

SOCIOTECHNICAL INFRASTRUCTURES OF DOMINION IN SORGNER'S *WE HAVE ALWAYS BEEN CYBORGS*

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ABSTRACT

In *We Have Always Been Cyborgs* (2021), Stefan L. Sorgner argues that, given the growing economic burden of desirable welfare programs, in order for Western democratic societies to continue to flourish it will be necessary that they establish some form of algocracy (i.e., governance by algorithm). This is argued to be necessary both in order to maintain the sustainability and efficiency of these programs, but also due to the fact that further integration of humans into technical systems provides the only effective means to bridge gaps in functionality and governance. However, Sorgner's position is entirely insensitive to the *design turn in applied ethics*, which argues against the neutrality of technology, instead maintaining that technology and society co-construct each other with persistent feedback loops. This, I argue, is a problem for his account inasmuch as technologies, as they become more ubiquitous, likewise become pervasive and inextricable from our sociotechnical infrastructures. As such, less-than-beneficent forces, as current trends illustrate, can appropriate these seemingly banal infrastructures to gear them towards oppressive ends, thereby ultimately threatening the social democracies that Sorgner's position aims to buttress.

KEYWORDS

Algocracy, authoritarianism, technocracy, applied ethics, design

1. INTRODUCTION

During the summer of 2022, Colorado, like many other parts of the world, found itself suffering from a serious heatwave (Altieri, 2022). Strangely enough, however, many residents of Colorado found themselves unable to control the temperature of their homes and were left to suffer in the heat. Why? Owners of the Nest smart home thermostats, a digital thermostat made by Xcel Energy Inc. – which touts remote and

voice-controlled features, the ability to help save on average of 10-12% on energy bills, and the ability to monitor HVAC consumption – found themselves locked out of their devices. In particular, customers who had opted into the AC Rewards program found themselves unable to adjust the temperature of their homes given the energy emergency, which Xcel used to justify suspending the customers' ability to control their own products, something they could not have done to those with “dumb” analog thermostats (Nicholson, 2022; Cheong, 2022). What is the moral of this story?

The actions of Xcel demonstrate just how easily seemingly banal technological systems can be co-opted in order to control (or gain control over) some other end(s). In the case at hand, Xcel unilaterally decided to do its part to help mitigate the energy emergency, but did so by stripping its users of the ability to control their own devices. This points to a potential problem, namely that as technologies become more ubiquitous, they likewise become more pervasive and inextricable from the sociotechnical infrastructure(s) in which they emerge and evolve, and any possibility for abuse is then hard-built into society, as it were. It is also important that we bear in mind that technologies are sociotechnical, meaning they and society both co-construct and co-vary with one another; what happens to one will necessarily impact on the other, and vice versa. On the face of it, this is neither good nor bad, but it is a fact about all technologies, and as such any analysis which extricates technology from its social context would therefore be incomplete. The sociotechnicity of technologies also means that how we design them is of utmost importance given that they impact both on society and on how future technologies will build off of current ones. One significant characteristic of technologies like artificial intelligence (AI), Big Data, and information and communication technologies (ICTs), including social media platforms, is their ability to be co-opted not only by nefarious individuals but also state actors who may aim to centralize and consolidate control over their citizenry (Veliz, 2020; Greenwald, 2014; Mistry and Gurman, 2020; Gellman, 2020).

In his recent monograph, *We Have Always Been Cyborgs* (2021), Stefan Sorgner presents an argument for what he calls a “fictive ethical stance” built on his understanding of an enlightened transhumanism, arguing that “we have always been cyborgs” in the continual process of overcoming (in the Nietzschean sense). In this work, Sorgner presents what is unquestionably the most comprehensive and comprehensible account of transhumanism to date. However, Sorgner's view explicitly characterizes technologies as discrete artefacts and neutral instruments that can be used either beneficially or maliciously. This instrumentalist account of technology is, I argue, archaic, and leaves open possibilities for such systems to be appropriated by bad actors, undermining and potentially actively harming Sorgner's own goal of increasing negative freedom.

