

Research Article



# Tracing Brazilian (social) smart cities: on conceptualization, implementation, and practices

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Lorena Melgaço Silva Marques , Camila Freitas de Souza

## Introduction

Smart cities have now become a pervasive concept for corporations and governments, often alluding to *cities of the future*: shaped by technology and driven by human and social capital, innovation, and urban development. Following such enthusiasm, academics have been motivated to critically engage with the concept, underscoring some of its shortcomings, such as the spectacularisation of power, entrepreneurial urbanisation, the furthering of social and spatial inequalities, and, more recently, its impact on the global South<sup>1</sup>. When considering the socio-spatial impacts of smart city projects, we still tend to look at the poor as outliers, rather than the recipients of such initiatives, because most of these projects often do neglect the poor. In Brazil, however, we see the emergence of private-led smart cities that claim to centre this socio-economic group – and such a strategy needs our attention.

Here, we reflect on ongoing research of what is being nationally praised by the private sector, the media, and local governments in Brazil as the “*social* smart city” – a growing market niche that proposes a socially and technologically inclusive *smart city* vision for low-income citizens. Such projects are enabled by an institutional framework called Minha Casa Minha Vida (MCMV – My House My Life), a federal government funding scheme that subsidises the construction of social housing across the country. Establishing a general model based on large-scale provision, real estate corporations often build entire new neighbourhoods, raising academic critique towards the “active role [of MCMV] in the reproduction of segregation in relation to income and the re-affirmation of the periphery as the place for the poor in Brazilian cities” (Rolnik et al., 2015: 128)<sup>2</sup>.

Relying on the snowball sample methodology, we draw on a series of semi-structured interviews that were conducted with stakeholders in the private sector who are engaged in the planning, design and implementation of smart city projects, as well as municipal planning officials, inhabitants and professionals from two different states located in the Northeast area of Brazil, to briefly reflect on the *social* smart city. This region has been historically the poorest in the country, and still features the lowest IDH and the highest children mortality rate, despite the increasing investment towards industrialisation.

## On the [social] smart city discourse in Brazil

“When you really get to know the social housing market [...] you see that they are very similar worldwide... you will see very clearly that the concept of social, the word itself, does not exist. These are the houses I call ‘chicken boxes’. Horrible things. Social housing worldwide is one worse than the other”.

Above is a quote from an interview participant who is the CEO of a real estate company in Brazil that brands itself as smart. We all know that such critique is indeed a fair one, and at least in Brazil, *Minha Casa Minha Vida* has resulted, oftentimes, in low quality buildings, noticeably peripheral to city centres, and with limited access to basic infrastructure (Caldeira, 2017). With an international presence, the company proposes a different approach to social housing – the *social* smart city.

On paper, the *social* smart city advances the discussion of who should benefit from the smart city, ticking many technological and social boxes. It targets a group of people which is often made invisible by other enterprises pushing the smart city agenda in the country and it alludes to the idea of social justice, highlighting that everyone deserves to enjoy the conveniences brought by the smart city. Its discourses are also centred on the well-being of the city's future inhabitants,

“[O]ur projects are always beautiful. They are places designed for people. For well-being... and to honour people. It's all made and thought to say: 'you deserve it'. So, they start to think they belong here”.

However, the project departs from a superficial understanding of both 'social' and 'justice'. While we commend that low-income housing should be as carefully designed and implemented as high-income projects, resorting to “efficient and beautiful urban planning” has become a recurrent go-to to avoid addressing the actual conditions that lead to growing social and economic issues, while proposing a “healthier, happier, and more sustainable capitalism” (Angelo and Vormann, 2018: 784). The *smart* updates this view, allowing the opening of new venues for business-as-usual, also for the real estate market.

Future inhabitants continue to be absent in the conceptualisation of these projects, especially because real estate companies fail to acknowledge them as multiple and diverse:

“There are times that people ask me: what is the difference between working in Brazil, Italy, India, or the US? In short, none. People want a safe place to live, mothers want a place for their children not to be on the streets... and in one country it may be the library, in another it may be the cinema, in another it is an art lab. But the concept is: people want the same kind of things in every country in the world. You can change the type of house, because in one place it's colder and the other it's warmer, but beyond these technical differences, in the end, the projects are very similar in every place.”

