# Introduction to Smart Cities in Transition: Challenges of Participation in Urban Environments


## Abstract

Despite the many shortcomings of the "smart city" model of urban planning and city management, smart cities as both a technological infrastructure and a conceptual framework can be leveraged for change. This special issue contends that smart cities must be updated to account for a broader range of emerging and nascent technologies that are increasingly used to mediate daily life through play and participation. The articles in this issue focus on games and play as a means for both fulfilling the smart city's desire to be participatory and responding to the city's multifaceted inequalities. The case studies, examples and discussions in this issue provide a range of recommendations for how smart cities might be reimagined to tackle the various social, economic and environmental issues that are further exacerbated in a time of upheaval and crisis.


## Editorial

The continued development of smart cities is a recurring feature of urban living and does not appear to be slowing down. Today, our lives are both mediated and monitored by a range of digital technologies. Some of these technologies are now so established they are mundane and pervasive, like smartphones. Others are nascent or continually being reinvented, such as Augmented Reality (AR), Virtual Reality (VR), and Mixed Reality (MR). In a similar vein, a range of digital media are increasingly embedded in the urban fabric. This intermingling of the physical and digital is commonly positioned as empowering, providing a more granular grasp of the myriad flows of daily life. Yet, these technologies do not *simply* monitor or reproduce urban rhythms, they are also instrumental in reshaping, reimaging and regulating the rhythms, interactions and practices of everyday life, as Kitchin and Dodge (2011) pointedly unpack in their book *Code/Space*.

Nonetheless, smart cities—as both technological infrastructure and a conceptual framework—can be leveraged for change. Their production and reproduction of data does not only predict patterns of consumption, movement, and engagement, but also reshapes mobilities and meanings through tools, apps, and games that encourage play and participation in the urban environment and its planning processes. They are moderating and influencing our behaviours and how we interact and experience the city and each other. At the same time, issues surrounding access, engagement, sustainability, the environment, and the inclusion and marginalisation of certain groups persist as lenses for understanding what our future cities should be like and what actions we can take in the present to address these concerns.

This special issue contends that the idea of smart cities should be updated to account for a broader range of emerging and nascent technologies that are increasingly adopted in t daily life through play and participation. The articles in this issue, therefore, focus on citizens and explore how games can support participatory dialogues between different social groups and individuals. Further still, the focus of this special issue is on games and play—from locative gaming apps to participatory urban planning games—that both fulfil the smart city's imperative to be participatory *and* respond to the need to become more equitable.

The dual global crises of climate change and the COVID-19 pandemic continue to demonstrate that cities both can and must be radically redesigned to privilege green public spaces and inclusive design over the status quo. Technologies like AR, VR, and MR can help reimagine urban futures through speculative design and facilitate new, playful forms of social interaction by reappropriating the smart city's technological infrastructure (Nijholt, 2019). In the process, games, apps and interactive installations can move beyond the common usage of these technologies and respond to criticisms about the techno-determinism of smart city visions, as organisations like the Playable City (n.d.) have shown. Equally, these assemblages can overcome shallow attempts at what Shannon Mattern (2020) calls "engagement theatre" by using play to foster meaningful participation and encourage community building as part of transition initiatives—although this is far from automatic.

The articles in this special issue, then, demonstrate that games and play provide more than simply a theoretical lens for examining the phenomenology of place in smart cities. Perhaps more importantly, the case studies and discussion throughout the issue can be called upon to provide a range of recommendations for how smart cities might be reimagined to tackle the various social issues that are only being exacerbated in a time of upheaval. They show that playful experiences of the city might point to new understandings of space and place that are not just smart but also empathetic, social, and inclusive. And they move beyond "smart city 2.0" visions (Trencher, 2019) that merely gesture towards participation and inclusiveness, instead illustrating through gameful interfaces that these elements are an inherent and vital part of the lived experience of cities.

