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Viral Surveillance: Governing social isolation in São Paulo, Brazil, during the COVID-19 Pandemic

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1. Introduction

The COVID-19 pandemic imposes extraordinary challenges to governments and societies. At the time of writing, it has killed nearly 230 thousand people worldwide and paralysed most of China, India, Europe, the US and Latin American countries, causing an upsurge in unemployment rates and still incalculable economic losses. Before it is over, the pandemic will kill thousands more and most likely it will be followed by a period of global recession and social unrest. In response to the virus, most epidemiologists and policy-makers seem to agree on the need to restrict freedom of movement, to invest in personal protective equipment (PPEs) and hospital resources (tests, drugs and ventilators), and, finally, to build up virus-tracing capacities to identify clusters of infections, anticipate contagion, and contain further outbreaks.

In this context, while robust public policies have been said to be vital to tackle the pandemic, boosting claims for universal healthcare systems and basic income programs, travel restrictions, strict quarantine rules, and surveillance measures also become increasingly popular solutions. Indeed, the World Health Organisation (WHO) issued a flattering report on China's ability to contain initial outbreaks, exhorting other governments to adopt similar actions and, particularly, to ramp up their monitoring capacities to "expand surveillance to detect COVID-19 transmission chains" (WHO, 2020a, p. 21). Interestingly, the pandemic has elicited both solidarity networks and widespread suspicion, combining practices of care, calculations of risk, and disciplinary techniques of population control.

Initial approaches to the matter have emphasized the ambiguous aspects of current policy responses. Many scholars expressed fears of "surveillance creep" (Lyon, 2007), which could end up inducing techno-totalitarian states, in which authorities keep powers and techniques to snoop on people indefinitely (Morozov, 2020). Others advanced revolutionary readings of the current crisis claiming neoliberal dogmas might be witnessing their last days (Zizek, 2020). Accordingly, the coronavirus "laid bare the exploitative structures that govern our social and political lives" (Goldenfein *et al*, 2020), opening gaps for solidarity-based systems in which markets are fettered and the common good, including green economy, become mainstream politics (Latour, 2020).

In this paper, we engage with such debates, but advance a different perspective to contemporary security practices and disciplinary politics of health and care. Looking into local responses to COVID-19 in São Paulo, Brazil, we trace the adoption and reconfiguration of surveillance technology as multiple devices are developed or repurposed to enhance pandemic control. Specifically, we put our lenses over two main projects, the Smart Monitoring System (SIMI-SP) and the Social Isolation Index (SII). SIMI-SP entails the collection of cell-phones positioning data to feed maps of mass gatherings, indicating where authorities need to enhance patrols and social isolation recommendations. SII was designed by InLoco, a data-savvy media/advertising company, to measure aggregate data on people's movement and issue daily rates of social distancing across the urban landscape. Both tools comprise a digital platform used by the state to better assess and efficiently manage local responses to the health crisis.

Hence, the article raises evidence of the rearticulation of surveillant assemblages in São Paulo. The monitoring techniques and social sorting algorithms used to tackle the pandemic are not exactly new. Similar devices were already deployed by the police, media companies and health professionals. But we argue that the changing composition of the assemblage produces relevant effects. Emerging technologies comprise public and private actors, biometric information, commercial databases, digital infrastructures, mathematical models, epidemiologists, and data scientists which were previously dispersed. In this process, practices of body surveillance and urban monitoring effectively coalesce, juxtaposing notions of disciplinary power, governmentality, and self-care (Foucault, 2015).

In this article, we investigate the biopolitics of local responses to the virus, stressing the cross-contamination of medical, political, security, and technological knowledge and practices. The production of data of contagion patterns is inherently connected both to the deployment of population monitoring systems and police repression. Thus, São Paulo is arguably going through a "medicalization of security" (Elbe, 2011), as epidemiologists, physicians, and sanitary authorities become relevant voices in the making of deviant profiles, in designing monitoring techniques and enforcing practices of control. Public health measures are arguably undissociated from public security measures, while virology discourses support arrests of those who break the lockdown and justify stricter surveillance of urban flows (Wright, 2020).

To develop this analysis, the first section presents a brief overview of current debates on security practices during the pandemic, also depicting the surveillance apparatus in the interstices of control and care. In the second part, we describe how monitoring tools have been developed and deployed in São Paulol, and, most importantly, how they articulate with disciplinary practices (including heavy fines and summary arrests) to enforce social isolation recommendations. The third section explores social and political impacts of emerging surveillant assemblages, analyzing dilemmas of data privacy, human rights, and the managing of mobility during the pandemic. Technologies might mitigate the spread of the virus but, as we argue in the conclusion, there needs to be more transparency about their implementation, use and effects. Promises of techno-solutions to the pandemic must be balanced with public awareness about their accuracy, biases, and limits.

2. The apparatus of social isolation and self care

São Paulo registered its first COVID-19 infection on February 26th, roughly three months after the disease was identified in Wuhan, China. The subject was immediately isolated while authorities attempted to track his previous contacts and monitor potential contagions. Initial efforts, however, proved insufficient to hold local spread of the virus. Four weeks after "patient zero", the state already recorded about fourteen thousand cases, in 228 cities, and more than a thousand deaths. São Paulo's capital alone – a 12-million-people metropolis – is responsible for 68% of infections, which makes it the pandemic epicentre in Brazil (Governo do Estado de São Paulo, 2020).[1] In response to the widespread disease, João Dória, the state's governor, issued a decree of public calamity, expanding executive powers over the state's budget and centralizing public information and decisions in a crisis cabinet under his authority.

[1] Data of infections in Brazil vary on a daily basis. The numbers presented here were collected at the end of April 2020.

Local pandemic control measures encompassed redirecting emergency funds to the purchase of PPEs, assembling three makeshift hospitals for COVID-19 patients, importing tests, and suspending every non-essential service, effectively closing most of commerce, parks, schools, etc. In parallel, public authorities also invested in massive public health campaigns which advised people to avoid social activities, stay at home, and adopt meticulous personal hygiene routines. Such measures are in accordance with WHO's list of best practices of health emergency preparedness, which advocates for physical isolation to disrupt the chain of infection and halt communitarian transmission. As Michael Ryan, WHO's director to the Health Emergencies Programme, explains:

> "[T]here are a toolkit of measures that can be taken to deal with this virus. […] [But] when the disease has reached a certain level, especially in community transmission, and it's no longer possible to identify all the cases or all of the contacts then you move to separating everybody from everybody else. You create physical distance between everybody because you don't know exactly who might have the virus" (WHO, 2020b).

Multiple countries have since adopted these recommendations on social distancing and contact-tracing, imposing emergency social isolation laws and developing a myriad of digital devices to monitor people's interactions. In São Paulo and elsewhere health authorities have turned to private companies and experts to collect data and establish virus transmission chains, to trace individuals who might have been infected, to identify mass gatherings, and, finally, to design predictive models of future outbreaks.