The inhabitants' views are also absent when engaging with digital technology. While digital tools may be able to promote civic engagement and new forms of citizenship, many of those promises remain based on a capitalist rhetoric that appropriates ideals such as participation, self-organisation, and cooperation without actually realising them (Fuchs and Dyer-Witheford, 2013). Regardless of whether where they live is branded as social or not, citizens are still taken as consumers of the smart apparatus and are, therefore, alienated from the processes of imagining (and producing) the smart city. Such a task is left to the technocrats and corporations that dismiss the *whys* and *what fors* of producing technologies. Focusing on the *how*, another technocracy – based on algorithms – is in the making, one which is inattentive to how the smart city will beat back at us<sup>3</sup>. Unknown to most of us, algorithms create different power dynamics, impacting on how the smart city engages power while masking structural and social violences that underlie urban transformations worldwide (Datta and Odendaal, 2019).

This becomes clearer as we engage with the contradictions between discourses and the 'actually existing (social) smart city' (Shelton and Lodato, 2019), as the promises of a

technologically advanced community are not delivered. When asked about the difference between a *social* smart city and an organically grown one, for instance, an HR employee of the *social* smart city company said:

“[W]e are bringing technology, quality of life, and supportive network. We are bringing that quality of life, really, that existed in my grandparents’ generation where everyone would sit on the street for a coffee... and it’s working... today I received a message about a gastronomic competition that is happening among the inhabitants of one of our projects. The inhabitants! Residents! This is no longer done in our daily lives. So, it goes far beyond living in a technological place. It’s really having people at the centre of everything”.

## On being at the margins

Underplaying the role of technology in urban life as we see above is not inherently negative if we are to question technocracy and technological determinism. Smart city critiques often point how the social is either absent from or secondary in smart city discourses. However, the use of *social* in this context raises another question: what technology are we talking about? And for us, it is a way to deviate from the fact that the high-tech smart city imaginary will continue to be unattainable for Brazilian low-income earners. Unfortunately, this is not an exceptional case, especially regarding smart city projects in the global South. When Jazeel (2015) addresses the smart city project in Dholera (India) and argues that smart cities, in general, can be connected to utopian urbanism, he exposes that smart urban plans are highly persuasive due to their discourses rather than their actual use of technologies.

In the Brazilian *social* smart city, the contradictions between discourse and implementation are made explicit in an interview we did with an architect working in the region where one project has been already implemented. She highlights how the project brings innovative urban infrastructures to the region, such as rainwater drainage on roads. But she also questions the quality of the houses, which she claims are not as innovative or sustainable as she had expected. The social smart city implementation, then, is deficient – and basic services are often absent. The drainage system, though existing, is not working properly. The bus system that was supposed to connect the *social* smart city to the closest big city has been discontinued. Cabling, that according to the plan would be subterranean, has been aerially installed. The social smart city is at the technological margins.

But these margins are also geographical. Fully planned neighbourhoods are being built from the ground up in inhospitable and semi-peripheral areas of Brazil under the label of inclusion, affordability, and progress, displacing low-income families from the core urban centres. For one inhabitant, for example, the concept of the smart city was very attractive and buying a ‘*social* smart’ house was only possible with a bank loan. However, located 60 km away from the capital, both he and his wife need to commute frequently to the big city: “I’m definitely not living in the smart city during the week, but I stay here and there because of my job that is still in the capital, both for me and my wife. We go there a lot. Yet, because of logistics, we sometimes stay a little longer in the big city, right?”. Another

inhabitant stresses why the ‘smart city’ where they live may not be considered a city yet: “because normally cities are independent from one another, right? Maybe in the future we can have an independent city, because here there really is space for that. I always treat the smart city here as a neighbourhood because we haven’t left the neighbouring city yet. It’s still something added to the closest big city.”

