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SMART CITIES, SMART VIRUS: TECNOUTOPIAS DO NOVO NORMAL  
SMART CITIES, SMART VIRUS: TECHNOUTOPIAS OF THE NEW NORMAL  
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### Abstract

This article analyzes the impact of COVID-19 on urban culture, emphasizing biopolitics, and new forms of body control that have spread worldwide due to the pandemic. It is interesting to examine the technopolitics set off by the pandemic environment at a time when, as never before, we are so digital. After all, the pandemic has exponentially instrumentalized big data, the invasion of privacy by the massive use of demographic data and Artificial Intelligence resources, embedded in applications for monitoring the virus dissemination. Such forms of algorithmic control are imposed by a set of instruments integrated into networks via processes that refer to smart cities' discourses. This concept is the object of a bibliometric review here, aiming at mapping its state of the art. Procedures such as contact tracking technologies and thermal cameras were widely implemented during the pandemic, albeit without a public debate, as the fear of contagion

guaranteed its success. The conclusion is that, besides the deepening of the social disparities, one of the most perverse effects of the post-coronavirus shock doctrine is the naturalization of surveillance in the wake of public health policies. In this context, transnational platform-states, which constitute alliances between big technology corporations and public authorities, start collecting private data, pushing the edge relations of power and sovereignty already mentioned by authors such as Benjamin Bratton, Adam Greenfield, and Paul Virilio. The article argues that revisiting the bibliography on the topic of smart cities allows us to understand how the dynamics of predictability of facts and data appropriation, as presuppositions of smart cities technoutopies, enshrine new urbanism, based on the oligopolistic and socially dividing data control, which becomes more decisive in the new normal imposed by COVID-19.

**Keywords:** Coronavirus, Smart cities, Surveillance, Urbanism, New normal

## **1 Introduction**

COVID-19 puts a new biopolitics on the agenda, turning surveillance into a porous procedure that enters bodies without touching them. Of course, surveillance processes have been widespread for a long time. But the coronavirus has buried the debate that was previously held in defense of privacy and anonymity. Its engine, or the mechanism that puts this surveillance into operation, is the management of fear, based on a combination of public security and public health discourse, as anticipated by Paul Virilio (2012). Such biopolitics' efficiency depends on the convergence between traceability and identity, leading in extreme situations such as the current pandemic to another social hierarchy between immobile and mobile bodies, between who is visible and who is invisible before the state, and by corporate algorithms.

This complete mapping of bodies, this social arrangement for the supply and collection of data, has settled almost instantaneously and without debate, thus realizing smart city programmers' golden dream. In the context imposed by the coronavirus, complicity with monitoring is also a prerogative of survival. And the state is allied with technology giants to contain a virus by monitoring each cell phone and its movements. The notion of platform-states (Bratton, 2015) and smart cities is consolidated as a field of predictable, remotely managed social life (Greenfield, 2013) in its most updated versions.

The discussion is structured here as follows: first, a bibliometric review investigates the state of the art of smart cities concept from articles published during ten years up to 2018 (item 2). In this bibliography review, a discourse is usually enunciated that projects in technology a capacity to resolve, by itself, all conflicts and disputes. It is this bias that we designate here as techno-utopian. Then, in item 3, the article presents the coronavirus pandemic's impact on urban culture, emphasizing the Brazilian context. Special attention is given to the capillarization of surveillance via algorithmic resources. The phenomenon is read through the concepts of "society of control" by Deleuze (1992) and shareveillance, by Birchall (2017), among other authors. Finally, in item 4, the Conclusions relate the assumptions of predictability and control in smart cities to the "new normal" that emerges during the COVID-19 pandemic, highlighting the naturalization of surveillance and its potential social developments in Brazil.

## **2 The critical discourse about smart cities: a bibliometric review**

The old city of concrete, glass, and steel now contains a vast underground world of computers and software (Townsend, 2013). This is the synthesis of the smart cities' idea: cities, computers, software, networks. However, this amalgam also has other names, other definitions, many of them converging with smart cities, others with more or less approximate meanings. A few examples: intelligent cities, digital cities, virtual cities, wired cities, responsive cities, transparent cities, cities 2.0, wisdom cities, resilient, ubiquitous, information, sentient. There are many variations and no consensus.