Unsurprisingly, controversies on privacy rights and biosurveillance followed governments' attempts to scale up social control amid the pandemic. Agamben (2020), for one, alerted to the perils of authoritarian oppression stemming from "frantic, irrational, and absolutely unwarranted emergency measures adopted for a supposed epidemic of coronavirus". Byung-Chul Han (2020) resonated this criticism, pointing out that decisions to close borders and ramp up digital surveillance are based in disproportionate fears of the virus. Naomi Klein (2020) also addressed the issue through the prism of exception and rupture. For her, we are currently living in a "pandemic shock doctrine", which will catalyse radical free market policies. David Harvey (2020) contributed with a similar note, raising awareness to the risk of sitting leaders to declare "imperial presidenc[ies] to save capital". In short, many authors set states' responses to COVID-19 as attempts to frame health emergencies as existential threats, thus gathering support for draconian reactions. As different as they might be, these standpoints share a perception that liberty and freedom are at risk since "wartime" responses to the pandemic jeopardize well-being and democracy (Mudde, 2020).

Against the "state of exception" argument, many commentators have contextualized initially feeble responses to the virus, especially in the US, Brazil and the UK, as enactments of neoliberal necropolitics, claiming economically vulnerable populations, those on the fringes of capitalism and deemed surplus or disposable, would also be the most affected by the disease (Purnell, 2020; Diniz & Carino, 2020). In this perspective, to act normally and avoid extreme reactions are not real options, at least not for those willing to flatten the curve of infections. As Panagiotis Sotiris (2020) puts it, *bare life* is "closer to the pensioner on a waiting list for a respirator or an ICU bed, because of a collapsed health system, than the intellectual having to do with the practicalities of quarantine measures".

Although critical scholars have been prolific in raising awareness to the biopolitics of pandemics, contemporary practices of population control are much more ambivalent and entangled than the above debates might indicate. State responses are not limited to lockdowns and mobility control; they also comprise massive investments in public health infrastructure and prophylactic attempts at disrupting the infection chain. As we will see in the next section, self-care conducts and preventive social control policies coalesce, assembling a hybrid pandemic-response apparatus which articulates health professionals, security agents, surveillance devices, private companies, international institutions, local policy-makers, etc.

As Foucault (2015), Murphy and Whitty (2009), Elbe (2011), and others have shown this heterogeneous apparatus is hardly exceptional. The birth of modern medicine in the 19th Century already encompassed articulations between police, sanitary and demographic registers and statistics. Hence public health policies and security practices were intertwined in the politico-scientific control of growing urban populations. Also, "health emergency preparedness", as promoted by the WHO for decades, already articulated techniques of body examination and surveillance with collective forms of intervention and regulatory controls (Sanford, Polzer & McDonough, 2016). However, while many commentators have taken up Foucault's much cited analysis on leprosy and the plague to discuss present responses to the virus in terms of powers to exclude or to confine and discipline,[2] we argue that social isolation policies in São Paulo do not equate to the "biopolitical dream" in which "governments, advised by physicians, impose pandemic dictatorship on entire populations" (Sarasin, 2020).

Following the executive decree on public calamity, non-essential services were obliged to shut doors and major gatherings have been prohibited (i.e. music concerts and sports events), but social distancing, despite being closely monitored, is mostly voluntary. There have been very few cases of police repression and, to this moment, local authorities seem to prefer media campaigns about preventive care and healthy behaviours. In this sense, São Paulo witnesses an unstable – hence, contingent – juxtaposition of different social control techniques, which might be better described as a governmentality of pandemics in which the police take part, but the main "instruments of government […] become diverse tactics rather than laws" (Foucault, 2007, p. 99). In other words, in parallel to (mostly, threats of) repression and actual surveillance, responses to the COVID-19 aim at developing self-care awareness and collective solidarity, also educating people to identify symptoms of infection and to make responsible decisions about whether to leave their homes or not.

For Foucault, governmentality is a form of population management based on statistical, economic and health knowledge. It targets people's interactions and mobilities. In this sense, governmentality acts in the interstices of self-government and the government of others, in which the technologies of the self (knowledge about the human body and self preventive care) are mobilized as techniques for population's control (general preventive care). As Foucault points out:

[2] Foucault (2001) describes disciplinary medical measures for social control, differentiating the isolation against leprosy (a preventive form based on total exclusion) from the confinement practices during the plague (when even if restrictive circulation is mandatory, he portrays it as an inclusion, meaning that it allows a permanent monitoring of individual health, and relationships among residents).

> "[...] the principle of care of oneself became rather general in scope. The precept according to which one must give attention to oneself was in any case an imperative that circulated among a number of different doctrines. It also took the form of an attitude, a mode of behavior; it became instilled in ways of living; it evolved into procedures, practices, and formulas that people reflected on, developed, perfected, and taught. It thus came to constitute a social practice, giving rise to relationships between individuals, to exchanges and communications, and at times even to institutions. And it gave rise, finally, to a certain mode of knowledge and to the elaboration of a science" (Foucault, 1986, pp. 44/45).

Self-care as prevention is generalized as a technology of the self (self-conduct) in the security device of governmentality, as Lemke points out (2012, p. 21): "[they are] techniques that permit individuals to affect a certain number of operations on their bodies, souls, thoughts, and so on, to transform themselves in order to attain a certain desired state". These technologies of the self allow an exercise of control and of driving people in a more palatable way and without resistance. Thus, the notion of government resides precisely in the interaction between control and care (prevention). It aims to tutor and organize large contingents of people, to modulate their behaviors from the introduction of a mentality in the social body that relates prevention (the management of risks), self-care and environment, and the production of quality of life.

Thus, we analyse social isolation policies as governmental techniques that introduce precautionary rationalities in which self-care is generalized as a safety device within the social body. Specifically, health professionals, deeply articulated within the pandemic-response apparatus (Elbe, 2011), propose that physical interactions are the cause of contagion. So, individual practices of reduced mobility and cautious hygiene routines produce collective effects on public health security. The above measures target the population. They configure a non-individualized technique of power informed by statistics and generalized surveillance. However, they do not exclude other forms of social control. Hence, the governmentality of pandemics overlaps and juxtaposes disciplinary practices – those based on minute details of individualized bodies – with the biopolitics of the population.[3]

In the next section, we debate two techniques of control that have been central to São Paulo's governmentality of pandemics: the making of a social isolation index and the sociotechnical surveillance devices used by state authorities to monitor people's adherence to lockdown recommendations. These techniques bring together public and private actors and mobilize medical and security knowledge in the governing of conducts and mobilities. As we will see, the governmentality of pandemic encompasses threats of repressive actions, campaigns of persuasion, political disputes, and controversies on privacy and intrusiveness. In this context, we argue that the social isolation index mediates between disciplinary and biopolitical practices.

[3] About this, Foucault (2015, pp. 295-296) pointed out that in governmentality, disciplinary techniques are not necessarily canceled, but overlapped and often act simultaneously. Similarly, Klauser (2017), when looking from a spatial logic of surveillance practices, admits the possibilities of overlapping and simultaneity of securitarian (crowd management) and disciplinary (individualizing and normative) logics of monitoring and exercise of power.