Nonetheless, as this inhabitant ponders, it is difficult to consider other alternatives in the market. “We searched a lot and we never found anything like this, nothing at this level. We found really good houses that could suit our pockets, but around the housing structure was very much like... open sewerage, it was an isolated thicket... and then I was very scared, and I also saw that it was not a very well-kept place, so we waited longer, and longer, and that’s when I found out about this place... the smart city.” The low quality of social housing, especially regarding infrastructure, opens up a market in which a little improvement means a lot. “We started thinking how is it possible that there is such a large number of houses being built each year and the profile is always exactly the same? And that’s when we had the idea of integrating urban planning, high-quality infrastructure, technology, social innovation programs, environmentally friendly initiatives, and a free app for the residents in our projects. One of our public spaces, for example, has 1000 square meters and there is a free library inside... and look... our projects are open! This means that not only those who live in the smart city have access to it. It’s the whole region! Here we have people living in *favelas* by the side of the smart city with access to it all”, says the CEO of a Brazilian *social* smart city.

The above statement reveals the entrepreneurial rhetoric (Rose, 2020) that takes advantage of the low quality of already existing social housing to mobilise a *smart* imaginary and expand already known speculation strategies in Brazil. Corporations build settlements far from existing infrastructure forcing municipalities to provide (or maintain) basic services which create land reserves for later speculation (Caldeira, 2000). The novelty is its coupling with digital forms of value extraction with non-digital ones, which some authors call “extractive urbanism” (Antenucci, 2021).

## **Extractive urbanism and gamification?**

A number of the urban infrastructures offered in this project are certainly not even considered by other private actors in the sector, whose operations aim at extracting maximum profit by producing low-quality housing in commuter towns with no consideration for the public space, let alone technological tools and solutions. However, we want to emphasise that this seemingly innovative approach allows for profit to be generated elsewhere through strategies framed by the *smart* character of the place. One such strategy is gamification, the use of ludic elements and game mechanics, such as rankings, badges and rewards to address ‘real’ issues and to foster public engagement (Vanolo, 2018). Amenities in the neighbourhood, for instance, have been designed to be accessible through an app developed and owned by the private company that constructs such cities. On the app, inhabitants and visitors are able to sublet public spaces, such as the football field and the community kitchen for a certain period of time, or rent the bikes

owned by the real estate company, for example.

The same app is used as a platform for large appliance distributors to sell products. “Our app gives us a possibility to have an economic sustainability. How so? As more people download the app, more people are registered. This becomes a huge database. It’s the big data... like the one from Facebook and Google. On the app, besides having all the content and posts produced by us, we also sell products and services. In Brazil we have signed, for example, a partnership with a national company that sells furniture at a discount of 10% and we get a 3% commission. The price is available to all people who download the app... not only the residents. We signed a similar partnership with an appliance company that sells various brands products... we receive commissions for sold products. In this way we can make a profit, fund the app, and fund other projects”.

In spite of the positive associations the CEO brings about economic sustainability and big data, there is a growing critique of how value is being produced through the exploitation of unpaid labour of citizens who produce data while using such tools, in a society that is led by the capital (see, for example, Atttoh et al., 2019). Furthermore, gamification, a concept the *social* smart city CEO sees as economically sustainable, have been critiqued as simplifying ‘the complexity of reality and everyday life’ and creating a sense of participation through quantified performance, allowed monitoring and surveillance from both corporations and governments (Vanolo, 2018: 323) and been connected to the alienation and competition of citizens and working-class (Atttoh et al., 2019). These are very central issues in the development of the smart city that seem to go unquestioned in the *social* smart city projects.

