TROPICALIZING SURVEILLANCE: HOW BIG DATA POLICING “MIGRATED” FROM NEW YORK TO SÃO PAULO

Abstract: The present article is about a new “intelligent” policing scheme which was developed in New York and is now being implemented in São Paulo. Originally designed to prevent terrorist attacks, the system will predominantly be used to combat theft and violent street crime in São Paulo. Based upon extensive databanks and specialized algorithms, the program promises a more effective, more efficient, and potentially predictive form of policing. The present piece of work analyzes first how the system emerged in New York, as the result of an “anti-terrorist” public-private partnership. In a second step, the aim is to come up with a critical evaluation of the algorithmic mode of governmentality which is at the core of such programs, and which defines new, preemptive approaches to public security. Finally, the article will develop some preliminary ideas concerning the system’s “tropicalization”, that is: its socio-technical adaptation to the Brazilian context – with a particular emphasis upon the emergent and non-linear dynamics which unfold in such kinds of “translations”.

Key words: big data policing, algorithmic governmentality, postcolonial science, technology studies

Tropicalizando a vigilância: Como o policiamento big data “migrou” de Nova York para São Paulo

Resumo: O presente artigo trata dum novo sistema de policiamento “inteligente” que foi desenvolvido em Nova York e que agora está sendo implementado em São Paulo. Originalmente um programa para previr ataques terroristas, em São Paulo o sistema será utilizado para combater roubos e crime violento no espaço público. Baseando-se em bancos de dados abrangentes e algoritmos especializados, o programa promete um policiamento mais efetivo, mais eficiente, e potencialmente preditivo. O presente trabalho analisa primeiro como o sistema surgiu em Nova York, como resultado dum parceiro público-privado “antiterrorista”. Num segundo passo, se propõe uma avaliação crítica da governamentalidade algorítmica que age detrás esse tipo de programas, e que vem a definir novas abordagens preemptivas à segurança pública. Finalmente, desenvolve-se algumas ideias preliminares respeito à “tropicalização” do programa, ou seja: à adequação sócio-técnica ao contexto brasileiro. Nesse sentido, coloca-se uma ênfase particular nas dinâmicas emergentes e não lineares que se manifestam nessas “traduções”.

Palavras chave: policiamento big data, governamentalidade algorítmica, estudos de ciência e tecnologia pos-coloniais

Tropicalizando la vigilancia: Como el policiamiento big data “migró” de Nueva York a San Pablo

Resumen: El presente artículo trata de un nuevo sistema de policiamiento “inteligente” que fue desarrollado en Nueva York y que ahora está siendo implementado en San Pablo. Originalmente un programa para prevenir ataques terroristas, en San Pablo el sistema será utilizado para combatir robos y delincuencia violenta en el espacio público. Basándose en bancos de dados extensos y algoritmos especializados, el programa promete un policiamiento más efectivo, más eficiente y potencialmente predictivo. El presente trabajo analiza primero como el sistema surgió en Nueva York, como resultado de una alianza público privada “antiterrorista”. En un segundo paso, se propone una evaluación crítica de la gubernamentalidad algorítmica detrás de tal sistema, y que viene a definir nuevos abordajes preemptivos hacia la seguridad pública. Finalmente, se desenvuelve algunas ideas preliminares acerca de la “tropicalización” del programa, o sea: de la adaptación socio-técnica al contexto brasileño. En ese sentido, se mira particularmente por las dinámicas emergentes y non-lineares que se desdoblan en tal “traducciones”.

Palabras Clave: policiamento big data, gubernamentalidad algorítmica, estudios de ciencia y tecnología pos-coloniales

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TOTAL DOMAIN AWARENESS: NEW YORK CITY "LEADS THE PACK"

Two years ago Geraldo Alckmin, governor of São Paulo, announced a bold anti-crime measure: his administration had acquired the license of the*Domain Awareness System* (DAS), the state-of-the-art big data policing scheme operated by the New York Police Department. Amongst the features highlighted in the advertisements – the acquisition formed an integral part of Alckmin's re-election campaign – was an automatized recognition of "suspicious" situations, such as people walking between cars in a traffic jam or somebody trying to enter private property while wearing a motorcycle helmet. The tool was thus introduced as a revamped, automatized embodiment of actuarial justice and preemptive efficiency (Harcourt, 2007). Ironically enough, in São Paulo the DAS goes by the name of *Detecta,* even though the promises it was sold with have very little in common with the clue-based, reconstructive style of investigation which is at the core of a detective's work (Boltanski, 2014; Ginzburg & Davin, 1980): given its future-oriented as well as risk-based approach to crime, *Preventa* or *Predicta* would most certainly have been more adequate monikers for the "smart" policing scheme which is currently being implemented in Brazil's major city.