The reading of dozens of articles filtered in a bibliometric review on the topic allows us to perceive another idea that stands out in the most quoted items: smart cities will bring more efficiency to resource management and service offer. But few documents explain how, when, where, for whom, and at what costs this supposed efficiency gain should occur (Figueiredo, 2018). Understanding the assumptions of smart cities, the consecration of this new techno-urbanism of an oligopolistic and socially exclusive nature, based on bibliographies on the theme, draws a bridge between the origins of massive data appropriation and the future of cities — or their present if we consider recent events related to COVID-19.

Smart cities' origin connects to another vague term that has also become ubiquitous, to the point of meaning almost everything and, therefore, very little: "sustainability." Cocchia (2014) points out some key moments when there would have been a growing interest in the term "smart city", being the first one in 1997, when the Kyoto Protocol, signed by 191 nation-states, put cities on alert regarding the sustainability theme. Cocchia concludes that smart cities' definitions generally result in initiatives for the common good, for "more inclusive, greener and cleaner" cities, and would always be packaged as critical strategies to improve life quality for billions of people around the world. But the packaging does not always match the product.

## 2.1 Methodology

The present work computed articles published between 2008 and January 2019, whose titles included the terms "smart city" and "smart cities" in English, but also their versions in Portuguese, "Cidade Inteligente" and "Cidades Inteligentes." There were only 45 and 231 results through Google Scholar, respectively, for the queries in Portuguese, removing patents and citations from the search. Using the same method in English, "smart city" brought 4,860 results, and "smart cities" presented 5,150 results.

Of those 5,150 results for "smart cities", the first thousand were selected, by order of the number of citations, for analysis. The first article of the list of a thousand was mentioned 2,535 times in other papers, and the thousandth result was cited five times in other articles. A new analysis filter was defined to focus only on articles mentioned at least ten times, which reduced the lists once more. No Portuguese article with "Cidade Inteligente" (smart city) in the title got ten or more citations. With the term "Cidades Inteligentes", nine texts were referenced at least ten times. With "smart city", 669 papers are cited more than ten times, and with "smart cities", there are 591 texts. With the crossing of articles, we came to 1,260 results.

From this list, as shown in Table 1, eight sources are cited more than 1,000 times, and seven texts appear as a citation in more than 500 others, totaling 15 texts — including a book (Townsend, 2013) — that form the most significant collection of citations and thus make up much of the literature in English that guides studies on the topic. Each of those 15 sources received a more detailed reading, and almost all of them point to little diversity of thought. A narrative review, which covered other aspects of the theme looking for texts by indirect association, and not just for specific keywords, was also carried out in texts in Portuguese and in the Integrated Library System of the University of São Paulo (Sibi), in eight databases listed under the term "urbanism", covering results until 2019. This material served to add other information to the analyses and conclusions made.

<b>1.260 texts cited more than 10 times</b>	<b>8 of them cited more than 1,000 times</b>
	<b>7 of them cited between 500 and 999 times</b>
	<b>132 of them cited between 100 and 499 times</b>
	<b>1,113 of them cited between 10 and 99 times</b>

**Table 1:** Quantitative distribution of articles. Source: Authors, 2020.

## 2.2 Results

The most quoted text is the paper "Smart Cities in Europe" (Caragliu, Nijkamp, Del Bo, 2009), with 2,535 citations. It presents a detailed description of some axes that a smart city should have and brings a quantitative analysis of dozens of European cities, making the article stand out as the most cited one. The second text, "Internet of things for smart cities" (Zanella, Castellani, Bui, 2014), is an article that describes the solutions installed in the city of Padova (Italy), such as: monitoring the structural health of buildings, monitoring urban noise, monitoring garbage, traffic, energy consumption, smart parking, smart city lighting, public buildings automation (schools, museums, public offices) with light, temperature, humidity sensors. Unlike "Smart Cities in Europe", it is less conceptual and relatively objective, including technical specifications of solutions, suggesting paths for both the market and public policies. It was mentioned 2,465 times.

