



# Theorising social justice within the smart city: expanding urban paradigms by the notion of the right to the city

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## **ABSTRACT**

This essay explores the emergence of a supposed smart city paradigm shift, in which the new paradigm would be focused on solving social problems, in alternative to the previous, which concentrates on technology and economic growth. However, both paradigms have shortcomings by representing urbanizations which are entrenched with the neoliberal ideology and its discontents. In contrast, the right to the smart city is interpreted as an extension of the new paradigm, considering technology as a tool to achieve citizens' needs and employing participatory processes, although incorporating a social justice element, thus, representing the establishment of an authentic paradigm shift. Highlighting the underlying challenges of actually existing smart cities, this essay proposes a theoretical framework founded on social justice, assembling democratic participation, redirecting outcomes to the most pressing causes and redistributing benefits to particular - marginalised and excluded, instead of generic, citizens. Therefore, it suggests a radical change of perspective in smart city studies, decentralising theory through a post-colonial and subaltern lens.

**Keywords:** Social justice, urban theory, right to the smart city, neoliberal city, paradigm shift.

**JEL classification:** O18, P25, R58.

## **1. SMART CITY CONCEPT IN DISPUTE: A CRITICAL PERSPECTIVE**

The smart city concept emerged in the mid-nineteenth century to describe efficient and auto-governed cities in the United States of America. Since then, both theory and practice have evolved. The term has been linked to sustainable urbanization in the 1990s and, currently, is adopted as an urban development strategy by several cities around the world (Yigitcanlar et al., 2018). Generally, a smart city can be defined as a city that employs Information and Communication Technologies (ICT) in its planning, development, operation, and management. In its most contemporary form, it applies to the derivation of smart urbanism and smart growth, fields contained in the theory of New Urbanism and directed to sustainable development (Rossi, 2016). In the literature, a multitude of terms is utilized to describe a smart city, however, the most recurrent are technology, productivity, governance, community, well-being, sustainability, policy and accessibility (Yigitcanlar et al., 2018). Nevertheless, urban projects developed around this idea involve business models which employ data collection, monitoring sensors, communication systems between objects (or the internet of things) and artificial intelligence. It can also be comprehended as an urbanization model in which planners

seek to make cities smarter and more efficient creating infrastructures and services to improve citizens' quality of life.

Smart city studies can be categorized concerning both the methods adopted and the schools of thought. In this sense, Kummitha & Crutzen (2017) present a framework assembling two methodological approaches and four schools of thought. The first method, technology-driven, concentrates efforts on technology and provides minimal consideration to citizens and social relations. The second, human-driven method, brings the notion that improvement of living standards should be the ultimate purpose of smart cities. Regarding the schools of thought, the authors describe four in the framework: the restrictive, which focuses on ICT, data management, and the internet of things; the reflective, with the same focus as the first, however, incorporating human capital as an outcome; the rationalistic, approaching technology as a by-product of enhanced human capital; and the critical, which questions power relations, marketization of public spaces and technology dominance to create a neoliberal utopian social order.

Hollands (2008), a precursor author within the critical school of thought, initiated the debate by arguing that smart city definitions have a strong connection to technology and quality of life, and enquiring how they are conceived in a technology-driven manner, for instance, assuming that employing technology would automatically result in positive impacts or using the smart city cover for self-promotion purposes. According to him, investments in these initiatives can enhance the economy and produce more jobs, although they can also lead to the misappropriation of public resources to increase global capital attraction. As the author claims, smart cities should require the involvement of various groups of society, they cannot be labelled as smart merely due to the high level of infrastructure technology. To achieve this title, he argues, it is not enough to have smart offices, trendy bars and luxury hotels. Cities need to go further and fight inequality, distribute benefits among their inhabitants and redefine the concept of smart.

Shortly reviewing the smart city conceptual origins and actual approaches allows us to comprehend the idea of dispute, that is, due to its ambiguity and volatility, each school of thought defends their perspective for the conceptualisation, implying contradictory methodologies. Furthermore, as underlined by the critical perspective, the lack of a common definition assembled with ideological conflicts nurtures the debate on what a smart city would and should be.