For a globally oriented criminological research agenda, DAS/*Detecta* is a stimulating case – crucially so because, as mentioned above, the system "migrated" from one policing context into another. Inaugurated in 2012 by Michael Bloomberg, then Mayor of New York City, the scheme was announced as "the most sophisticated camera system that you will see around the world".[1] Its promises were compelling – or, as others would sustain, disturbing: a tightly knit network of digital CCTV and radiation scanners would cover the better part of Lower and Midtown Manhattan and keep it under permanent surveillance; geospatial, criminal justice, and emergency services' data banks would be merged and analyzed by means of customized algorithms; and the information would appear in real time on an intuitive user's interface which could be accessed in the command center as well as by police officers on the beat (New York City, 2012).

The DAS emerged out of a public-private partnership between the New York Police Department and Microsoft in which the latter "handled the coding and system architecture, and the NYPD set out the system requirements" (ibid.): software developers would gather with police officers in order to find out how best to "translate" their everyday working routines into a tailor-made ICT application. In fact, this approach dovetails with the company's rhetoric of "empowering" governmental agencies to better address their respective "challenges" and to "achieve more"[2] – without specifying, nota bene, what this "more" might actually consist in. From such a perspective, it is the client who defines the respective institutional objectives, and Microsoft who provides the algorithmic infrastructure necessary to attain them more efficiently. Code is presented as neutral: aggregate institutional knowledge, "smart" insofar as it facilitates the correlation of data and enables accelerated modes of access, but not endowed with any kind of agency of its own. Consequently, the company abstains from sensationalist rhetoric and leaves

the bragging to governmental agencies: Bloomberg, standing in for the whole NYPD, boasted that "we're not your mom and pop's police department any more. We are in the next century; we are leading the pack."[3]

Significantly, the city government left little doubt concerning the DAS's raison d'être: Even though it was introduced as a tool which would support the NYPD in fighting crime, the risk of further terrorist attacks (and the system's capacity to prevent them) was perpetually evoked. Consequently, the program was first presented to a larger audience in the public-private Lower Manhattan Security Command Center, "our city's state-of-the-art anti-terrorism, counter-terrorism coordination center", as Bloomberg did not fail to point out on the very same occasion.[4] Likewise, the DAS's "Public Security Privacy Guidelines" state that "[g]iven the ongoing threat of terrorist attack, the Domain Awareness System is an important part of the NYPD's integrated approach to providing protection for those who work in, live in, and visit New York City" (New York Police Department, n.d.).

Semantically and functionally resembling the controversial (and now officially defunct) "Total Information Awareness" doctrine adopted by the US government in 2003, the DAS provides a viable example of David Lyon's (2004: 307) affirmation concerning post-9/11 surveillance measures – namely that "they extend, enhance, or place in an unfamiliar context technologies whose promise has been advertised for some time or whose use has been proven in some other context": databases, surveillance cameras, and algorithms were around long before the terrorist attacks; however, the unique assemblage they formed in New York City was enabled by a particular event and the specific governmental rationalities it was met with. In addition to this, the DAS might also be described as a spin-off emerging from the US Armed Forces' "Revolution in Military Affairs" (RMA) including its pivot to urban warfare and the concomitant prominence of "real-time situational awareness" (Graham, 2006: 253) – a strategic readjustment which, while chronologically preceding the United States' "War on Terror", gained a lot of momentum during the military interventions in Afghanistan and, especially, Iraq (ibid.: 251; Graham, 2011).