3. In pursuit of a metrics: The public-private assemblages for monitoring the isolation

Local authorities had been monitoring risks of COVID-19 infections in São Paulo since January, but contingency plans were only made public in late February, when initial outbreaks were confirmed. The state government then imposed lockdown and assembled a crisis cabinet, composed by multiple secretariats, technical bodies, security agencies and municipal authorities. The cabinet occupies a well-appointed control room close to the governor's office and has since become the main source of information for both state officials and the media. Equipped with scanning software, multiple communication devices, and digital platforms, the cabinet gathers data from public and private institutions in order to build situational awareness about the pandemic. Projected in a line-up of screens, several dashboards aggregate information on the toll of infections, ICU's occupation rate, PPEs demands, distribution of tests, critical infrastructure, real-time camera feeds, and contagion forecasts (Ghirotto, 2020). In this multi-stakeholder operational environment, authorities aim at breaking the chain of contagions with a more efficient management of resources. In practice, this means monitoring social adherence to social isolation measures.

In this context, state and municipal officials approached private companies to develop social distancing indicators and maps of urban mobilities and variations in demographic densities. These partnerships resulted in two main surveillance tools, the Smart Monitoring System (SIMI-SP) and Inloco's Social Isolation Index (SII).[4] Both tools allow task-forces to check whether risk groups follow lockdown policies and to flag hotspots of disease potential outbreaks. As such, they are valuable tools to assess government's actions on a daily basis. Most importantly, they guide the allocation of resources, indicating where the police and sanitary authorities need to focus next.

SIMI-SP was designed by local cell-phone providers and relies on regular collection of data by telecom antennas to produce structured databases of urban flows and heat maps of mass gatherings. As people move around the city, their cell-phones connect to various broadcast spots, leaving registers of data transmission in different neighbourhoods. Specifically, the system geo-references every cell-phone position between 10pm and 2am to infer where individuals spent the night. In the next day, if any data is captured by antennas more than 200 meters away from the initial site, SIMI-SP will consider the individual did not follow lockdown rules (Gomes, 2020). The government says that it only accesses anonymized data and cannot visualize heat maps in real-time. Telecoms aggregate information collected on the previous day and erases time frames of movements before feeding the system. So, digital maps only display average rates of flows and isolation in different neighbourhoods.

Figure 1

Inloco's solution has a different architecture.[5] The SII collects data through a Software Development Kit (SDK - i.e. code) embedded in smartphone applications of partner companies, which

[4] InLoco is a Recife-based technology company focused on location data analysis, as means of targeted advertisement and consumer profiling.

[5] Although the company individually provides "tech solutions" for the pandemic, their development is also related to academia research, as evidenced by its partnership with the Pasteur Institute and the Pharmaceutical Sciences Faculty at University of São Paulo. In this case, InLoco shared its database to an ongoing epidemiological research based on smartphone patient tracking.

mostly consist of banks, retail stores, telecoms, and fintechs.[6] By accepting the apps' terms of service, clients agree to have their geolocation information used for other purposes, such as digital address validation, target advertisement, and population mobility indexes. According to InLoco, its database comprises about 60 million smartphones (four million in the city of São Paulo alone) (InLoco, 2020). In order to build its mapping service, data is extracted by different sensors, including GPS, Wi-Fi connections, Bluetooth-LE, cell-phone signals, and activity recognition. Whereas other companies stick to GPS signals or cell-phone antennas, Inloco's myriad of sources allegedly enables them to provide more precise geolocation. The social isolation index is calculated by tracking individual users' mobility data, which is later anonymised and aggregated, so public authorities are only presented a percentage of lockdown abiders in different neighbourhoods.[7]

Figure 2

Health authorities are still struggling to convince citizens on the need to respect social distancing, so SIMI-SP's and Inloco's heat maps not only guide their responses but help in performing the pandemic to the public (Lynch, 1985). Digital interfaces provide valuable illustrations of risks of infections. Maps, diagrams, and graphs make the hitherto invisible virus easily accessible, so the palpable consequences of the disease become suitable for state intervention. Furthermore, indexes, as social processes of measurement and commensuration, have the attribute of simplifying observed facts by transforming qualities into quantities, and differences into comparable magnitudes (Espeland and Stevens, 1998: 316). In short, these representations are objects as well as tools of power relations. By abstracting and reducing complexities, both heat maps and indexes turn social isolation into a continuum, which contributes to depict mass gatherings and spatial mobility as unwelcome/undesirable behaviours to be socially (and potentially normatively) sanctioned. While these technologies indicate the effectiveness of social isolation and the possibility of loosening lockdown rules, they also act upon the population's fear, stimulating self-care as means of collective care and solidarity. As Porter notes:

> "Numbers alone never provide enough information to make detailed decisions […]. Their highest purpose is to instil an ethic. Measures of […] achievement in general succeed to the degree they become, in Nikolas Rose's phrase, "technologies of the soul." They provide legitimacy for administrative actions, in large part because they provide standards against which people judge themselves" (Porter, 1998, p. 45).

Also, practices around technologies do not necessarily follow their strict purposes, they are creatively and situationally resignified. In this sense, they comprise a contingent and heterogeneous

[6] It is highly probable that their sample is biased; InLoco's database of the city of São Paulo comprehends approximately 4 million devices, in a population of 12 million inhabitants (Queiroz et al., 2020). Moreover, their data is mostly derived from apps' whose public are middle and high income consumers.

[7] It is not yet clear whether the data analysed is compared on a longitudinal basis (such as patterns of user mobility before and after the lockdown), or just relative signal immobility. Regarding its pandemic-specific products, InLoco offers the public sector a wide range of mapping and tracking programs: a) integrating its SDK to office services apps', as to generate input for social isolation metrics, monitor "risk areas", and provide a direct communication channel with its users; b) mobility analysis through health and essential services; c) Mobility index by neighbourhood/state; d) Social isolation index par residence (clustered by neighbourhood); e) Social isolation and mobility indexes for academic research; f) Journey analysis; g) Mass gathering heatmaps (Moura and Ferraz, 2020).

governmentality of pandemics which consists of three emerging (and overlapping) techniques of control: educational campaigns for improved personal hygiene, incentives for individuals to inform authorities on others' undesirable behaviour, and straightforward police repression.

In spatializing and communicating threats, the government expects to educate the population on the need to change everyday habits. Beyond media campaigns, local authorities send SMS messages on potential outbreaks to residents of neighbourhoods where people are not upholding social distancing. Those who inhabit risky areas (where infections concentrate) also receive customized messages about hygiene precautions. State and municipal authorities have even used cars with sound systems to inform on personal safety precautions in the urban outskirts. As Patrícia Ellen, state secretary for economic development, science, and technology, declared, government strategies of containment are ineffective without people's cooperation, so SIMI-SP and SII are key political tools of persuasion. In her words, "we must have at least 60% of isolation rate so we can control the curve [of the spread] of the virus. The government cannot cope with it alone, and we have lives on the line. This technology is at people's service. The data that we have is also accessible for you [the media] to follow the results and evaluate our actions" (Balanço Geral, 2020).