Expanding the perspective, smart city critique can be tracked from different backgrounds and diverse research areas. For this essay, two of them - considered the most relevant - are explored: one concerning technology and the other regarding urbanization. On the one hand, philosophers criticized the interpretation of technology as neutral and merely instrumental. Deleuze (1992), for instance, described technology as an expression of social forms constructed in specific historical contexts. Based on Foucault's idea of discipline societies, he introduced the concept of societies of control, in which institutions employ technologies in the form of social coercion and individuals would be made in masses, samples and data by discipline, through control mechanisms, such as transaction records, location tracking and other personally identifiable information. More recently, Graham (2002) claimed that instead of raising the standard of living of all citizens, information technology entails the extension of urban social divisions. Social exclusion is marked by a large number of people without or with rudimentary access to digital technologies, recognizing the trend in ICT-led development in advancing social and geographical unevenness. These statements, such as other arguments from the deterministic perspective of technology, are of greatest relevance for the smart city critique, both in its foundations and for future theorizations.

On the other hand, regarding the background of urbanization, critical geographers investigate urban development processes and criticize the associated social outcomes. First, concerning urban dynamics, David Harvey's works explore urbanization as a process of capital accumulation. Harvey introduces the relevance of the spatial dimension of cities as an element to properly understanding the roots of social inequalities. In his research on capitalism, he argues that surplus overaccumulation causes economic crises and, therefore, social inequalities as outcomes. Along with this argument, he criticizes the neoliberal phase of globalization and its spatial fix strategy of recovering from crises by geographical expansions and finding new markets to dominate and explore. Harvey (2012) follows Marx's view of the factory proletariat as the centre of the revolution – represented by homogeneous communities, and Henri Lefebvre's argument of interpreting the city as a relevant and diverse scenario - with

heterogeneous groups. He argues, for instance, on the uselessness of wealth redistribution within neoliberal urban policies with the logic that it is more important to channel resources to poles of productive business growth, alleging that distribution would occur later naturally. According to Harvey, the accumulation of capital, embedded in neoliberal urbanization, results in socioeconomic inequalities, loss of well-being and environmental degradation.

## **2. SMART CITY PARADIGM TRANSITION: FROM ENTREPRENEURIAL TO CITIZEN-FOCUS**

Within the smart city critique, there is an understanding of a paradigm transition that, supposedly, occurs both in theory and practice. Critical scholars, underlining the shortcomings of several observations, advocate for a more humanized, people-oriented and citizen-centred smart city. This transition of paradigms is represented by the “smart city 2.0” proposition, which theorises two smart city paradigms: the first version of “smart city 1.0” and the second version of “smart city 2.0”, as demonstrated in Table 1. While the former would concentrate on technology and economy, the latter would be focused on people, governance and policy (Trencher, 2019). This theory is grounded on several cases, corroborating this thought by indicating smart city failures in meeting social agendas and responding authentically to citizens' needs by favouring technology diffusion for corporate and economic interests and, in contrast, describing how recent cases have been adopting technology as a tool to tackle social problems. However, the notions of “smart city 1.0” and “smart city 2.0”, as explained by the author, do not intend to polarize these two paradigms as detached but as two narratives that can co-exist in the same city. Furthermore, it is a normative idea once it proposes a progressive transition, suggesting which characteristics smart cities should have – those of 2.0 – and should not have – those of 1.0.