2. WE HAVE ALWAYS BEEN CYBORGS

To his credit, Sorgner develops his positions with an incredibly clear and explicit style that leaves little room for misinterpretation of his views. *We Have Always Been Cyborgs* (2021) is parsed into five chapters, beginning with a comprehensive definition of transhumanism which Sorgner argues is best understood as a nihilistic, positive pessimism (Sorgner, 2021, p. 11). Following this, he explores various instantiations of transhumanism, most notably ‘silicon-based’ transhumanism in Chapter 2 and ‘carbon-based’ transhumanism in Chapter 3. Chapter 4 is where Sorgner does most of his philosophical heavy lifting, so to speak, developing a framework of a liberal ethics of fictive autonomy which is well-butressed philosophically and thereby challenging to assail. However, for all of his accomplishments and nuance in discussion, Sorgner takes a number of sweeping things for granted, undermining his analysis of the role of technologies and casting doubt on his characterization of technologies as tools.

Much of Sorgner’s work is predicated on the ways technologies have improved human well-being over the course of the last two centuries, in particular the role technologies have had in greatly increasing the human lifespan. As Sorgner rightly points out, the significant increase in human lifespans, attendant rise in quality of life, and the dramatic decrease in absolute (but not relative) poverty across the globe are no small feats. Given that the needs of humans have remained relatively equivalent across our evolutionary history, it is moreover almost solely the benefits of technology and development which have allowed us to so meet and exceed our requirements, especially in the last two centuries (Lomborg, 2003; Pinker, 2011). Sorgner goes on to highlight that “most human beings indeed identify an increase of the health span with a higher likelihood of living a good life” (Sorgner, 2021, p. 6), and he rightly points to rapid technological development as the cause of many of these possibilities. His framing of transhumanism and technology’s potential to improve human lives also stands on firmer ontological grounds than the more Malthusian interpretation pushed by biologists like Paul R. Ehrlich (Ehrlich, 1996; Ehrlich and Ehrlich, 2009)¹, whose utopian interpretation of the state of the world is rightly rejected as “extremely dangerous” (Sorgner, 2021, p. 7). Sorgner makes clear that this is particularly evident given the terrifying consequences of the utopian-driven ideologies of the twentieth century which left millions dead, leading him to instead aim for an ‘as-good-as-it-gets’ path rather than an all-or-nothing approach, a position which is certainly better, given the alternatives. Yet unfortunately, Sorgner’s characterization of technologies leaves open the potential for them to be

¹ The works of Bjorn Lomborg (Lomborg, 2003; 2004; 2010) and Marian Tupy and Gale Pooley (Pooley and Tupy, 2018; Tupy and Pooley, 2022) show a more nuanced view of things in line with Sorgner’s overall claims on these points.

appropriated by malevolent actors, allowing his solutions to lead to the precise things he wishes to argue against.

Admittedly, Sorgner's focus is primarily biomedical technologies, with lengthy discussions of in vitro fertilization, preimplantation genetic diagnosis, and other more speculative bioenhancement possibilities. However, it is not the particular technologies that Sorgner discusses which this paper aims to take stock of, but rather how technology is broadly understood in his work. As an example, Sorgner says that it is technologies like "predictive maintenance which can enable us to radically increase the likelihood of an increased health span" (Sorgner, 2021, p. 9). Predictive maintenance is something most often associated with the realm of machines, notably in the manufacturing domain, and is concerned with determining when components will reach their tolerance points or require substitution (Zonta et al., 2020; Longo et al., 2019). However, technology of one domain can often be applied to another, and even done so at odds with the intent of those who designed it for its initial purpose (Pustovit and Williams, 2010). As such, even though something like predictive maintenance may come with boons, as Sorgner suggests, it can just as easily be used as a condition for invading privacy or gaining control over health care. This has in fact already seen precedents in numerous examples globally where individuals who chose not be vaccinated against SARS-CoV-2 were refused medical treatment or other bioenhancement therapies (Wakefield, 2022; Stamouli, 2022). More generally, not only can technologies intended for one purpose be appropriated and used for others, but, as we shall see later, how they are designed may support and/or constrain how technologies can be used in a given domain in the first place.