The third text among the most cited is "Will the real smart city, please stand up? Intelligent, progressive, or entrepreneurial?" (Hollands, 2008), with 1,803 citations. It appears as a source in most other texts on the list, perhaps because it proposes a distinction between terms. But the most cited studies dealing with an attempt at definitions are presented in two articles in fourth and fifth places, respectively, both close to 1,400 citations. "Understanding smart cities: an integrative framework" (Chourabi et al., 2012) and "Conceptualizing smart

city with dimensions of technology, people and institutions" (Nam, Pardo, 2011) propose a framework to fit definitions about smart cities. At the beginning of the 2010s, scholars and the market were looking for advances in products and services. The smart city label was beginning to take on a more robust form.

The only book among the 15 most cited texts, with 1,212 mentions, "Smart Cities: Big data, civic hackers, and the quest for a new utopia" (Townsend, 2013) is a non-academic text, which helps to disseminate the term while it also raises some critical questions. But in general, it expresses an optimistic vision of the future based on technology. It assumes that technology, by itself, will help people and governments to work in a better and more transparent way, repeating expectations that were recurrent in the face of the Internet in the 1990s. It is the only publication, among those listed in the period, that addresses how cities absorb pervasive and ubiquitous technologies and how that continuously feeds big data. In this sense, it is oriented towards the debate on smart cities and data mining.

"The real-time city? Big data and smart urbanism" (Kitchin, 2013), with 1,151 citations, highlights the data algorithmic orientation since there is no raw data or neutral technology. Any data is collected according to some ideology. With over 1,000 citations, the last text, "Smart cities of the future" (Batty et al., 2012), proposes some models, with six possible scenarios for cities to enter the digital intelligence era. There is also a bibliographic review (Neirotti et al., 2014), an analysis of the term in the field of education, associating smart cities to those in which the population is more formally educated (Shapiro, 2006), and a text that discusses the potential of user-driven innovation: "Smart Cities and the Future Internet: Towards cooperation frameworks for open innovation" (Schaffers et al., 2011). Among the 15 most cited, the other publications follow the optimistic approach regarding the use of technology applied to the cities' daily life.

As a whole, this survey reveals that the apprehension of the uses of applications and algorithms is intrinsic to smart cities and that the use of technologies always guarantees a safe, efficient and logical city. But what is not said also reveals something. The theoretical basis that has been used for the construction of the hegemonic discourse on smart cities does not touch on central issues for contemporary democracies: permanent surveillance (Morozov, Bria, 2019; Birchall, 2017), the end of the right to anonymity (Silveira, 2006), the right to oblivion (Maldonado, 2017). The epistemologies of smart cities and this new techno-urbanism — urbanism thought from the political instrumentalization of surveillance based on algorithms — follow centralizing trends, considered from the global North, which presuppose the predictability of social dynamics based on data control.

There is no unanimous definition of smart cities. But we could, starting from this bibliometric revision, offer one: smart cities are technology propositions to solve city problems related to energetic, economic, mobility, logistics, governance, security efficiency, but also a generic idea of improving their residents' life quality. When adopted without a broad debate and social criticism, they become strategies to implement tools that increase social inequality and control populations. Dependent on massive data collection, including personal data, for purposes not declared to their users, governments placed the agenda under public health's argument to control the coronavirus's spread by governments of different countries.

### **3 Coronavirus and the "new normal" urban culture<sup>1</sup>**

In 2020, with the outbreak of the coronavirus pandemic, governments worldwide started to rely on systems that combine statistical data and geolocation of mobile phones to identify how many people were complying with the recommendations of social isolation (Harari, 2020). This direction guided the governmental action in the state of São Paulo, for example (Government of The state of São Paulo, 2020), and the proposal of Rio de Janeiro to reserve spaces on the beaches through applications (Grellet, 2020). Indeed, such monitoring processes are not exclusive to public policies to combat the coronavirus, but the pandemic impetus popularized the discussion about the dimension and the individual scope of data digitization.