The categories described in the first and second columns of Table 1 represent the actual smart city paradigm transition from this perspective. The first-generation paradigm (smart city 1.0) represents the entrepreneurial version, in which technology and data are understood as drivers of progress, meaning technology is approached as an ultimate end. Here, the objectives are determined by corporate, governmental and entrepreneurial interests, hence, being the own benefited groups. Citizens, in this paradigm, have passive roles, such as data points for smart sensors and consumers of mobile applications, that is, their voices and needs are not properly considered. The purpose of supporting smart city initiatives is to experiment with technologically innovative solutions via optimization of urban infrastructure and services, seeking validation to further entrepreneurial and business expansion, in which the outcome is economic growth. Moreover, this paradigm is characterized by top-down and supply-driven approaches, whereas regarding the agency, such instances have a centralized method, concentrating power on corporate players and public administration. This first paradigm, marked by entrepreneurial urbanization, is also characterized by exogenous development as they prioritize external investments, players, and experts. The cases of Dholera, Chennai, Masdar, Hong Kong, Rio de Janeiro, Techno-City Konza, Hope-City, Los Angeles and Toronto, will be explored further in this essay, corroborating this theory illustrating smart city 1.0 empirical observations.

Regarding the second-generation paradigm (smart city 2.0), it is characterized by the people-centred approach, in which technology appears as an enabler for governance and policy to overcome social and environmental problems. Therefore, technology is interpreted as a tool, not an end. Although, similarly to smart city 1.0, it also relies on monitoring and experimentation, for instance, in open data government initiatives. However, in this case, the objective is to make data public and accessible to citizens, permitting them to assume a more active role. Within this citizen-focus approach, public participation is framed as an expansion of the usual centralised agency of the triple-helix of corporations, governments and academics. Contrasting the entrepreneurial approach, in smart city 2.0 technology serves the objective of mitigating social problems, improving people's wellbeing and public services, and addressing endogenous citizen's needs. Instead of adopting top-down strategies, this paradigm embraces a decentralized and bottom-up methodology, valuing internal rather than external resources.

The smart city as represented by the “paradigm 2.0” was defended by numerous scholars, for instance, investigating citizens' preferences about smart city services (Ji, Chen, Wei, & Su, 2021), proposing a model to enhance citizen participation (Ceballos & Larios, 2016), suggesting the creation of a participatory innovation ecosystem (Oliveira & Campolargo, 2015), examining

governance attributes related to distinct typologies of citizen participation (Capra, 2019), and depicting a nation-wide citizen-oriented governmental smart city policy development (Chang & Das, 2020). The advocacy for the smart city 2.0 suggests a paradigm transition, from a version which prioritizes private corporations and economic growth and approaches technological solutions as ultimate goals, to a more humanized and people-centred version, where citizens have active roles and technology is a tool to achieve their needs.

Nevertheless, besides representing steps forward in what concerns the social sphere, the smart city 2.0 still lacks elements of social justice. That is, this paradigm transition redirects the benefits from a *defined* group of corporate and governmental actors to a *vague* one of citizens. Frequently present in smart city discourses, public participation is a vital ingredient for the paradigm 2.0, however, the definition of “public” in this rhetoric is debatable. For instance, the interpretation of “public” as a homogenous group of citizens (Levenda, Keough, Rock, & Miller, 2020), problematizes the distinction of *who* participates in smart city decision-making processes, that is, who are the so-called “citizens”. Another shortcoming regards the citizens’ needs, whereat, supposedly, smart city 2.0 initiatives have the objective of achieving citizens’ demands. Besides the distinction of which citizens are included in the processes, a question that arises is *whose* needs are being considered, that is, technology is a tool to fix what kind of problems, and difficulties affecting whose lives. On this issue, Masucci, Pearsall, & Wiig (2020) depict how youth indicates digital technologies fail to address crucial concerns they recognise as problematic, such as crime, drugs and homelessness. Citizens have unequal socioeconomic conditions and are affected in extremely different ways by contemporary capitalist urban dynamics. Therefore, to address social justice in cities, the *generic* group of people, or citizens, needs to be acknowledged as *diversified* and with *distinct* necessities. Otherwise, considering citizens as a homogeneous unit would perpetuate the already existing and expanding urban inequalities.