The normalizing apparatus is also manifested by how citizens inform authorities on lockdown disengagement in their neighbourhoods. In 2017, the municipal department of public safety developed a platform so people could notify public services of urban disorder incidents that might require intervention. SP+Segura, as the system is named, registers multiple cases, ranging from safety measures to fallen trees.[8] During the pandemic, however, the platform became a mediator for horizontal surveillance on undesirable/unhealthy behaviours. In other words, citizens have been exercising their normalizing gaze through SP+Segura. We observed that it has been used to warn authorities about public gatherings, markets that do not follow hygiene recommendations (i.e. employees without masks and gloves), non-essential commerce that insists to keep doors open, bars that deceive sanitary authorities by claiming to be markets, private parties, and all sorts of unwelcome behaviours that might put society in risk. The juxtaposition of self-care and government, or discipline and control, is also seen in this platform-mediated contact between municipal agencies and local citizens.

Finally, the third technique of control is the state resort to police repression. After experiencing high isolation rates in the first weeks of the lockdown, the SII and SIMI-SP began to alert on increasing mobilities and gatherings. In response, the state government performed another aspect of the governmentality of the pandemics and threatened that severe measures would be taken against those who break the rules, which meant heavy fines and up to 18-month prison sentences. In the governor's words:

> "If we don't take isolation rates from 50% to more than 60%, and move towards 70% in the next week, […] [public authorities] will take more rigid measures. I wanted to avoid that, because it means people will receive official warnings, fines, and may even be arrested. People must be conscious about the situation we're in. […] People must be responsible and we're

[8] Its name can be roughly translated as São Paulo+Safe. For a longer description of its functionalities and a debate on its impacts in São Paulo's security assemblage, see: Peron and Alvarez (2019).

monitoring that with the cell-phones. [..] I hope we don't need to reach that level [of repression], but, if we have to do it, we'll do it in defence of life" (Pauluze & Trindade, 2020).

These disciplinary measures are provided by the state decree of calamity, which lists a few instruments to enforce social isolation. Indeed, the police were already being used to disperse parties in public places and to close non-essential commerce, but arrests were few and sparse. It is not yet clear, however, what the governor's threats will entail. Although data on lockdown-related police operations is not available, the media has not reported on an upsurge in arrests and the news are limited to occasional altercations between police officers and individuals who resist requests to leave public parks or to close local bars (Chagas, 2020). As we will see below, the governor's statement was also met with scepticism by the police.

Despite claims that the pandemic surveillance apparatus is essential to better manage public resources and effectively control the virus, ultimately saving lives, local authorities and private companies have been criticised for stepping up their monitoring capacities. Anticipating controversies about client's privacy, the cell-phone companies that designed SIMI-SP argued that their database is "non-intrusive" since it cannot be used to identify and track individuals. According to Sinditelebrasil, a syndicate of private media companies, public authorities cannot reverse the anonymization process, so they have no access to clients' gender, name, or phone number: "It's only statistics. It's like you go to a metro turnstile. People will see you passing through and the turnstile will only register the number of people. At the end of each day, station managers check the turnstile and know how many people passed through. […] It's impossible to reverse [i.e. deanonymize], There's no way to see who passed the turnstile, you only know that someone did it" (Gomes, 2020a). Furthermore, the databases offered to local authorities on a pro-bono agreement are not unprecedented, on the contrary. The companies already collected aggregate data on cell-phone positions in order to improve their services and make profit selling in the data market. As the vice president for data and AI in one of the telecoms confirmed: "In the past five years we have invested in big data and artificial intelligence to improve clients' experience. So, when the pandemic came, we built applications to help in the fight" (Mello, 2020).

InLoco also dismissed accusations of privacy breaches and emphasized that we are going through a crisis, which requests coordination between public and private actors so health professionals may have the best technology and information at their disposal. Also, Raísa Moura, InLoco's head of data privacy, stressed that the company can protect individuals' identity while also providing public authorities with statistics, maps and other helpful representations of mobility and concentration. As she explained, the company adopts a "privacy by design" approach, which means that neither their programmers nor public officials have access to identifiable personal information. Identifiers in each smartphone (IMEI and MAC codes) and client's accounts or documents (e-mail, phone number, ID registers, etc) are not collected. She also ensures that, even during the pandemics, the company has not integrated different databases, nor triangulated information to identify individual users. So, there is no need to be caught in the privacy vs. security trade-off. In her words:

> "During a calamity, many rights are relativized, norms become more flexible and all the efforts must be directed to saving as many lives as we can. However, the "Sophie's choice" should not be about "pandemic control vs. privacy", with the risk of inducting arbitrary governments. More than ever, discussions about privacy, so much debated before the pandemic, should stay under the spotlight" (Moura and Ferraz, 2020, p. 5).

Despite the above justifications and government's claims about the relevance of surveillance platforms for the virus containment strategy, privacy watchdogs insist that companies should have asked users whether they were willing to surrender personal data to the government before implementing the systems (Bioni et al, 2020). We did not find judicial claims mentioning InLoco, but many clients opened litigations against the telecoms and managed to get their numbers out of SIMI-SP's monitoring list (Gomes, 2020b). At least one lawyer had a request for collective *habeas corpus*, which would stall monitoring and prevent private companies from further transferring personal data to public authorities, denied by federal courts (UOL, 2020). Others developed and shared on social media inventive ways to elude surveillance and avoid tracking. A similar solution for monitoring social isolation rates on a national level was blocked by the president, who criticized São Paulo's attempts to reduce individual freedom and claimed privacy risks should be better assessed before setting such systems up.

The president of Brazil and São Paulo's governor have adopted radically different stances towards the pandemic. While the governor blames the president for "politicizing the virus" (Dória, 2020), Bolsonaro has taken sides with local businessmen who claim lockdowns will cause severe economic damages. Despite the growing toll of deaths, the president has repeatedly downplayed the consequences of the COVID-19, which he calls "just a minor flu", and advised Dória and other governors that "the treatment should not be worse than the disease" (Bolsonaro, 2020). His position resonates within São Paulo's police. The Association of Military Police Officers of São Paulo (Defenda PM), for example, has publicly antagonised the governor. In their perspective, social isolation is a suggestion, not an order, so the police should not be deployed to arrest citizens who choose not to follow the lockdown. Furthermore, the retired police colonel Elias Miler, Defenda PM's president, declared state attempts to prevent people's mobility are against the constitution. For him, the governor's threats were "truculent, arbitrary and configure misfeasance" (Miler, 2020). As the reduced number of arrests might indicate, these disputes have jeopardized the state's capacity to enforce social isolation and seems to have contributed to undermine further disciplinary measures.