It is as if we were living in the film *Batman: The Dark Knight* (2008), in which a control panel monitors all of Gotham City from the mobile-phone signals of its inhabitants. The devices functioned as micro sonars, and the emission of their signals allowed them to infer such a massive amount of records that the control system returned, as a result of the tracking, 3D images of the landscape and the inhabitants of Gotham.

The technology staged in *The Dark Knight* is not yet available in our daily lives. However, advances in control ways through data from networks, especially smartphones, indicate that we have arrived in the Society of Control era (Deleuze, 1992, p. 219-226). In this essay, Deleuze discusses the emergence of distributed surveillance that relativizes the panoptic control model conceptualized by Michel Foucault (1987, p. 162-187). To this system, which will find its most consummated symbol in the Orwellian Big Brother (Orwell, 2018), there are overlapping tracking processes that operate from an invisible world of codes, passwords, and migrating data flows between computer bases of a few technology corporations. These data, combined with statistics from public health systems, manage the movements of the pandemic. They feed on government

monitoring platforms to the applications we install in our smartphones, such as Private Kit Save Paths, developed at the MIT Lab, and the Israeli HaMagen, among others (COVID-19 Tracker Apps, 2020).

But the sphere of surveillance that exists today is not limited to the invisible control of the mini brothers who live in our pockets and purses — miniaturized and distributed versions of the Big Brother imagined in George Orwell's 1984. It is molecular surveillance, which introjects itself into the body, scanning its physiology, like the thermometers with infrared sensors that have become iconic in the pandemic, and stores this data on servers over which there is no control or public knowledge. This means that the question today is no longer whether your data will be collected, but by whom, in what way, and which are its possible destinations.

Is it conceivable to abstract that private technology companies of the size of Apple and Google are heavily investing in contact-tracing systems, oriented to alert users of the possible approach of a person infected with the coronavirus? And before we say that this is an operation aimed only at those who have cell phones with the operating system of those companies, it is worth remembering that we are talking about 3 billion people, that is, almost a third of the world population, users of the devices of those two companies. (Gurman, 2020).

It is also essential to keep in mind that the records made by applications used by various governments, and also distributed independently on the Internet, can capture much more data than just spatial displacement. They can record temperature, pressure, and walking speed, which leads us to a kind of surveillance that is, as Harari (2020) pointed out, subcutaneous. This painless and invisible aspect ensures that algorithmic surveillance goes unnoticed as if it did not exist. Nothing is more consistent with the forms of violence of present-time capitalism.

Since the mid-1990s, definitions of different ideological hues about capitalism have been formulated. Informational capitalism (Castells, 2005), cognitive capitalism (Hardt, Negri, 2000), creative capitalism (Gates, 2008) are some of them. To these definitions, one more is added: "cute capitalism", a regime that celebrates, through fat and rounded icons, a pink and sky-blue world, which expresses itself with onomatopoeia, likes, and hearts, proposing the vision of a world in which nothing hurts, and all people are friendly. In this context, Clare Birchall (2017) called the shareveillance regime, a combination of sharing and surveillance is consolidated. We are monitored from the data we give, consciously or unconsciously, in a heterogeneous and complex arc from social networks to the emission of documents such as passports and IDs with chips.

This is what makes surveillance, in the culture digitization context we live in, a practice that is not necessarily coercive. It can operate, and operates, in a naturalized way, by a need of making part of the whole, of being visible, and also compulsorily, by the need to be socially computable. It is possible to choose whether to integrate with social networks (even if this might imply one's invisibility). But the latter option is more difficult when dealing with a vast pandemic like the present one, in which data sharing can mean protecting your health. This emerging format of surveillance occurs within the scope of new practices of social violence. It is algorithmic violence that inserts everyone in the coronavirus victims tally. This violence overlaps with the one that targets the primary victims of necropolitics: poor people, women, blacks, immigrants, indigenous people, among other minorities, as discussed by Mbembe (2017) and Pelbart (2018). Moreover, it also creates new forms of brutality, further tearing labor relations by normalizing precariousness.