### 3. CRITIQUE OF THE NEOLIBERAL SMART CITY

Critical urban studies have criticised intensively smart city social problems regarding both its processes and outcomes. The processes involved are depicted as concentrated in technologies, instead of people-oriented. For instance, Cardullo & Kitchin (2019) discuss the smart city discourse, debating the dilemma between the humanistic and the entrepreneurial approaches. The authors argue that the concept of “citizen-focus” is an attempt to make smart city initiatives focused on people and expand social outcomes. Although, this rhetoric is still rooted in pragmatic, instrumental and paternalistic speeches and habits, not in social rights, political citizenship and general well-being. Lacking genuine focus on citizens and promoting what the authors call a “neoliberal citizenship”. The neoliberal logic of citizen-focus, according to them, comprehends the role of citizens as passive and reduced to data points collected by sensors and consumers of applications. Moreover, smart city projects engage with policymaking which fails to employ democratic and participatory processes (Shelton & Lodato, 2019) and supplier-oriented, top-down strategies (Carvalho & Vale, 2018). An additional critique of neoliberal citizenship regards the use of classification techniques, indicators and monitoring systems. On the one hand, the production of classification techniques is restricting as, in these methodologies, cities are represented as unique, homogeneous and unitary actors, subject to winning or losing the race to become a smart city (Vanolo, 2014). On the other hand, concerning the adoption of indicators and monitoring systems, Kaika (2017) considers it a restricted methodology due to the simplification of complex problems through numbers.

Concerning the critique of smart city outcomes, numerous cases have shown how smart city developments are related to social problems. In Asia, the city of Dholera represents a new conception of urban development in India and is recognized as a case of entrepreneurial urbanization, which instead of addressing the already existing social exclusions in the country, has strengthened social inequalities through smart city projects that favour business development in prejudice of social justice (Datta, 2015). Also in India, the smart city plan of Chennai illustrates the exclusion of marginalized groups, namely, informal traders, displacing them from the city centre in a cleansing strategy (Willis, 2019). The cases of Masdar and Hong Kong were described by the concept of “Frankenstein urbanism” for cultivating social inequality and biodiversity loss due to the lack of experimentation at the macro-scale, in contradiction with the smart micro-scale in which technologies are developed, involving in-depth studies,

calculations and reflections (Cugurullo, 2018). In Latin America, the investigation of Rio de Janeiro indicated that its municipal program failed to focus on people since the Centro de Operações Rio, the operations centre created by the city in partnership with IBM to improve public services, such as security and disaster management, was unsuccessful to meet its main objectives, becoming known as a government's political marketing strategy and for concentrating efforts in wealthy areas (Gaffney & Robertson, 2018). In Africa, Kenya and Ghana's smart city plans, Techno-City Konza and Hope-City, respectively, claim the status of smart cities based on the typical apparatus assembling various technological innovations in urban space. However, both plans neglect the social and human dimensions, essential in contexts of low education levels and poor communities (Watson, 2015). In North America, social problems are also observed, for instance, in Los Angeles and Toronto smart city strategies that resulted in gentrification (Yigitcanlar et al., 2018). These observations illustrate the exclusion of societal groups from smart city plans and outcomes, demonstrating how the entrepreneurial strategy of unequal accumulation of capital prevails and that living conditions worsen when and where smart city policies are adopted, including cases in which people are already struggling to overcome inequalities and to achieve higher standards of quality of life and well-being.

To further explain the association of smart city policies with social problems, this section explores the notion of the neoliberal smart city. Following Harvey's work on the entrepreneurial turn in urban governance and policies – promoting competitiveness between cities and implementing market-oriented regulations, critical geographers and urban scholars such as Neil Brenner, Jamie Peck and Nik Theodore assumed a political economy approach applied to space and cities, by adopting the concept of neoliberalism in a normative way to unveil hegemonic projects behind spatial transformations (Pinson & Morel Journal, 2016). Especially after the 2008 crisis, neoliberalism has demonstrated its ability to capitalize on crisis conditions, thus market-oriented modes of governance grew even more (Peck, Theodore, & Brenner, 2012). According to Harvey (2012), in this historical period, we have seen an example of two possibilities to save the economy, one saving financial institutions and the other saving people's well-being. However, the neoliberal project, by combining privatization of surplus and political-economic control, led elites to have the power to shape the city for their interests. Through the culture of deregulation and fiscal austerity, neoliberalism has an unequal, hybrid and unstable character regarding regulatory transformations and represents a standardized trend of disciplinary restructuring of the market. The intrinsically contradictory neoliberalization processes involve regulatory strategies that often compromise the economic and socio-institutional and political conditions necessary for their successful implementation and stabilization. Consequently, policy failure is not only central to the *modus operandi* of neoliberalization processes, it provides a powerful incentive for its accelerated proliferation and reinvention at different locations and scales.

