack of understanding amongst Balbriggan residents of what is meant by "smart" (and therefore by association with the Smart Balbriggan initiative) and how this might be relevant to the everyday challenges they face:

> I think people don't understand what Smart Balbriggan is. And I think the language around it can be quite difficult. People assume that it's just you

> know, Wi-Fi, it's broadband, it's connectivity. They don't understand how that can be used by attaching it to a bin, you know when a bin is full, it can you know, highlight something, or if something is missing off a pole it can highlight that. That they don't get all of that. Or how we can connect as a community through smart. I mean, they did a hackathon, people hadn't a clue, no more [never mind] myself….Unless you're digitally minded, it's not going to appeal to the ordinary person. (Civil society, Smart Balbriggan)

3.4. Tick-Box Engagement

It is clear that much of the work programme for Smart Balbriggan dealt with the insights gained from previous consultation exercises and particularly online surveys. This raises important questions about how inclusive such mechanisms can be, given the persistent digital divide within Irish society and specifically amongst the residents of Balbriggan; a digital divide that was accentuated during the Covid-19 pandemic (McGowran, 2022). As one interviewee argued:

> The old-fashioned communication systems should not be dropped altogether with the assumption that people will use social media. Older folk don't use social media at all…a lot is by word-of-mouth or leaflet in the door or something like that. Now what I am asking for is a notice board at the Town Hall, at the library. (Civil society, Smart Balbriggan)

After being interviewed for this article, the lead of a local charity catering to the elderly took it upon themselves to design and distribute a survey of access to and literacy regarding technology amongst 60 of their clients of whom 18 completed the survey. Of those who completed the survey, one-third did not have internet access at home and relied on other people to access a range of services including paying bills, accessing medical services, finding jobs, shopping online, or checking death notices.

Nonetheless, the focus on digital engagement continued as actions were rolled out. The online launch of Smart Balbriggan included an introduction to The Changing Face of Balbriggan Citizen Engagement Hackathon organised by What The Hack, a recently established company commissioned by FCC to deliver two hackathons, one with schools in Balbriggan and a hybrid, one-day, resident-facing event, as part of their citizen engagement commitment. The event took place on a Saturday from 9 am to 5 pm on October 16 of 2021, online and in Balbriggan's only hotel. The event was funded through FCC's involvement in the European iPlace Project. According to What The Hack's introductory material for participants given out at the event, the aim of the hackathon was two-fold: to produce a "brilliant solution" for an issue in Balbriggan and for participants to gain "a whole host of new skills."

However, the public event was less productive, with few participants and even fewer Balbriggan residents taking part. Interview responses indicated a disjuncture between the goal of achieving high levels of meaningful two-way engagement and the processes used to incorporate citizen preferences into plans and actions in Smart Balbriggan. The amount of time and level of technical skill required to join the event was high, especially for those joining online. Most of the participants had an existing background in software design or technology development: "We did the Community Hackathon. I know you were there. Bit of a disaster, but sure, it was something" (Government, Smart Balbriggan).

4. Discussion

While the emergence of these districts during a global pandemic may partially explain the trajectory of citizen engagement during the period of study, insights can be drawn about how to rectify some of the limitations of the current approach and improve the robustness of citizen engagement in smart districts in Ireland and beyond. Table 1 summarises the four limitations identified in interview transcripts from each of the Smart Districts: uncritical use of the quadruple helix, extractive logic, "smart-washing," and "tick-box" engagement.

Whilst academics and government representatives in both districts referred to the quadruple helix as a foundation for action, and acknowledged a need to involve citizens, there was no clear or systematic strategy for how to ensure inclusive involvement, or how to respond in a transparent way to the outcomes of that involvement. The way in which citizens were conceptualised and engaged failed to accommodate diverse, often marginalised, groups such as community associations, non-profit organisations, ad-hoc task groups, or groups with different digital practices, for example, elderly people. This issue is not new, or particularly unique to smart initiatives, but pervades efforts to embed participation in planning and public policy more generally (Davies, 2001, 2002; Hügel & Davies, 2020). Overall, deployment of the quadruple helix in this way perpetuated existing power differentials between groups by prioritising the role of local authorities, academics, and businesses and relegating citizen engagement (Tewdwr-Jones & Wilson, 2022), whilst also seeking to frame the smart district as an apolitical intervention (Chantry, 2022). For example, the Balbriggan hackathon was sponsored by FCC which commissioned the delivery agents, framed the event aims, provided the space, and chose the mentors.

In this sense, the quadruple helix was used as a rhetorical device that paid lip service to the presence of broad stakeholder groups and failed to detail how multiple, changing actor positions could be accommodated. There was no indication of any challenge to the appropriateness or legitimacy of the Quadruple Helix or any alternative ways to represent actors, their roles, or their responsibilities (Nguyen & Marques, 2021; Nguyen et al.,

Table 1. Results and recommendations for promoting citizen engagement activities within Smart Districts.