Artist Bruno Moreschi was right when he said that the coronavirus would turn everyone into turkers. Turkers designates workers who operate in the early stages of artificial intelligence development processes. It is up to them the tedious task of identifying and classifying elements that will integrate databases. Machine learning programs will be developed, such as the image indexing that will feed a Facial Recognition system. They provide services on platforms such as Amazon Mechanical Turk (Mturk), where the vile nickname comes from, one of the main sites offering this type of work. To give a glimpse, about half a million people work as service providers for Mturk at minimal costs. While the US's minimum hourly wage is about \$ 7.25, turkers receive about \$ 2 per worked hour. Like Uber drivers, turkers, the icons of telework, are induced to an abusive workload in an attempt to compose their monthly income (Moreschi, 2020). This Internet galleys model is now expanding to a significant number of liberal and creative professionals and is part of the new post-pandemic normal package, further penalizing those who cannot take part in it.

It is difficult to ponder what life will be like after the sudden disruption in mobility caused by the pandemic. However, as collective office furniture ads suitable for social distancing times, "fashionist" mask models, signaling design for measures of distancing between bodies, it is more and more apparent that we increasingly tend to a state of connected individualism (Flichy, 2004). This dates back to the early 2000s and is simultaneous with the popularization of Web 2.0. Ease of use is the reason for this system's success. But it is also what turned the Internet into a space populated by fortified citadels, as defined by Martin Warnke (2012), where people live within a few mainstream popular services. Any similarity to urban culture's daily life during the coronavirus pandemic is no coincidence. Closed condos, exclusive gyms, and restaurants for a few people

have become the wished places for those who can enjoy the safe world outside the contagion zones behind the screens.

In the information architecture of the Web 2.0, the collaboration and sharing culture is consolidated, acclaimed by the big tech companies, in which anyone can take part, as long as they follow the rules prescribed by previously programmed algorithms. These co-working spaces are expressions in urban culture, focusing on the logic of walled gardens and the bubbles of social networks and applications, where we are always alone, yet connected. In harmony with the mantra "everyone has the right to be their boss", a vulnerability dictated by the absence of labor rights and bonds prevails, fundamental not only in the field of affections but also for the very possibility of subversion. Life becomes uberized, and the social Darwinism of data, which has already taken over networks, imposes itself on the city's daily life. The strongest, the best rated, the most accessible, the ones who stand out in the well-behaved dystopia of cute capitalism always win. Human Resources professionals celebrate this scenario, drawing attention to events such as the coronavirus to anticipate a future of remote work prevalence. One of its advantages, according to analysts, is the valuing of the accomplished goals in detriment of worked hours. However, they recognize that much more work is done on behalf of productivity value, and women are extremely penalized by the overlapping of work environment with family demands (Castro, 2020).

Captured in the domestic bubble and stuck to the screen, we are approaching a city vision that incorporates notions consolidated in Web 2.0. Like the one that brings together the ideas of public and free. Just as you don't pay to enter Facebook, entry to shopping malls is also free. Which is not to say they are public places. But it is this shopping center city, with empty streets and faceless people, that tends to become the standard, one of the post-pandemic future legacies. It is a kind of ghost of the generic city conceptualized by Rem Koolhaas (2010), where everything migrates to the online world. The "coronacity" — the city modeled by the coronavirus — is sedated, isolated, made to be observed from a sedentary point of view. More exclusive and more monitored, it embodies a society divided between people scrapped by teleworking, the digital lumpen of delivery workers, the "turkerized" subworkers, and billions of homeless people (Beiguelman, 2020).