Founded on Peck, Theodore, & Brenner's (2012) study on neoliberal urbanism as a model of urban growth based on marketization, Cardullo & Kitchin (2019) interpret the smart city as a neoliberal strategy, recognizing that its dominant conception operates to promote the interest of capital and state power, in which cities become the stage of social and technological experimentation. Following this line of thinking, Kitchin (2019) argues that the neoliberal smart city spreads the technology-driven method of market-orientated entrepreneurial urbanism, addressing urban problems through the instrumental approach. Likewise, Morozov & Bria (2018) recognize the necessity of examining the smart city within the context of neoliberalism, considering its relationship with neoliberal practices such as privatization, entrepreneurialism and “the rejection of social justice as a legitimate goal of public policy” (2018, p. 4). Over the notion of predatory digital capitalism, the authors underline the risk of smart city strategies due to the role of technology multinational corporations that, acting in urban infrastructures, create an extreme deregulated surveillance through the internet of things, which implies privacy problems and expands social inequalities. Moreover, Engelbert (2019) contributes to this perspective stating that smart city descriptions are not neutral but vested with neoliberal and economic interests.

Complementing the previous section, this reflected on the understanding of the smart city as an expression of the neoliberal ideology (Grossi & Pianezzi, 2017), adopted with economic purposes under a technology-driven method of market-orientated entrepreneurial urbanism. Thus, perpetuating the existing social, economic and political power relations. As noted by

Tulumello & Iapalo (2021) the ideology of smart city advocates is classic of the neoliberal city which, employing corporatization of urban services, takes down welfare programs and promotes over-securitization of public space.

#### 4. EXPANDING THEORY TOWARDS A SMART CITY FOUNDED ON SOCIAL JUSTICE

While some studies underline the problems of the smart city 1.0, by comprehending it as a business model in entrepreneurial urbanization (Datta, 2015) and acknowledging the policy rhetoric of positive change-oriented to attract multinational corporations (Wiig, 2015), another research strand criticizes the smart city 2.0 for its neoliberal, instrumental and pragmatic discourses and practices (Cardullo & Kitchin, 2019). This means that the paradigm transition, from the entrepreneurial to the citizen-focus, despite changing its rhetoric, is still embedded with neoliberal ideology.

From this standpoint, the book from Kitchin, Cardullo, & Di Feliciano (2019) seeks to build what should be the ideal version of a smart city, one that delivers social justice. According to the authors, a just smart city requires an alternative urban development based on conviviality, commoning, equality, civic deliberation, resource sharing and social reproduction. Based on Lefebvre's political argument of "the right to the city", in which citizens have the right to use, occupy and shape the city space according to their needs, the book thoroughly explores and explains this notion from a critical social science perspective within smart city studies. It approaches questions of citizenship, justice and the public good, questioning how the dominant model of the neoliberal smart city promotes capital and state interests. For instance, Engelbert (2019) suggests that the concept of "the right to the smart city" has been revealed to be effective for expanding the knowledge of citizens' political agency in neoliberal smart cities, once it allows the imagination of people to proclaim the use, or social, value of the city over the exchange, or economic, value. By combining social justice and smart city, the book suggests the pursuit of an alternative, emancipatory and empowering smart city, developed from the notion of "the right to the smart city". In this sense, the notion of the right to the city is central to advancing the discussion on how to create socially just smart cities.