While the governor maintains that current monitoring practices are in accordance with national laws on telecommunications, the Civil Rights Framework for the Internet, and the criminal law, there are at least three issues to be raised. The first concern is transparency. São Paulo follows the spread of the virus in the crisis cabinet, which has straight contact with the media to broadcast relevant information. However, to the moment, transparency has been synonym to official statistics and not much more. Scholars have limited access to control rooms and struggle to understand its surveillance architecture. Since most devices were designed by private companies, even members of public security institutions have restricted access to digital platforms and limited knowledge about how infection rates and other statistics are produced. We tried contact with many professionals placed in public institutions with experience in digital technologies and georeferencing (including the police), but none of them could tell us much about what happens inside the crisis cabinet.

The second concern refers to practices of anonymization. Cyber security specialists often argue that there is no anonymous data per se, only a successful or unsuccessful process of anonymization in which specific information is generalized and a few data entries are discarded. Although anonymization is hardly an irreversible process, public and private data holders can make this a lengthy and costly endeavour for those trying to identify individuals in a database. So, it is not

enough to erase names and phone numbers, as InLoco seems to suggest. Data analysts must ensure that other data sources cannot be used to triangulate personal information and deanonymize individuals. This is exactly what an investigative reporter did with the supposedly anonymous data collected by telecoms (Dias, 2020). Using information from social media, the reporter managed to identify a few names in a database that is similar to the one used in SIMI-SP. Interestingly, none of them knew their data was collected and used for purposes other than the telecom service.

The last issue is that monitoring capabilities recently introduced are not built upon a blank slate but articulate with previous surveillance practices and rationales. In 2014, for example, state authorities launched a digital platform aimed at mapping crimes in São Paulo in order to improve police patrols and investigations, and to inform crime control strategies in general. The platform was named "intelligent monitoring system" and offered security professionals detailed representations of aggregate crime data, so police officers could identify crime patterns in specific neighbourhoods and react accordingly. This system was later connected to video-monitoring devices which allowed operators to trace suspects and produce real-time alerts on potential crimes. Despite claims that SIMI-SP and the SII will be discontinued after the pandemic, recent history of surveillance teaches us that society should be alert to future articulations between data on urban fluxes and peoples' gatherings and other security monitoring systems. The governmentality of pandemic might have durable effects on surveillant assemblages.

4. Equating Privacy and Proportionality under the Pandemic

These surveillance and monitoring technologies, in parallel with restrictive measures, seem to produce a great amount of knowledge about patterns of population mobility. The Institute for Applied Economic Research (IPEA), a public think tank that provides technical support to the federal government, produced a report discussing the benefits of social isolation measures to control COVID-19 outbreaks and evaluating different social isolation indexes, including InLoco's platform. In their perspective, while public campaigns have positive effects, restrictive policies are essential for maintaining social distancing in Brazilian cities. Hence, governments are advised to uphold monitoring practices throughout the pandemic (Moraes, 2020). However, state surveillance and policies of restrictive mobility should be closely followed. Civil society organisations have alerted the risks of excesses and, most importantly, to the fact that surveillance devices designed for pandemic control might be deployed for general security purposes once the crisis is over (Bioni et al, 2020).

In this regard, Han (2020) warns that extensive use of forms of surveillance seem to have been essential to contain the pandemic in China. In sustaining that the halt of the disease does not operate only through doctors, but also through data scientists, Han (2020) states:

> "Critical awareness of digital surveillance is practically non-existent in Asia. There is almost no talk regarding data protection, including liberal states like Japan and Korea. No one is irritated by the authorities' frenzy to compile data (...) The entire infrastructure for digital surveillance has now proved to be extremely effective in containing the epidemic. (...) Digitization directly intoxicates them. This is also due to a cultural motive. In Asia, collectivism prevails. There is no strong individualism. Individualism is not the same as selfishness, which of course is also widespread in Asia".

In other words, the absence of a critical culture about surveillance, of trust in the State, and a peculiar perception of collectivism, facilitate the adoption of more intrusive surveillance measures, and greater exposure of people to massive data collection. Paradoxically, these same measures seem to be most effective in tackling the pandemic. To Han (2020), their spread would reinforce the evolution of police states in Western societies. Also, it would undermine legal safeguards that limit surveillance practices, which draws his argument closer to Agamben's (2020).

Nonetheless, the availability of these surveillance and monitoring technologies in the "West" encouraged debates on discriminatory and authoritarian practices, such as facial recognition systems (Ajana, 2013; Garvie, et. al, 2016; Peron and Alvarez, 2019), algorithmic surveillance instruments and risk classification (Amoore, 2013). In São Paulo, both the SII and SIMI may perpetuate disciplinary policing practices in post-pandemic techniques of control. However, there are alternatives to mitigate surveillance creep and even prevent intrusive monitoring practices from taking hold after the crises. A joint statement of several civil society organisations notes that "The COVID-19 pandemic is a global public health emergency that requires a coordinated and large-scale response by governments worldwide. However, States' efforts to contain the virus must not be used as a cover to usher in a new era of greatly expanded systems of invasive digital surveillance" (7amleh, et al, 2020). Thus, how should we balance its use and limit the pervasiveness of these technologies? Is it possible to employ them to manage the spreading of Covid-19, while reconciling it to Human Rights demands?

Controversies about emergency (intrusive) measures during pandemics and the preservation of human rights often derived from past experiences (O'Malley et al., 2009; Murphy and Whitty, 2009; Elbe, 2011; Carney and Bennett, 2012; Ventura, 2016). Many authors have shown that pandemic crisis management often bring medical-sanitary knowledge to the security apparatus[9], conforming a policy of permanent care as "health security" that will inform decisions (Elbe, 2011).

However, pandemic management goes beyond ordinary monitoring, and, once declared, often requires rapid and exceptional measures, and demands wit from political elites (Prescott, 2007: 02). They elude the traditional democratic process of decision-making. Thus, an epidemic deflagration should be met with public health emergency legal preparedness, which "is all about having the right laws in place and then using them in the right way in a time of public health emergency (...) it is both proactive and reactive" (Murphy and Whitty, 2009, p. 220).

Medical-sanitary knowledge gains prominence in the context of a pandemic, informing conducts of care and safety based on its own ethical principles. As public health has its focus on promoting collective well-being (Gilbert, 2012), commensuration and monitoring could offer smarter and less intrusive mechanisms for pandemic management. The underlying assumption is that all humans are potential victims and vectors of contagion[10]; therefore, measures taken must comprehend the social group in its totality, and should not be directed at specific groups[11], i.e., "maximize the minimum" of well-being or expand to all its benefits as a form of solidarity (Gilbert, 2012, p. 129).

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[9] Others, in Global Health Studies, argue the other way around: seeing pandemic situations as processes of securitization of global health, under the banner of right to health implementation and/or preservation (see Ventura, 2016).

[10] Such a stance is also known as the Rawsilian veil of ignorance, in which every individual is taken as free, rational, and morally equal.

[11] Targeting groups during pandemics has historically been a source of discrimination and abuse, such as during the 1980s AIDS outbreak, against LGBT communities (Murphy and Whitty, 2009).