While efficacy concerning their stated aim is hard to determine – mostly due to the scarce occurrence of terrorist attacks in Western metropoles –, it is amply known that the consequences of urban "counter-terrorism" measures typically affect those groups and individuals unwilling or unable to fit within the increasingly streamlined, cleaned-up, and depoliticized version of public space which has become characteristic of contemporary "global cities" as well as of those municipalities aspiring a similar status. Again, while these developments are certainly not new – consider Davis' (1990) polemic treatise on "Fortress LA" –, there is clear evidence that the accelerated securitization[5] of major urban centers since 9/11 coincides with the corporate interest of the financial as well as the real estate industry and, consequently, has further reinforced processes of socio-economic segregation and the "citadelization" of urban space (Marcuse, 2004: 264). In New York City, this configuration became notorious when FBI documents revealed a veritable "joint venture" between public law enforcement and intelligence agencies,

private security forces, and even various investment banks when it came to violently cracking down upon Occupy Wall Street – all under the banner of preventing potential terrorist activities (Wolf, 2012). Significantly, there were even reports according to which the abovementioned Lower Manhattan Security Command Center – originally established with a $ 10 million grant from the Department of Homeland Security (New York City, 2007) – was permanently staffed with employees of Goldman Sachs, JP Morgan, and other private banks (Martens, 2012). This dubious heritage of public-private "security partnerships" in New York City must not be ignored when further analyzing the DAS and, subsequently, the implementation of *Detecta*.

BIG DATA AND PUBLIC ORDER: SOME REMARKS ON ALGORITHMIC GOVERNMENTALITY

If we are to believe its advocates, the DAS's main novelty consists in the fact that it is a "smart" solution promising, most crucially,*integration* (of a broad range of different databases, cameras, and electronic sensors) as well as *automation* (of certain routines which, hitherto, had to be performed manually) and, therefore, to turn policing into a much more efficient endeavor. There is, however, a tendency to underplay that the kind of "intelligence" which is at stake here differs substantially from the retrospective mode of reasoning which is commonly associated with police investigations – although, to be fair, this (mis)representation of contemporary policing has been debunked way before the advent of sophisticated predictive software tools (Ericson & Haggerty, 1997). Nonetheless, big data policing is novel insofar as it is based upon the algorithmic parsing of vast amounts of data which could impossibly be sifted through by officers made of flesh and blood; the software is therefore able to establish "non-obvious relationship[s]" (Perry et al. 2013: 2) among the information it deals with and, beyond that, to extrapolate likely futures to act upon. Big data policing thus shares in the performative logic of pre-emption; its "algorithmic architectures" entail "not only epistemological resources but also ontological sources" (Clough and others, 2015: 146).

Far from being a mere representational tool enabling law enforcement agencies to fulfil their tasks in a more efficient and, therefore, "smarter" way, DAS/*Detecta* might thus be described in terms of the famous analysis provided by Scott (2008): making reality legible for governmental reasons is not necessarily limited to streamlining the categories by and along which it is conceived; more often than not, it actually entails a "normalizing" intervention upon the object of government itself. Meanwhile, the main difference between the disciplinal logic of Scott's "authoritarian high modernism" (Scott, 2008: 87) and contemporary "advanced liberal" governmentality (Rose, 1999), especially after its "datalogical turn" (Clough and others, 2015), is that the latter abstains from making its substrate "fit into" a set of idealized, often binary categories; instead, its yardstick emerges as "an interplay of differential normalities" (Foucault, 2009: 91) from the factual knowledge it holds about its subjects. And while Foucault's concept of a liberal biopolitics was, not least, inspired by the early-modern proliferation of scientific knowledge and its impact upon the art of government, it may be stated that the automated,

permanent, and "distributed" (Bruno, 2013: 17) production of data to be witnessed since the past decade represents nothing less than a quantum leap towards an even more thoroughly "empirical" – and, therefore, startlingly post-ideological – kind of governmentality.

Government would, in this sense, have lost its interest in simplification; meanwhile, the kind of information which used to be discarded as "noise" would have gained center stage as the locus of reality-in-becoming (Clough and others, 2015: 153), corresponding to a shift of governmental focus from the actual towards the potential and towards the pre-emptive temporality of the future perfect: "it will (not) have been". It is not least for this reason that algorithmic governmentality can afford to be lenient with "the irregularities, contradictions, and incoherences" of its subjects (Rouvroy & Berns, 2010: 94); strictly speaking, it does not even care about them as it "prehends" (Clough and others, 2015: 153) social reality on a level which is simultaneously supra- and infra-individual. What this kind of governmentality enacts or performs is, then, a pre-emptive domestication of potential actualities in all domains where it is deployed – a mechanism which can be theorized, but not apprehended insofar as it literally attempts to govern the present from the future. It is in this sense that Microsoft's rhetoric is misleading: far from being a simple means to achieve an end more efficiently, big data does have an eminent – and that is: qualitative – impact upon the way power is exercised in contemporary societies.