However, it is crucial to adopt an adequate perspective of social justice and, hence, also the notion of spatial justice. Built on Foucault's thought that the intersection of space, knowledge and power can be both oppressive and enabling, the socio-spatial dialectic brings the idea of the social and spatial spheres having inherent impacts on each other, meaning that to assess social inequalities, spatial justice and injustice must be acknowledged (Soja, 2009). Within this perspective, Marcuse (2009) argues social injustices cannot be addressed without considering spatial concerns and, as Fainstein (2014) demonstrates through the theory of the just city, urban policies should have a normative basis of justice to prevent competitiveness focus under pro-growth regimes, which failed to provide alternatives to inequality and improve the quality of life in urban centres. Still, different ideas of justice entail complexity, on the one hand, the assumption of justice as an outcome concerning redistribution matters and, on the other hand, the proposition of justice regarding the means, that is, focusing on the decision-making processes (Dufaux, Gervais-Lambony, Lehman-Frisch, & Moreau, 2009).

Within this framework and based on Harvey (1996), Kitchin et al. (2019) discuss social justice theories concerning distribution (fair share) and procedure (fair treatment), such as egalitarianism, utilitarianism, libertarianism and Marxism. They emphasize the Marxist perspective, claiming that to achieve social justice, society would have to be rebuilt in a way that individuals' contributions are fully valued, creating a social democracy without discrimination and exploitation. While Harvey (2000) argues that a cycle is set by capital accumulation over neoliberal systems of governing the cities leading to outcomes such as socioeconomic inequalities, loss of wellbeing and environmental degradation, Marcuse (2009) claims about the outcomes of the neoliberal phase of capitalism which is accountable for diverse injustices in cities. Fainstein (2014) has another argument on the social justice process-outcome matter, which also entails frequent discussions on equity and democracy. To her, democracy, diversity and equity are the three governing principles for urban justice.

As illustrated in Table 1, the "smart city 2.0" paradigm addresses some progress regarding both processes and outcomes, including what concerns the critiques mentioned above, in the examination of the neoliberal smart city critique. However, as noted by Shelton & Lodato (2019), besides supposedly changing to a participatory approach, current smart city policies adopt the citizen-focus discourse to justify their employment, whereas actual citizens persist

excluded from the decision and policy-making processes. This supposed discursive progress is insufficient since a genuine transition in the urban policy rhetoric demands an adequate consideration of the social justice debate to enhance the quality of life in urban spaces (Fainstein, 2014).

The proposed exercise, represented by the third column of Table 1, suggests the expansion of smart city theorization of paradigms towards a normative version founded on social justice, wherein the 'Just Smart City' assembles its characteristics. On what concerns the technology approach, the proposal is to interpret it as a tool, similar to the smart city 2.0 vision, although utilized not for *general* citizens' needs, but to achieve *particular* citizens' needs. Thus, recognizing uncontested social inequalities, whereas citizens live in unequal conditions, therefore, with distinct demands and problems. Regarding the second line of the table, the benefited groups have already changed from corporations to citizens in the smart city 2.0. As this essay explains, this change occurred predominantly at the discursive level present in the neoliberal ideology and, following the smart city 1.0, citizen-focus *per se* is a limited concept once it considers citizens as *homogeneous*. Acknowledging citizens' *heterogeneity*, the essay proposes to concentrate smart city benefits according to citizens' *particular* needs. And, pursuing social justice, target citizens who are struggling to live, in unfavourable situations regarding, for instance, housing or labour, and marginalized and peripheral groups suffering for their race, class, sexuality, age, ability, gender and ethnicity. While current smart cities reconfigure citizenship, instrumentalizing technology and data, and reinforcing the patterns of exclusion of marginalized groups (Willis, 2019), Lefebvre's right to the city expands the second-generation paradigm, incorporating the component of social justice, redirecting the collection of benefits to unprivileged groups of society. According to Marcuse (2012), as cited in Kitchin et al., (2019), the right to the city "is the right of the excluded, the distressed and the alienated to demand and receive the material (e.g., a living wage, shelter) and non-material (e.g., recognition, respect, dignity) necessities of life" (2019, p. 17).