Still, adopting public health ethics for halting contagion does not preclude human rights observation. To make use of restraining technologies, authorities must comply with the criteria of "necessity" and "proportionality" posed by International Humanitarian Law (IHL) and International Health Regulation (IHR). In this respect, the IHR is complementary regarding the IHL, as it promotes the latter's standards of dignity, personal freedoms, transparency, non-discrimination, and consent (Murphy and Whitty, 2009, pp. 226-228). As article 43(1) of the International Health Regulations states: pandemic control measures should not be "more invasive or intrusive to persons than reasonably available alternatives that would achieve the appropriate level of health protection" (WHO, 2005, p. 29).

Murphy and Whitty (2009) reject the "skeptical" view that confers legitimacy to exceptional measures that incur in Human Rights violations. In their analysis, there should not be a tradeoff between political objectives (with intrusive measures) and Human Rights protection, as that draw principles and objectives to the same level (Murphy and Whitty, 2009, p. 236). For them, proportionality is the key to deal with rights and their relationship to invasive policies, by acknowledging that rights can indeed restrict public and collectivist interests, but also contributing to set legitimate goals and practices:

> "Rights outweigh goals that are not legitimate and, where goals are legitimate, any measures giving effect to them must be suitable, the least restrictive possible, and proportionate between the effects of the measures and the objective to be achieved. (…) if risk evidence is to be used to justify limitations on rights, the evidence of threats to security must be disclosed and scrutinized according to identifiable legal norms" (Murphy and Whitty, 2009, pp. 236-237).

Albeit respecting human rights might seem counterproductive in economic and political terms, they are essential for assessing risk and proportionality in technological solutions to the pandemic. Social isolation policies in São Paulo, for instance, have been proportional. To the moment, public authorities kept police repression to a minimum, investing instead in massive educational campaigns to convince local citizens of the need to stay at home and adopt hygienic routines. Likewise, the lockdown can be considered necessary and proportional inasmuch as mobility restrictions aim at a greater good, i.e., halting the spread of the disease and protecting the right to life.

At the same time, technologies such as Simi and SII call for greater attention. Besides supporting the lockdown in the terms we discussed above, their enactment depends on individual data collection for state monitoring purposes, without explicit consent, jeopardising people's privacy. Afterwards, these tools have the potential to be redirected to crime control, making them both disproportionate and unnecessary. As the United Nations Human Rights office poses,

> "(...) we are aware of growing use of tools of surveillance technology to track the spread of the coronavirus. While we understand and support the need for active efforts to confront the pandemic, it is also crucial that such tools be limited in use, both in terms of purpose and time, and that individual rights to privacy, non-discrimination, the protection of journalistic sources and other freedoms be rigorously protected" (UNHR, 2020).

Hence, proportionality meets a clear need for information production. Notwithstanding, their employment ought to be subjected to criteria guiding data collection, processing, and storage. In this spirit, Data Privacy Brasil developed 18 guidelines comprising implicit notions and fundamental values

for orienting data collection during the pandemic. Compliance with these guidelines, in a way, would ensure proportionality in data collection.

As widely discussed in digital surveillance studies (Murphy and Whitty, 2009; O'Neil, 2016; Zuboff, 2019), transparency is a core element of technologies in general - not to mention in pandemics - since it allows identifying and circumscribing uses, preventing pandemic measures from being as harmful as the disease itself:

> "If the recommended data protection principles and best practices are internalized and well implemented, the likelihood of efficiency of these measures will increase while ensuring their legitimacy, in addition to enjoying greater trust on the part of society. The use of personal data is just one of the measures to contain the pandemic of COVID-19, which must be conceived as such so that it is, in fact, a measure of containment and not of increasing the damage experienced by such an epidemic. The set of recommendations above makes it clear that data protection does not rival this purpose, but rather allows the State to be efficient in combating the epidemic and to do so with respect to the fundamental rights and guarantees of the population" (Bioni, et al; 2020, p. 27).

SIMI's deployment, for one, presented several difficulties and loopholes, failing to follow the proportionality criterion. First, it appears that there is no detailed deadline for its cessation - although it is assumed that they may cease along with the pandemic, this is not clearly stated, raising doubts as to whether it would be directed to other uses. Moreover, *The Intercept Brasil* argued that although telephone companies and the state affirm that geolocation data cannot be individualized, numerous loopholes that allow the identification of users were registered, exposing them to prosecution risks in a hypothetical case of (disciplinary) hardening of the insulation (Dias, 2020). Finally, Data Privacy alerted to the fact that SIMI's software is not designed with open source code, which could facilitate the understanding of third parties and consultants regarding the collection, processing and disposal of data (Gomes, 2020a). Lack of transparency was also remarkable when conducting this study, as few actors from either the public and private sectors were interested in providing explanations about the technologies' implementation.

5. Final remarks

Pandemics are extraordinary and multifaceted events, calling for equally intricate human intervention to their mitigation. Coronavirus' propagation happened in an age of massive data collection, with widespread availability of sensors and other informational devices, which constantly interact with our social life. Thus, it is no surprise that these informational systems were to be put into action to address the pandemic and enhance policy making efficiency.

As discussed above, those technologies draw similarities with security/surveillance tools, and present potential to be redirected to monitoring and managing populations. From a human rights perspective, that could violate people's privacy and hurt the proportionality principle. Concerning São Paulo's security landscape, those urban management systems also interplay public and private interests. They produce indexes that commensurate and hence perform social isolation through individual "self-care". Notwithstanding, international experiences show us that privacy violations may lead to discriminatory outcomes. In this sense, Brazilian General Law for Data Protection, yet to be put forth, offers a starting point to conciliate privacy and technology use.

Yet some questions remain open, how to guarantee that much needed data will not be used for other purposes than to assist health authorities in providing better care? How do we disentangle security and public health articulations once the pandemic is over? If, on the one hand, governments do need large swaths of data on patients, urban flows, and sites of agglomeration to track recent outbreaks, understand mobility patterns, and, hopefully, limit contagion in new areas, on the other hand, technology corporations have been found breaking public trust before. Personal data collected for one purpose has been used for commercial and security initiatives without clear consent, and supposedly anonymized data has been found to be easily deanonymized again and again.

In this sense, considering that Human Rights provides enough tools to equate social isolation control and preservation of rights by limiting arbitrary and disproportionate practices, it is possible to consider that the privacy versus pandemics' management dilemma is false. Thus, remitting its principles might be particularly damaging to countries that still lack robust legal frameworks on data protection, and which carry a long history of police and military abuse, such as Brazil. In this context, surveillance technologies could be indiscriminately used by security agencies to reduce political freedom. Hence, it is paramount that the implementation of these technologies be evaluated and audited, considering its effects and results in society.

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References

7amleh, Access Now, African Declaration on Internet Rights and Freedoms Coalition, AI Now, Algorithm Watch, Alternatif Bilisim, Amnesty International … et al (2020) *Joint statement: States use of digital surveillance technologies to fight pandemic must respect human rights*. Available at: <https://www.amnesty.org/en/documents/pol30/2081/2020/en/> (accessed 29 April 2020).