However, it has to be conceded that, in practice, the algorithmic governmentality outlined above always overlaps and interferes with other forms of exercising power – especially so when the phenomenon at stake is policing. While, as a contemporary "imperial project" (Graham, 2006: 263), algorithmic governmentality deserves all our critical attention, it is thus indispensable to analyze how and where it relates to sovereign and/or disciplinary forms of government, especially considering the increasing indistinguishability of (il)liberal governmental practices in*dispositifs* of securitization (Opitz, 2011). This is all the more valid in postcolonial contexts where (il)liberal modes of "private indirect government" (Mbembe, 2001) have been a salient feature since their conquest by the European empires (Hansen & Stepputat, 2006; Hönke & Müller, 2012). From such a vantage point, the technocratic narrative of the system's straightforward "adaptation" to the Brazilian context, sustained by both Microsoft and the government of São Paulo, is incomplete insofar as it omits how it materializes differently in different diagrams of power (Deleuze, 2006: 23-44) – subject to dynamics or, rather, "translations" which cannot be grasped if one conceives of the "technical" and the "social" as two spheres which are neatly separated from each other: "machines are social before being technical" (Deleuze, 2006: 39).

Meanwhile, a critical evaluation must neither limit itself to opposing an ideal type of big data policing to the "messy reality" which would constantly belie those pipe dreams of an algorithmically enacted, clinical social order – as pointed out succinctly by Foucault (1991: 81), such an approach would entail "a very impoverished notion of the real". In other words, the challenge will consist in conceiving of DAS/*Detecta* and its implementation in São Paulo in terms which do not measure

its degree of reality – or, in another register, its potential – according to rigid criteria of failure and success. It thus entails cracking open the scheme's glossy surface and depicting its malfunctions and incoherences, but also analyzing the work it performs "on the ground" and the knowledges, practices, and controversies it engenders along the way – that is, to trace its productivity even where it might not be immediately apparent.

TROPICALIZING SURVEILLANCE: DETOURS AND DEVIATIONS OF BIG DATA POLICING

Heuristically, I would like to address these dynamics as the system's "tropicalization", a term I was first confronted with while interviewing a member of the São Paulo police forces working on*Detecta's* implementation. The dictionary definition holds that "to tropicalize" designates the adaptation of electronic devices so as to make them fit for hot and damp climate, mostly by means of minor technical modifications (Oxford English Dictionary 2014); in Brazil, I found that the term also may denote an adaptation to national industry standards, road conditions, business practices and -laws, aesthetic preferences, or safety requirements. In and by itself, the notion thus encompasses a broad – and, consequently, rather generic – range of adjustments necessitated by the specificity of national or regional sales markets; notably, it does *not* categorically discriminate between "technical" factors on the one hand and "cultural" or "social" aspects on the other, an indeterminacy which might actually turn out helpful for describing the phenomenon at stake.

Besides, it is noteworthy that the term is opposed to the literally u-topian notion of "globalization" insofar as it indicates a phenomenon which is explicitly located (albeit not necessarily localized) within the circuits of the (post)colonial international order and its enduring juxtaposition of "central" and "peripheral" settings: akin to the prominent case of the Orient (Said 1978), the tropes turned into an echo chamber for Western fears and desires soon after their "discovery" by tradesmen and scientists – an imaginary space within and against which Europe could articulate its own fragile modernity (Arnold, 2000). Hence, the term "tropicalization" inevitably relegates to politically fraught conceptual pairs such as original/derivative, civilized/savage or modern/archaic and reverberates with some of the major faultlines of Brazilian national identity up until the present day (Nava & Lauerhass, Jr., 2006).

Against this backdrop, the concept shall serve as a critique of orthodox, "diffusionist" models of innovation which tend to presuppose a smooth, orderly, and one-directional "transfer" of new technologies from one setting into another – frequently couched in terms of enabling an economic "catch up" in "developing countries" (Radosevic, 1999; Saggi, 2004). Against these teleological narratives of technologically induced modernization, "tropicalization" might be likened to the concept of "translation" as derived from actor-network theory and certain strands of science and technology studies. From such a perspective, "there is no such thing as technology transfer" insofar as "*traduction* is also *trahison* " (Law, 1999: n.p.): even the most faithful