Regarding the proposed outcomes of the Just Smart City (Table 1), social justice assembles more profound aspects than wellbeing, as it would be essential to intervene in the structural dynamics of social reproduction to achieve it. *Enhance wellbeing* ('Outcomes' of the smart city 2.0), on the other hand, is a vague and abstract result, once the well-being definition is variegated, including by some perspectives, health and education, others, employment and environment, or even quality of life and living conditions (C. Graham, Comim, & Anand, 2018). Furthermore, it does not capture the normativity intended by this proposal, whereas *social justice* does. Regarding the last characteristic of the Just Smart City, as presented in the fourth line of Table 1, the processes should be democratic, going beyond the top-down/bottom-up dichotomy, engaging with forms of citizen participation centred on emancipation and decentralization. Technopolitics is a useful concept to explain the notion of democratic participation in smart city-related processes, as it promotes participation that, instead of disguising politics, pursues progressive technological endeavours, in which citizens' voices are heard and recognised, thus providing capabilities for the least powerful to confront power (Smith & Martín, 2021).

Barcelona, currently implementing its smart city plan, is recognized by some scholars as a case of success due to the search for the right to the city and for rethinking the smart city (Donadio, 2020). With an alternative approach to the digital sphere and a critical interpretation of the neoliberal smart city, the city's plan follows the concept of technological sovereignty in its digital transformation initiatives, meaning the city actors understand that technology must be applied in a way that serves the interests of citizens, following standards of data ethics and privacy. For instance, by requiring transparency in contracts, following codes of technological conduct and using open data platforms (Kitchin et al., 2019; Morozov & Bria, 2018).

With its origins in a centre-right political government project in 2011, the Barcelona smart city model changed radically when the citizen platform Barcelona En Comú elected its mayor in 2015. Barcelona was amidst an increasingly alternative and counter-cultural social exchange. After the previous government turned the city into a global reference for urban technological innovations, left-wing political actors, inspired by social movements and local resistances, created a radical democratic programme. Among the City Council initiatives within the programme, the most relevant are Decidim.Barcelona, the city digital participation platform; La Comunicadora, an open-source digital economy project incubator for collaborative start-ups, and the new procurement process directed to cooperatives and collaborative enterprises

(Charnock, March, & Ribera-Fumaz, 2021b; Ribera-Fumaz, 2019). Decidim.Barcelona is the flagship project for technological sovereignty, developed in an open-source software – meaning it can be enhanced or re-used by anybody with access – and banning the use of data for commercial purposes, it was already adopted for numerous initiatives and counted with the participation of tens of thousands of people, for instance, on neighbourhood municipal actions deliberations and other participatory processes (Ribera-Fumaz, 2019). As the same author argues, Barcelona has moved from an approach where citizens were treated as consumers and data points, to a model beyond citizen participation, in which people are allowed to control their own data, opening pathways to more socially just urbanizations.

Moreover, Barcelona’s technological sovereignty movement also addresses practices of care. Grassroot movements, within a set of cooperatives and associations, are established on ethics of care in distinction to the logic of capital accumulation. Instead of seeking economic purposes, these initiatives pursue social development. Some of these suggested post-capitalist initiatives, protagonized by activists, are directed at guaranteeing internet access as an essential service – such as electricity, to people and promoting life extension of electronic devices to postpone the purchase of new ones (Lynch, 2020).

The Barcelona case, intensively highlighted by critical scholars, represents a legitimate instance of alternative smart urbanism. The city plan, incorporated by the political left when taking the power, has been radically modified and currently empowers its citizens through unconventional forms of social organization, seeking to fulfil the needs of poorer and more marginalized groups. Thus, it can be interpreted as a case of a smart city that originated from a corporate-driven posture and transitioned to a city pursuing social justice.