Theme	Example(s)	Recommendation(s)
Uncritical use of quadruple helix	"Each district would have the [quadruple helix] framework…local government, citizens, business, and academia all coming together" (Academic, Smart Balbriggan). "We use that [quadruple helix]" (Government, Smart Balbriggan).	Focus on diversity, inclusiveness, and power relations Work with local representatives to identify relevant stakeholders. Develop criteria for ascribing membership and acknowledge that stakeholders can hold multiple affiliations. Include intermediaries and actors with temporary and/or ambiguous roles. Pay attention to historical participation, power, and influence.
Instrumental and extractive logic	"[We concentrate on] the districts where they have a kind of already-made community that we can tap into" (Local government, Smart Sandyford). "I'm not sure if even you could call [mobile phone, drone, and embedded sensor data] engagement, but it's collecting of information" (Academic, Smart Sandyford).	Deliberative logic Provide adequate finance, time, and personnel resources to co-design, refine, and deliver projects. Develop mechanisms to give local communities control over resources, actions, decision-making, and data.
Smart-washing	"I was looking at the smart thing, it was just like facial beauty, nothing deep" (Community A, Smart Balbriggan). "The smart space [is] a kind of promotional tool" (Community B, Smart Balbriggan). "Smart initiatives that I've seen around the globe, they always kind of feel like they're scratching the surface" (Academic, Smart Balbriggan).	Smarter approach Identify specific local concerns, as well as regional and national concerns. Develop mutual trust within and between smart district actors to create the bedrock for collaborative and meaningful engagement. Incorporate identified needs into a coherent, meaningful, and deployable strategy.
Tick-box engagement	"'Tell us your challenges,' just shout them out" (Local government, Smart Sandyford). "It needs transparency like where does it go into the community? Or how did those decisions unfold?" (Community C, Smart Balbriggan)	Citizen engagement as a process Involve citizens as early as possible in the design and delivery of engagement activities. Use a range of engagement strategies and methods including cultural and creative events alongside formal workshops and meetings. Co-develop, resource, and deploy an iterative monitoring and evaluation strategy.

2022). Instead of problematising the quadruple helix, "the citizens," who could not be identified or mobilised were re-constituted as "the problem," as being "techno-phobic," "backward," and "old school." Such a deficit framing of the citizen has been widely critiqued, not least because it overlooks how structural factors such as poverty or cognitive capacity constrain willingness and ability to engage (Soutar et al., 2022).

Critics of the quadruple helix suggest that the concept could be improved by diversifying and increasing actor types, for example, including intermediaries, such as social entrepreneurs, in a penta helix (Calzada & Cowie, 2017). However, as the survey run by the local charity demonstrated, interstitial actors, such as intermediaries, do not wait passively to be consulted by other quadruple helix stakeholders, they can have

multiple roles and strategically mobilise these, e.g., as a researcher and a charity actor, collecting data and representing practices that are reflective of the community and its members (Burns & Welker, 2022). Rather than being strategic or systematised, the dominant mode of citizen engagement in both smart districts was reactive and opportunistic, running the risk of being located at the lowest part of Cardullo and Kitchin's (2019) scaffold for participation, that of being tokenistic and paternalistic. Citizen engagement was persistently framed according to an extractive rather than deliberative logic, albeit in different ways in the two places.

While there are similarities between the two district's framings and actions, there are also differences. Smart Sandyford did not, for a range of social and temporal reasons, conduct any novel citizen engagement in its short-lived existence. Smart Balbriggan was explicit in its use of "smart" citizen engagement methods—such as online surveys and hackathons. However, the level and diversity of engagement these mechanisms produced raises questions about the "undisputed aptness" (Engelbert et al., 2019, p. 351) of digitally enabled engagement methods amongst digitally divided populations. More than this, adopting business-driven, Dragon's Den style discourse and practices during the hackathon whereby citizens were allocated into teams that they did not choose, presented with digital technologies that they were required to use without prior training, and asked to identify solutions to specific problems that were then judged by an external panel of "experts" in a compressed timeframe, undermined the value of local knowledge. The framing of the event encouraged competition and provided little in the way of legitimacy for any outcomes produced. Consequently, it is not only the computational logic that constrains and curtails citizens' rights to identify, contest, or reject smart solutions, both in Dublin and beyond (Halpern & Mitchell, 2022) but also the lack of space for collaborative deliberation.

The results of the analysis of citizen engagement in the emerging smart districts outlined above raise a number of key issues. Within the Republic of Ireland and Europe more widely, badging initiatives as "smart" can be an effective branding tool for the promotion of an area and a way to secure funding for collaborative activities between academic research, business, and government. However, if citizens are themselves not also meaningfully engaged, it is questionable whether discrete, locally embedded, technically enhanced smart projects are either appropriate for, or capable of, addressing complex, place-based and systemic challenges such as climate change or urban regeneration without intentionally, or unintentionally, causing negative outcomes for the citizens most affected (Clark, 2020).

5. Conclusions

Whilst it is acknowledged that going beyond case studies in smart city research is needed (Miller et al., 2021), the focus on case studies is still valuable for learning when smart urban initiatives, like those considered in this article, are emergent or short-lived. Both the smart districts examined in this article were run on limited budgets and with few human resources. Without strategic funding and substantive resources, it is hard to go beyond already existing activities. Therefore, an opportunistic approach prevails with programmes and activities designed to fit funding availability rather than address needs identified by citizens. The uncritical articulation and generic use of concepts such as smart and quadruple helix then become "empty signifiers" (Caprotti & Cowley, 2019); rhetorical devices used by government, industry, and academia to discuss, resource, and legitimate, rather than challenge or transform, existing engagement practices. Such concerns are not restricted to Ireland. Elsewhere, debates are ongoing about whether the prefix "smart" should be replaced by terms such as "community" or "connected." However, as this article shows, words alone are insufficient to address the wicked problems being faced.

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Conflict of Interests

The authors declare no conflict of interests.

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