Critical views on smart urbanism urge us to reflect on how this smart turn may create divides between those with and without access to smart (Luque-Ayala and Marvin, 2015). However, the digitalisation of services in the neighbourhood predicates that residents use the technological gadgets to access local amenities, regardless of their interest, literacy or access. When discussing the challenges of dealing with the app on a daily basis, a current resident of a *social* smart city said: “there were *bugs* in the app because when they updated a message, they needed to update our registration... and it got really boring, tiring for us... and then we started talking to the company about it... for me this issue has already been solved. I no longer need to update my registration. But it had gotten really annoying in the past because for several times I had to redo the registration and at some point, I gave up on downloading the app. But now it doesn’t come out of my cell phone! But this happened before: I once uninstalled it and said that I would never download it again, but I downloaded it afterwards and now everything is ok”.

The same resident later explained that the reason that she gave the app another chance was actually a sale promoted by the company together with the local hair salon and pizzeria – and only those who had the app installed could get the discount code. Such initiatives heavily stimulate citizens to download and use privately owned apps to experience elements of their neighbourhoods at their fullest. Behind this process of ordinary citizens depending on smartphones unveil that this seemingly democratic autonomy of app usage hides a “digital tyranny” in contemporary urbanism whereby the

“colonisation” of the digital age takes place (Datta and Odendaal, 2019).

When considering the long run of the *social* smart city’s ‘intelligent’ appliances, the physical apparatus and services provided by the real estate company, such as the shared community kitchen, the football field, and the movie theatre, will be passed on to the municipality as soon as the city’s infrastructure is finalised, but without the financial means to maintain them. The ownership of the app and all the digital interfaces, on the other hand, will be retained by the private company. Such dynamics will potentially enable private gamification, ‘digital tyranny’, and ‘digital colonisation’ on a permanent basis, or for at least as long as the private sector finds it profitable.

## **Are we really talking about *social* smart cities?**

Worldwide, but especially in the global South, we see the emergence of fantasy cities (Watson, 2015), where, fuelled by skewed ideas of development and progress, smart city discourses become an entry door to international companies exploring less rigid regulatory frameworks and urban legislation to expand profit. The Brazilian case is no different. With a much less futuristic outlook, new smart city developments mushroom in Brazilian metropolitan regions furthering already existing processes of speculation (Caldeira, 2000) associated with new forms of extractive urbanism (Antenucci, 2021). In a power struggle, smart cities provide normative solutions to future urban and economic crisis by representing a show of the power of the private sector rather than the actual power of the democratic processes of planning. The social smart city, then, becomes a blank canvas in which both physical and technological layers are freely implemented without much regulation or cohesion. Blank canvas, in this case, is more than a metaphor, as they represent the displacement of the poor to the peripheries of large cities. Such projects continue to normalise exclusionary urban practices while advocating doing the opposite. They expose a much larger challenge for low-income residents, that is, the access to quality housing, especially in central areas of large metropolises.

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<sup>1</sup> For further reflections on smart cities from a critical point of view, we suggest the work of Aurigi and Odendaal (2020), Datta (2015, 2019), Hollands (2008, 2014), Kitchin (2014), Luque-Ayala, Firmino, Fariniuk, Vieira and Marques (2020), Rosol, Blue and Fast (2019), Söderström, Paasche and Klauser (2014), Vanolo (2014, 2016), in addition to the ones presented throughout our text.

<sup>2</sup> The current far-right Brazilian federal government has transformed this programme into the ‘My Green-Yellow House’, alluding to the Brazilian flag and following the nationalist turn in the country. The new programme extinguishes the lowest bracket of the previous four-tier income system which guaranteed larger subsidies for construction and no interest rate for those with an average monthly income of 320USD or less.

<sup>3</sup> We here allude to the argument made by Czech-Brazilian philosopher Vilém Flusser

(198X) who argues in ‘*Back-lash*’ that every technology ever produced has had an inevitable backlash with unforeseeable consequences and whose dimensions need considering: “when designing the intelligent tools for the future, we will have to know how we want them to beat back upon us, and this implies that we will have to know how we want to change in the future”