## **5. SUBALTERN SMART CITIZENS AND SOCIAL MOBILIZATIONS**

As argued, the smart city paradigm transitions framework requires a theoretical expansion founded on urban studies and led by critical scholarship. The smart city version founded on the notions of human-centred, citizen-focus and smart city 2.0, despite being claimed as a paradigm shift by some authors and, indeed, recognized for depicting some aspects of what progress should occur, e.g. highlighting the importance of public participation and citizens’ need, is still insufficient to address socially just smart urbanisation. On the one hand, it has proved to be embedded in disguised neoliberal policy rhetoric, that is, regardless of smart city advocates’ discourse, people remain largely being treated as data collected through urban sensors, with passive roles in pseudo-participatory processes marked by tokenism. On the other hand, even in the few cases in which the practice truly focuses on people, with participatory processes beyond discourse and symbolic efforts, social justice is not addressed. That is, the answers to the questions of who should be affected by the benefits and who should be included in the processes are generic and unclear. Therefore, a progressive line of theorisation requires the acknowledgement of “the right to the smart city” as an extension of the “smart city 2.0”, addressing social shortcomings, focusing on particular groups and, thus, encompassing social justice.

If critical urban scholars and policymakers are to transcend neoliberal smart city ideology, not only theoretical expansion is essential, but a radical change of perspective, approach and engagement is of paramount importance. First, to incorporate the objective of achieving social justice, progressive research needs to have a normative approach, defending the expected particular outcome. Interpreting technology as a tool to achieve social justice, benefiting particular groups of citizens, individuals marginalised, peripheric and excluded, tackling problems that citizens perceive as most pressing (Masucci et al., 2020), and adopting democratic participation.

Second, to (re)balance existing asymmetries and uneven geographical development, subaltern urbanism (Roy, 2011) should be more integrated into smart city studies, decentering urban theory over a post-colonial perspective, encompassing underlying social challenges entrenched with Western theorization. Thus, re-establishing the political agency of the subaltern, the peripheries, and the marginalized, to overcome colonial and hegemonical relations of power, domination and subordination. As Ananya Roy (2011, p. 228) argues, a “correction to the silences of urban historiography and theory that has ignored urbanism that is the life of much of the world’s humanity”, transcending elitist urban studies that shape the conditions for



knowledge. A single and excellent instance of this integration is Vanolo's (2016) investigation of the subalternity in smart city imaginaries, in which he underlines (un)hearing of smart citizens' voices, highlighting the difference between "speaking of" and "speaking for" the other.

Third and finally, scholars should be more critically of prevalent ideologies and their societal consequences, therefore engage with social mobilization in forms of activism and resistance, for instance, organized by "situated groups" adopting digital technology to struggle on historical causes (Luque-Ayala, Firmino, Fariniuk, Vieira, & Marques, 2020) and activists which have a highly important role in redefining smart urbanism in alternative ways, as depicted on the cases of Barcelona and Cape Town. Social movements organized around the notion of technological sovereignty in Barcelona promote social-oriented and community-based initiatives with activists and hacker collectives (Lynch, 2020) and nurture their own digital imaginary of urban democracy and planning from below (Charnock, March, & Ribera-Fumaz, 2021a). In Cape Town, residents and activists work together on sanitation and budgeting issues in townships and informal settlements, with an approach focused on real and local priorities, trying to diverge smart initiatives from global business interests (McFarlane & Söderström, 2017). These beyond-formal social organizations make the subaltern visible, reinforcing urban politics, repoliticising smart citizenship and – through the lens of technopolitics – reconfiguring power relations.

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**TABLE 1: SMART CITY PARADIGMS**

	<b>Smart city 1.0</b>	<b>Smart city 2.0</b>	<b>Just Smart City</b>
<b>Technology approach</b>	Ultimate end	A tool to achieve citizens' needs	A tool to address social justice
<b>Benefited groups</b>	Corporations	<i>General</i> citizens	<i>Particular</i> citizens
<b>Outcomes</b>	Economic growth	Enhance wellbeing	Social justice
<b>Processes</b>	Top-down	Bottom-up	Democratic

Source: author's elaboration.