#### **4 Conclusions**

As we learned from several authors, no technology is neutral, including Pierre Lévy (2010) and Vilém Flusser (2002). Morozov and Bria (2019) approach this discussion of the smart cities theme, showing how infrastructures configured according to neoliberal parameters made it challenging to experiment with cities with non-neoliberal policies and economic measures. The opposite is also true; they say: counter-hegemonic policies and technologies strengthen counter-hegemonic processes. Therefore, talking about smart cities demands thinking of the non-neutrality of the agenda that supports this discourse, given that its implementation presupposes, for example, the privatization of services and public data. It is also important to underline here the considerations of Adam Greenfield (2013), who dedicated himself to disassembling statements by companies such as Cisco, Siemens, IBM, and others in their advertisements about smart technologies for cities.

There is an essential technological determinism in smart cities' visions, which presupposes that technology will save cities; technologies are beneficial, have quality, and work. It is assumed that cities are doomed to fail, and that technology will solve problems. Smart cities would be error-proof because they are predictable — precisely when the error, taken as a deviation, is considered a possibility of dissent in the contemporary world. It should also be noted that, in the hegemonic discourse on smart cities, the city is presented as an object of consumption and not a shared, conflicted, and disputed space. Without history and social density, the city is reduced to an analogy of an application project. It can be discontinued as soon as it is convenient, in favor of a new update. Or they are built from scratch as if designers and programmers could create software for a living, a simplistic update of Le Corbusier's notion of the home as a living machine (Brasileiro, Campos Salles, 2007).

This type of approach is part of the same Western triumphalistic intoxication that tends to see the narrative of human civilization as the inexorable conquest of the Earth, rather than the process of a contradictory culture growing in a chaotic, unstable way (Wallace-Wells, 2019). A culture mainly marked by obsolescence, with civilizations that appear and disappear, with technologies that can be more harmful than useful. The repetition of history — which would happen the first time as a tragedy and the second as a farce, according to Karl Marx (2011) — can be found at this moment. The surveillance set in motion by the Patriot Act after the September 11, 2001 attacks in the United States, in which the government allowed unprecedented access to personal data, in a dialogue with technology companies, was legitimized by the so-called shock doctrine (Klein, 2008). According to Klein, after catastrophes, governments take advantage of the population's shock to approve measures that reduce their rights. This time, mass monitoring, on a global scale, came after the shock of COVID-19.

In the first half of 2020, we saw the adoption of measures and technologies to combat the virus' spreading as if they were neutral and punctual resources to the COVID-19 situation. However, those technologies established monitoring rules for each citizen, via smart apps, to track who one met, for how long, at what distance, in addition to measuring their temperature via physiological analysis by thermal cameras. Such resources used to guarantee the entrance, or not, work as a new set of predeterminations of the bodies' spatial distribution in certain places. Thus, on the assumption that combines screening with predictability, they transform the coronavirus into a metaphor for the smart cities' motivations, giving it the contours of a "smart virus".

It is also worthy to notice that this algorithmic surveillance model, associated with new models of public health policies, creates new forms of hierarchy and social exclusion. After all, only those who have cell phones with GPS, connected to the Internet, are identifiable and therefore liable to be protected from contagion. The non-traceable person is the one to whom the state has long ago turned its back. In other words, in the spiral of algorithmic surveillance maximized by the smart virus, the mobile subjects, the homeless people so ordinary in Brazilian cities, acquire a new layer of invisibility before the state. Since it is not possible to monitor their displacement in space, it is evident that the crossing of public policies with big data can further stress the social violence prevailing in the urban scene.

Pondering the post-pandemic future, Bruno Latour wrote that "the last thing to do would be to redo all we did before" (Latour, 2020). But, in the light of the considerations presented, it can be inferred that the coronavirus has brought to the city's daily life the most perverse imagery of smart cities, in terms of their ways of combining predictability with the ability to control bodies in space, via algorithmic systems. In this perspective, paraphrasing Latour, the hypothesis arises that maybe the post-pandemic future has already become present, and the first thing to do would be not to let the smart virus' "new normal" become our urbanism of tomorrow.

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