Agamben, G. (2020). The state of Exception provoked by an unmotivated emergency. *Positions Politics*. Available at: http://positionswebsite.org/giorgio-agamben-the-state-of-exception-provoked-by-an-unmotivated-emergency/ (accessed 29 April 2020).

Amoore, L. (2013). *The Politics of Possibility: Risk and Security Beyond Probability*. Durham, ed. Duke University Press.

Ajana, B. (2013). *Governing through Biometrics: The Biopolitics of Identity*. London: Palgrave Macmillan.

Balanço Geral (2020, April 10). *Governo de SP usa dados do GPS do celular para monitorar aglomerações*. https://www.youtube.com/watch?v=lBgv7AEERLk (accessed 29 April 2020).

Bioni, B., Zanatta, R., Monteiro, R.L., Rielli, M. (2020). Privacidade e Pandemia: Recomendações para o uso legítimo de dados no combate à Covid-19. *Data Privacy Brasil*. https://www.dataprivacybr.org/wp-content/uploads/2020/04/relatorio_privacidade_e_pandemia_final.pdf (accessed 29 April 2020).

Bolsonaro, J. (2020, April 6). *Pronunciamento do presidente da República, Jair Bolsonaro (08/04/2020)*. https://www.youtube.com/watch?v=x04OKkxT2Tc (accessed 29 April 2020).

Carney, T., Bennett, B. (2012). Governance, Rights and Pandemics: Science, Public Health or Individual Rights? In: Selgelid, M.J; Enemark, C. (eds.) *Ethics and Security Aspects of Infectious Disease Control: Interdisciplinary Perspectives* (201-217). Oxon: Routledge.

Chagas, G. (2020). Mulher Morde guarda e é detida após abordagem por descumprir decreto em Araraquara. *Portal G1*. Available at: https://g1.globo.com/sp/sao-carlos-regiao/noticia/2020/04/13/mulher-morde-guarda-municipal-ao-ser-detida-por-caminhar-em-praca-de-araraquara.ghtml (accessed 29 April 2020).

Dias, T. (2020). Vigiar e Lucrar. *The Intercept Brasil*. Available at: https://theintercept.com/2020/04/13/vivo-venda-localizacao-anonima/ (accessed 29 April 2020).

Dória, J. (2020). O maior desafio da história de São Paulo. *Folha de São Paulo*. Available at: https://www1.folha.uol.com.br/opiniao/2020/04/o-maior-desafio-da-historia-de-sao-paulo.shtml (accessed 29 April 2020).

Diniz, D., Carino, G. (2020) A necropolítica das pandemias. *El País*. available at: https://brasil.elpais.com/opiniao/2020-03-09/a-necropolitica-das-epidemias.html (accessed 29 April 2020).

Elbe, S. (2011). Pandemics on the Radar Screen: Health Security, Infectious Disease and the Medicalisation of Insecurity. *Political Studies*, 59(4), 848-866. https://doi.org/10.1111/j.1467-9248.2011.00921.x

Espeland, W.N., Stevens, M.L. (1998). Commensuration as a social process. *Annual Review of Sociology, 24,* 313–343. https://doi.org/10.1146/annurev.soc.24.1.313

Foucault, M. (2015). *Ditos e Escritos. Volume IV: Estratégia Poder-Saber*. Rio de Janeiro: Forense Universitária.

Foucault, M. (2007) Security, Territory, Population: Lectures at the Collège de France, 1977-78. Basingstoke, UK: Palgrave Macmillan.

Foucault, M. (1986). *The History of Sexuality: The Care of the Self.* New York: Pantheon Books.

Garvie, C., Bedoya, A,. Frankle, J. (2016). The Perpetual Line-up: Unregulated Police Face Recognition in America. *Center of Privacy & Technology*, Georgetown University.

Gilbert, G.L. (2012). Electronic Surveillance for Communicable Disease Prevention and Control: Health Protection or a Threat to Privacy and Autonomy? In: Selgelid, M.J; Enemark, C. (eds.) *Ethics and*

Security Aspects of Infectious Disease Control: Interdisciplinary Perspectives (127-144). Oxon: Routledge.

Ghirotto, E. (2020). Os bastidores do comitê de emergência montado por SP devido ao coronavírus. *Revista Veja*. https://veja.abril.com.br/brasil/os-bastidores-do-comite-de-emergencia-montado-por-sp-devido-ao-coronavirus/ (accessed 29 April 2020).

Goldenfein, J., Green, B., Viljoen, S. (2020). Privacy Versus Health Is a False Trade-Off. *Jacobin*. https://jacobinmag.com/2020/04/privacy-health-surveillance-coronavirus-pandemic-technology (accessed 29 April 2020).

Gomes, H.S. (2020a). Monitoramento de celular para combate a Covid-19 escorrega feio em 5 pontos. *Tilt Uol*. https://www.uol.com.br/tilt/noticias/redacao/2020/04/17/sem-data-para-acabar-e-mais-monitoramento-no-brasil-escorrega-em-5-pontos.htm (accessed 29 April 2020).

Gomes, H.S. (2020b). 'Invasão de privacidade', diz advogado que barrou monitoramento na Justiça. *Tilt Uol*. https://www.uol.com.br/tilt/noticias/redacao/2020/04/18/invasao-de-privacidade-diz-advogado-que-barrou-monitoramento-na-justica.htm (accessed 29 April 2020).

Governo do Estado de São Paulo. (2020). *Coronavírus: Casos em São Paulo*. https://www.seade.gov.br/coronavirus/ (accessed 29 April 2020).

Han, B.C. (2020). O Coronavírus de hoje e o mundo de amanhã. *El País* [online]. https://brasil.elpais.com/ideas/2020-03-22/o-coronavirus-de-hoje-e-o-mundo-de-amanha-segundo-o-filosofo-byung-chul-han.html (accessed 29 April 2020).

Harvey, D. (2020). Anti-Capitalist Politics in the Time of COVID-19. Jacobin [online]. https://jacobinmag.com/2020/03/david-harvey-coronavirus-political-economy-disruptions? (accessed 29 April 2020).

InLoco (2020). Privacy policy. https://public.inloco.ai/en/privacy-policy#covid (accessed 23 April 2020).

Klauser, F.R. (2017). *Surveillance & Space*. London: Sage.

Klein, N. (2020). Coronavirus Capitalism: Naomi Klein's Case for Transformative Change Amid Coronavirus Pandemic. *Democracy Now*. https://www.democracynow.org/2020/3/19/naomi_klein_coronavirus_capitalism (accessed 29 April 2020).

Latour, B. (2020). La crise sanitaire incite à se préparer à la mutation climatique. *Le Monde*. https://www.lemonde.fr/idees/article/2020/03/25/la-crise-sanitaire-incite-a-se-preparer-a-la-mutation-climatique_6034312_3232.html (accessed 29 April 2020).