translation is a form of betrayal, in semiotics as well as in the realm of science and technology. Therefore, what can be observed resembles much more a series of negotiations among a multiplicity of actors, human as well as non-human, who have to agree upon a common denominator – an "obligatory passage point" (Callon, 1986) – before their respective trajectories become commensurable. Technology, then, never migrates *en bloc* but is "de-scripted" (Akrich, 1992) as it travels: the gap "between the designer's projected user and the real user, between *the world inscribed in the object* and *the world described by its displacement"* (Akrich, 1992: 209) stirs controversies and thus impedes or, at least, delays its effective "blackboxing".[6] This occurs most prominently – albeit certainly not exclusively – as technologies are "translated" from the former imperial center to its peripheries, a fact which has triggered the timely appeal to go "beyond imported magic" (Medina and others, 2014) when studying science and technology in the "Global South" – namely, by re-focusing attention upon "processes of reinvention, adaptation, and use" (Medina and others, 2014: 2), not least in the realm of ICT (Ames, 2014; Marques, 2005; Nhampossa, 2005).

In a similar vein, a final remark might be made concerning the global meanders of policing, understood as a technology of government:[7] as famously pointed out by Foucault (2003: 103) when talking about the "boomerang effect" of colonial rule, namely that "[a] whole series of colonial models was brought back to the West, and the result was that the West could practice something resembling colonization, or an internal colonialism, on itself". A vivid example for such a (post)colonial entanglement can be found in McCoy (2009; 2016) who shows how the inventions behind "America's first information revolution" of the 1870s (the telegraph and the telephone on the one hand; the typewriter and new large-scale data storage schemes on the other) were crucial for the "capillary" policing of the Philippines after their colonization in 1898 – so much so that the author draws a historical parallel to the NSA's global cyber-espionage activities of the present (McCoy, 2016: 25ff.). Importantly, McCoy highlights how those novel intelligence devices and technologies "travelled" from the Philippines to Europe, where they would be deployed on the battlegrounds of World War I, and then "back home" to the US, where they were put to use to suppress the socialist workers' movement (McCoy, 2016: 24).

In the given context, what is insightful about the example – apart from the fact that it underlines the importance of non-human agency for colonial rule[8] – is that it shows how technologies of government "migrate" bi- or even polydirectionally across national borders, along as well as against the supposed main vectors of the imperial age: Foucault's boomerang keeps hovering, even in a world order seemingly out of joint with several major categories of 20th century IR scholarship. In accordance with the increasing fragmentation, multiplication, and overlapping of sovereignties which could be witnessed in the past few decades, it might have become difficult to spot the kind of quasi-symmetrical backlash described by McCoy; however, directing attention towards the "global making of policing" (Hönke & Müller, 2016) will most likely unearth far-reaching circuits and ramifications which refute orthodox accounts of policing as a predominantly national endeavor when, in fact, it has turned into "an essentially transnational and transcultural

process" (Hönke & Müller, 2016: 6).

It is with these considerations in mind that one might start to think about the "tropicalization" of DAS/*Detecta* – especially in terms of the techno-social translations to which it is subject and which it brings about in turn. A possible starting point for such an endeavor might consist in the kind of threat the system is supposed to fend off and the fears it plugs into: in New York, the DAS was presented and legitimized as a measure of counter-terrorism, designed to catch the "lone wolf" or to identify the "suspicious bag" before the situation gets out of control (New York Police Department, n.d.) whereas, in São Paulo, *Detecta* was introduced as a silver bullet against street crime such as robberies and car theft. Importantly, these different threat scenarios mobilize quite distinct typologies of suspicion and the corresponding epistemological promises: terrorists, for one, are threatening because there are hardly any "markers" by which they can be recognized beforehand – as in the case of Dzhokhar Tsarnaev, one of the "Boston bombers", who was described as "one of us" by his fellow students (Williams & Elder, 2013). In this sense, the promise of big data policing is to apprehend those crucial, yet minuscule clues which would otherwise escape the investigators – counter-terrorism's "unknown unknowns", as Donald Rumsfeld once put it (in)famously.