## References

- Angelo H and Vormann B (2018) Long waves of urban reform: Putting the smart city in its place. *City* 22(5–6): 782–800. DOI: 10.1080/13604813.2018.1549850.
- Antenucci I (2021) Infrastructures of Extraction in the Smart City Zones, Finance, and Platforms in New Town Kolkata. *International Journal of Communication* 15(2021): 2652–2668.
- Attoh K, Wells K and Cullen D (2019) “We’re building their data”: Labor, alienation, and idiocy in the smart city. *Environment and Planning D: Society and Space* 37(6). SAGE Publications Ltd STM: 1007–1024. DOI: 10.1177/0263775819856626.
- Caldeira TP (2000) *Cidade de Muros: Crime, Segregação e Cidadania Em São Paulo*. EDUSP. Available at: <https://books.google.se/books?id=ENdaTddtFEQC>.
- Caldeira TP (2017) Peripheral urbanization: Autoconstruction, transversal logics, and politics in cities of the global south. *Environment and Planning D: Society and Space* 35(1): 3–20. DOI: 10.1177/0263775816658479.
- Datta A and Odendaal N (2019) Smart cities and the banality of power. *Environment and Planning D: Society and Space* 37(3): 387–392. DOI: 10.1177/0263775819841765.
- Flusser V (198X) Back-Lash. In: 198X. Available at: <http://flusserbrasil.com/arte24.pdf>.
- Fuchs C and Dyer-Witford N (2013) Karl Marx @ Internet Studies. *New Media & Society* 15(5): 782–796.
- Jazeel T (2015) Utopian urbanism and representational city-ness: On the Dholera before Dholera smart city. *Dialogues in Human Geography* 5(1). SAGE Publications Sage UK: London, England: 27–30.
- Luque-Ayala A and Marvin S (2015) Developing a critical understanding of smart urbanism? *Urban Studies* 52(12): 2105–2116. DOI: 10.1177/0042098015577319.
- Rolnik R, Pereira AL dos S, Moreira FA, et al. (2015) O Programa Minha Casa Minha Vida nas regiões metropolitanas de São Paulo e Campinas: aspectos socioespaciais e segregação. *Cadernos Metrópole* 17(33): 127–154. DOI: 10.1590/2236-9996.2015-3306.
- Rose G (2020) Actually-existing sociality in a smart city. *City* 24(3–4). Routledge: 512–529. DOI: 10.1080/13604813.2020.1781412.
- Shelton T and Lodato T (2019) Actually existing smart citizens: Expertise and (non)participation in the making of the smart city. *City* 23(1): 35–52. DOI: 10.1080/13604813.2019.1575115.
- Vanolo A (2018) Cities and the politics of gamification. *Cities* 74: 320–326. DOI: 10.1016/j.cities.2017.12.021.
- Watson V (2015) The allure of ‘smart city’ rhetoric: India and Africa. *Dialogues in Human Geography* 5(1). SAGE Publications: 36–39. DOI: 10.1177/2043820614565868.

**COVER IMAGE:** Andre Deak (2007, October 30) “São Paulo – Skyline by night” [Photograph]. [www.flickr.com/photos/30578078@N00/1816831388](http://www.flickr.com/photos/30578078@N00/1816831388)

## Authors



### **Lorena Melgaço Silva Marques**

Associate Senior Lecturer » Lund University

Lorena Melgaço is an associate senior lecturer at the Department of Human Geography at Lund University. She has previously worked at Plymouth, Birmingham, and Malmö universities as a researcher. Her research interests include the micropolitics of socio-spatial and technological peripheralisation in the postcolony; the intersections of technological dependency, capitalist production of space, and the socio-environmental crisis; smart cities; and the challenges of planning education and practice from a decolonial perspective.



### **Camila Freitas de Souza**

DOCTORAL STUDENT » Lund University

Camila Freitas de Souza is a Latin American interdisciplinary scholar whose research encompasses urban studies, gender studies, and human rights. She has been part of projects focusing on Mexico, Brazil, and Chile as case studies, while addressing issues such as social (in)justices, colonial and geopolitical power relations, smart urbanism, and grassroots movements. She is now a Ph.D. student in the Human Rights Studies division at Lund University, where she is carrying out a project that aims to shed light on Chilean feminist grassroots movements in their achievability of women's rights.