The first article, "Changing the Rules of Play in Long Beach, California: Smart Cities, Infrastructure, and the Well-Played Game" by John S. Seberger and Gwen Shaffer, adopts a novel approach to smart city design. Drawing on rich interview data centred around Long Beach, California's Smart City Strategic Initiative, the authors explore how Bernard De Koven's theory of the "well-played game" might be used to counter citizen's "weary passivity" and scepticism about the fairness and efficacy of smart city planning. Rather than engaging citizens with the smart city through "infrastructural" lenses, they show that De Koven's focus on "the process by which the rules of existing games might be communally and collaboratively changed" can be used to inform and challenge smart city initiatives.

In "Towards a Collaborative Smart City: A Play-based Urban Living Laboratory in Boston", Eric Gordon reports on a range of play-based prototypes developed to "institution" 'collaborative smart city governance in the city of Boston. More precisely, the project establishes geographically demarcated "Exploration Zones" governed by both local residents and business owners. Here, Zone Advisory Group members were utilised to agree what technologies were to be implemented in the public realm, why they were being established, where they were to be installed, and for how long. While the prototype did not ultimately become a part of Boston's government, the various facets of the project did illuminate that public learning circumstances, and collaboration between the general public, and public and private sectors, can be facilitated through play.

Moving forward, “Evaluate space after Covid-19: Smart city strategies for gamification” by Marianna Cavada maps the implications of social distancing under COVID-19 restrictions in roads, parks, and retail. Through a matrix of urban, social, and health consequences it explores how access, sharing, and equality of urban space can be improved through urban policy during and after the pandemic. By connecting social distancing, gamification, and urban planning the authors demonstrate how the pandemic presents both challenges and—importantly—opportunities for rethinking the design of urban space and the use of smart technologies that pervade them.

In “Game.UP: Gamified Urban Planning Participation Enhancing Exploration, Motivation, and Interactions”, Sarah L. Jenney, Chloe Eghtebas, Nils Seifert, Gerhard Schubert, Frank Petzold and Gudrun Klinker offer a renewed focus on gamification in urban planning. As they note, work in this field “needs to be mapped and standardized, similar to how gamification in fields such as education and health care are increasingly becoming established.” They draw on iterative research in consultation with both urban planning project drivers and members of the public through their interdisciplinary research project Game.UP (Gamification as a Communication Tool in Urban Planning), based at the Technical University of Munich. Their findings map different potentials for gamification to deepen participants’ investment in the planning process.

In “Users’ Perspectives on Ethical Issues Related to Playing Location-based Augmented Reality Games: A Case Study of Pokémon GO”, Jin Ha Lee, Jason Yip, Adam Moore, Yeonhee Cho, Zale de Jong, Ryan Kobashigawa, and Alexander Escalera Sanchez investigate various game actions players participate in, how ethical they think their actions are and for what reasons. They use the three ethical traditions - consequentialism, deontology, and virtue ethics - as a theoretical lens and show the dominance of the first two in players’ ethical judgement related to the gameplay and discuss implications and future consideration for the design of location-based mobile games.

In “Augmenting emerging hospitality services: a playful immersive experience to foster interactions among locals and visitors”, Catia Prandi, Valentina Nisi, Chiara Ceccarin and Nuno Nunes consider how playful points of dialogue can offer a means of encouraging

interaction between locals and visitors. They explore how the use of playful virtual reality technology can mediate direct information sharing in the hospitality industry. Such immersive experiences that integrate playful design features in a 360 world have the potential to support curiosity and empower participants in the information exchange process.

Finally, in “Smart Cities, Playable Cities, and Cybersecurity: A Systematic Review”, Gustav Verhulsdonck draws on a systematic literature review of articles between 2015-2020 that deal with themes related to smart/playable cities and the gathering of data, in the context of privacy and security. This review establishes a notable disconnect between technological solutions for security and people and policies as it pertains to cybersecurity, with the former being the focus of the majority of studies. As a corollary to this, the author argues that the personal side of technological intervention needs to be considered in more detail if people are to participate meaningfully in smart cities. To this end, smart city designers are advised to adopt a cybersecurity lens if personal privacy and playable approaches are to be more firmly embedded in the advancement of related technologies.

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