Something quite different applies in São Paulo, where the perceived threat is anything but anonymous and, instead, carries the face of the*marginal,* the young, poor, and mostly dark-skinned "other" of the *pessoa do bem,* the hard-working and law-abiding citizen (Caldeira, 2001). A substantial part of the city's inhabitants is thus earmarked as potentially dangerous – and as can be witnessed by its staggering death toll among the very same group (Caldeira, 2002), in Brazil "the enforcement of the class order and the enforcement of public order are merged" (Wacquant, 2003: 199). Under such circumstances, *Detecta's* utilization as a tool for the control and containment of undesirable populations seems an educated guess – however, just like the streamlined governmental discourse ought to be distrusted, it is advisable not to rush into a hermetic counter-narrative leaving little space for variations and contingencies. As pointed out by Barry (2006: 241), the "construction of technological zones generates active and passive forms of resistance" which, in the given context, could be confirmed by São Paulo's board of audit: in a recently published report on *Detecta's* implementation, it listed a whole catalogue of shortcomings running the gamut from incompatible operating systems and a deficient infrastructure to an insufficiently trained police staff unwilling to adapt its working routines to the new program. The auditors conclude that, as yet, *Detecta* "does not present effective results for public security" (Tribunal de Contas do Estado, 2016: 75).

Acknowledging the system's many imperfections thus helps to stay clear of overly teleological depictions; meanwhile, it should neither encourage a "technoskeptic" account which fundamentally disputes the governmental significance and/or novelty of algorithmic policing. The (otherwise perfectly legitimate) question to which extent it actually "works" does not quite grasp what is at stake insofar as it already buys into a certain economy of means and purposes which might obscure more than it reveals. Put more polemically, maybe "predictive crime

software has nothing to do with preventing crime" (Scannell, n.d.) – and it might have nothing to do with any straightforward notion of class oppression either, one could add. Instead,*Detecta* might function already even where, measured by the promises it was sold with publicly, it does not actually "work" – for instance, as a huge data mining *dispositif* feeding back into the perfection of Microsoft's algorithms. In fact, as I was told by an insider, various IT routines and protocols which were developed in São Paulo did already "travel back" to New York. In this sense, any kind of "local" difference (which, at the outset, may well manifest itself as a fault, a bug, a maladjustment) would make the system more versatile and, therefore, more desirable on the booming market for predictive policing "solutions". The question who is served by whom (and with what) thus attains a whole new dimension, the implications and consequences of which are yet to be fathomed by scholars and activists alike.

NOTES

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1. This affirmation was made by Jessica Tisch, the NYPD's Deputy Commissioner for Information Technology. Cf. "New York City - Domain Awareness", https://www.youtube.com/watch?v=ozUHOHAAhzg. Last access on 05/18/2016.

2. Cf. https://www.microsoft.com/en-us/government/EmpoweringUS/default.aspx. Last access on 05/18/2016.

3. Cf. "Total Surveillance: NYPD launches new 'all-seeing' Domain Awareness System (Aug 12, 2012)", https://www.youtube.com/watch?v=GcGpgvTh2W4. Last access on 05/21/2016.

4. Cf. „Mayor Bloomberg Unveils New State-of-the-Art Law Enforcement Technology", https://www.youtube.com/watch?v=TxMz0Yoa2-Y. Last access on 06/08/2016.

5. In accordance with the "Copenhagen School" of international relations, I would like to apply the concept to those performative speech acts which effectively "securitize" particular policy fields and, thereby, partly or wholly withdraw them from processes of public deliberation (Buzan et al. 1998); meanwhile, I would also like to extend the notion so that it can effectively be applied to non-discursive phenomena as well (Schuilenburg 2015). The act of successfully defining a public park as a "security-sensitive" area, the institutional decision to police it more thoroughly, and the street lights set up along its paths so as to dissuade criminals would, then, all qualify as events, processes and/or materializations of securitization.

6. Following Latour (1999: 304), blackboxing "refers to the way scientific and technical work is made invisible by its own success. When a machine runs efficiently, when a matter of fact is settled, one need focus only on its inputs and outputs and not on its internal complexity. Thus, paradoxically, the more science and technology succeed, the more opaque and obscure they become."

7. When talking about technologies of government, the present paper adheres to the definition brought up by Rose (1999: 52), namely that they have to be understood as "an assemblage of forms of practical knowledge, with modes of perception, practices of calculation, vocabularies, types of authority, forms

of judgement, architectural forms, human capacities, non-human objects and devices, inscription techniques and so forth, traversed and transected by aspirations to achieve certain outcomes in terms of the conduct of the governed […].” While thus sharing the decentering as well as destabilizing gesture of actor-network-theoretical approaches, Rose’s definition explicitly makes reference to “the shaping of [human] conduct” insofar as “within these assemblages, it is human capacities that are to be understood and acted upon by technical means” (ibid.).

8. For a seminal account of this topic, cf. Law (1986).

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