Lemke T. (2017). *Foucault, Governmentality, and Critique.* London and New York: Routledge.

Lynch, M. (1985) Discipline and the Material Form of Images: An Analysis of Scientific Visibility. *Social Studies of Science*, 15(1), pp. 37–66. doi: 10.1177/030631285015001002.

Lyon, D. (2007). *Surveillance Studies: An Overview*. Cambridge: Polity Press.

Miller, E. (2020) Liberdades Individuais e direitos Fundamentais em Tempos de Quarentena. *DEFENDA PM*. Available at: https://defendapm.org.br/liberdades-individuais-e-direitos-fundamentais-em-tempos-de-quarentena/ (accessed 29 April 2020).

Moraes, R. F. (2020). Medidas Legais de Incentivo ao Distanciamento Social: Comparação das Políticas de Governos Estaduais e Prefeituras das Capitais no Brasil. *Nota Técnica n. 16 IPEA* . https://www.ipea.gov.br/portal/images/stories/PDFs/nota_tecnica/200415_dinte_n_16.pdf (accessed 28 April 2020).

Moura, R; Ferraz, L. (2020). Meios de Controle à Pandemia da COVID-19 e a Inviolabilidade da Privacidade. InLoco Report. https://bit.ly/2Ybwxca (accessed 29 April 2020).

Mozorov, E. (2020). The tech 'solutions' for coronavirus take the surveillance state to the next level. *The Guardian*. https://www.theguardian.com/commentisfree/2020/apr/15/tech-coronavirus-surveilance-state-digital-disrupt (accessed 29 April 2020).

Mudde, C. (2020). Wartime' coronavirus powers could hurt our democracy – without keeping us safe. *The Guardian*. https://www.theguardian.com/commentisfree/2020/mar/24/wartime-coronavirus-powers-state-of-emergency (accessed 29 April 2020).

Murphy, T., Whitty, N. (2009). Is Human Rights Prepared? Risk, Rights and Public Health Emergencies. *Medical Law Review*, 17, 219-244. https://doi.org/10.1093/medlaw/fwp007

O'Malley, P., Rainford, J., Thompson, A. (2009). Transparency during public health emergencies: from rhetoric to reality. *Bulletin of the World Health Organization*, 87, 614-18.

O'Neil, C. (2016) *Weapons of Math Destruction*. New York: Crown Books.

Pauluze, T., Trindade, L. (2020). João Doria Ameaça Prender quem violar regras de quarentena em São Paulo. *Folha de São Paulo*. https://www1.folha.uol.com.br/cotidiano/2020/04/doria-diz-na-televisao-que-mandara-prender-quem-se-aglomerar-nas-ruas.shtml (accessed 29 April 2020).

Peron, A., Alvarez, M.C. (2019). Governing the City: The Detecta Surveillance System in São Paulo and the Role of Private Vigilantism in the Public Security. *Sciences et actions sociales*, 12, p. 1-36.

Porter, T. M. (1998.) *Trust in numbers: the pursuit of objectivity in science and public life.* Princeton, N.J: Princeton Univ. Press.

Prescott, E.M. (2007). The politics of disease: governance and emerging infections. *Global Health*, 1(1), p. 1-8.

Purnell, K. (2020) The Body Politics of COVID-19. *The Disorder of Things*. Available at: https://thedisorderofthings.com/2020/04/06/the-body-politics-of-covid-19/ (accessed 29 April 2020).

Queiroz, L., Ferraz, A., Melo, J. L., Barboza, G., Urbanski, A., Nicolau, A., Oliva, Sergio, Nakaya, H. (2020, March 26). Large-scale assessment of human mobility during COVID-19 outbreak. https://doi.org/10.31219/osf.io/nqxrd

R7 (2020) Isolamento é mais respeitado na periferia de São Paulo, diz estudo. *R*7, Available at: https://noticias.r7.com/sao-paulo/isolamento-e-mais-respeitado-na-periferia-de-sao-paulo-diz-estudo-03042020?fbclid=IwAR0DRVQ-mXPAOCTbbZMh5PRLPjRD69oPUsaaTUyeVVG9uJInhoLJKGxEdRM (accessed 29 April 2020).

Sanford, S., Polzer, J., McDonough, P. (2016). Preparedness as a technology of (in)security: Pandemic influenza planning and the global biopolitics of emerging infectious disease. *Social Theory Health*, 14, p. 18–43. https://doi.org/10.1057/sth.2015.8.

Sarasin, P. (2020). Understanding the Coronavirus Pandemic with Foucault? Foucaultblog. DOI: 10.13095/uzh.fsw.fb.254

Sotiris, P. (2020) Against Agamben: Is a Democratic Biopolitics Possible? *Critical Legal Thinking*. Available at: https://criticallegalthinking.com/2020/03/14/against-agamben-is-a-democratic-biopolitics-possible/(accessed 29 April 2020).

Tunes, S. (2020) Inteligência artificial contra a Covid-19. *FAPESP*, Available at: https://revistapesquisa.fapesp.br/2020/04/14/inteligencia-artificial-contra-a-covid-19/ (accessed 29 April 2020).

UNHR. (2020). COVID-19: Governments must promote and protect access to and free flow of information during pandemic – International experts. https://www.ohchr.org/EN/NewsEvents/Pages/DisplayNews.aspx?NewsID=25729&LangID=Eccess (accessed 29 April 2020).

Ventura, D (2016). From Ebola to Zika: international emergencies and the securitization of global health. *Cad. Saúde Pública,* 32(4), p. 1-32. https://doi.org/10.1590/0102-311X00033316

World Health Organization. (2020a). *Report of the WHO-China Joint Mission on Coronavirus Disease 2019 (COVID-19)*. https://www.who.int/docs/default-source/coronaviruse/who-china-joint-mission-on-covid-19-final-report.pdf (accessed 29 April 2020).

World Health Organization. (2020b). *WHO Emergencies Press Conference on Coronavirus Disease outbreak – 20 March*. https://www.who.int/emergencies/diseases/novel-coronavirus-2019/media-resources/press-briefings (accessed 29 April 2020).

World Health Organization. (2005 [2016]). International Health Regulations. 3rd ed. https://www.who.int/ihr/publications/9789241580496/en/ (accessed 28 April 2020).

Wright, R. (2020). Coronavirus and the Future of Surveillance: Democracies Must Offer an Alternative to Authoritarian Solutions. *Foreign Affairs* [online]. https://www.foreignaffairs.com/articles/2020-04-06/coronavirus-and-future-surveillance (accessed 29 April 2020).

Zizek, S. (2020). Zizek vê o poder subversivo do Coronavírus. *Outras Palavras*. https://outraspalavras.net/crise-civilizatoria/zizek-ve-o-poder-subversivo-do-coronavirus/ (accessed 29 April 2020).

Zuboff, S. (2019). *The Age of Surveillance Capitalism: The fight for a Human Future at the New Frontier of Power*. London: Profile Books.