What Sorgner's arguments and positions betray is that he is using an *instrumentalist* understanding of technology where, as the term suggests, technologies are understood as instruments or tools. With this understanding, technologies can be *used* for good or ill, but there is nothing intrinsic to the technology itself which directs it or gives it any propensity to one or the other. In Sorgner's defense, it is true that technologies have an instrumentalist character, and that what they do constitutes a core portion of our understanding of them. However, one cannot arrive at an exhaustive understanding of any technology exclusively via the instrumentalist route. As an example, let us examine Sorgner's discussion of 'reason'. He states that "reason is a technology" (Sorgner, 2021, p. 14) because it 'upgrades us' to some state which we did not previously attain; "it is a tool" (Sorgner, 2021, p. 13). Reason, embodied and incarnate, is therefore instrumental for Sorgner, given his tool-understanding of technology. This upgrading nature of technology, he argues, is what makes our lives better, and as our lives become better as

a result of the use of technologies, we become more positively disposed towards those technologies.²

It is this instrumental understanding of technology, and its multi-use nature, that led Sorgner to encourage the ‘techno-fix’ approach to problem-solving. More specifically, he argues that many of the global challenges that we face, like climate change, can be addressed with other high technologies like in vitro meat, solar panels, novel architectures, and novel modes of transportation (Sorgner, 2021, p. 15). Instrumentalism often leads to a unidimensional understanding of problems by providing low-resolution answers. Many of the causes of increasing global temperatures, at least from the anthropic side, are the direct, and mostly unintended result of high technologies.³ There are also often hidden costs when using techno-fix solutions, and these costs require their own solutions in turn.⁴ Thus, the proposed solution can lead to more problems of the exact kind meant to be addressed.

3. THE DESIGN TURN

The *design turn in applied ethics* is a concept coined by Jeroen van den Hoven (2017), and meant to describe a more recent focus within the domain of applied ethics on the importance of ethics *by design*. Following the empirical turn in applied ethics, the design turn can more rightly be credited to the works of Langdon Winner (1980), who showed how technologies are not purely instrumental but in fact embody the values (in his words, ‘politics’) of their creators. Winner described how the parkways built around Long Island, NY, created by their then architect, Robert Moses, were designed intentionally low in order to limit access to the prized beaches; lower-income, often

² This positive disposition towards technologies, although never explicitly stated by Sorgner, betrays that there is an understanding of technology that is beyond that of a merely instrumental one. Most notably, there is an *interactional* understanding of technology as ‘sociotechnical’, that is, co-constitutive of society.

³ In fact, part of the United Nations SDG plan is the creation and use of what is called the Technology Facilitation Mechanism (TFM) to promote innovative solutions for the SDG agenda via multi-stakeholder collaboration. Before every High-Level UN meeting on SDGs, the TFM council meets to discuss innovative solutions to achieve the agenda’s goals. The UN’s institutional orientation towards technology as both the problem and potential solution to global issues and its marked adoption of an interactive stance towards understanding the impacts of technology is significant. Rather than viewing technology as purely deterministic or instrumental, it affirms the interactional nature of technology and social factors at an institutional level, permitting a landscape of holistic expertise to address these problems en masse, rather than haphazardly (Umbrello, 2022).

⁴ Unlike methane (produced by livestock) which remains in the atmosphere for a relatively short period of time, in vitro meat produces large quantities of greenhouse gases in the form of carbon dioxide, which remains for hundreds of years (Carni Sostenibili, 2021).

black Americans, were usually dependent on public transit, and city buses were too large to pass under Moses' bridges. Moses was therefore able to create infrastructure designed to facilitate desired outcomes, embodying his racist values in the technology itself (in this case, the parkways). However, as vehicles became more affordable in the twentieth century, those same lower-income portions of the population were increasingly able to access Moses' prized beaches, demonstrating how the values imbued in society and technologies can co-construct and co-vary with one another across time, to the point of reversing the initial intention of designers (in this case, Robert Moses). Recent scholarship has shown that modern information and communication technologies follow this trend – in particular advanced systems like those characterized by machine learning and big data analytics – being novel carriers of values (van den Hoven, 2007).

The *design turn* not only shows the limits of framing technologies as purely instrumental, but also resists the dichotomy presented by the other two common approaches to understanding technology: technological determinism and social constructivism. Technological determinism, often pushed with slogans like “you can't kill progress” or that technological development is “inevitable” (Beard, 1927), holds that technologies are the driving force of society, and as such society comes as part and parcel of technological developments. Social constructivism, on the other hand, holds that technologies are nothing but social constructions and are the result of human action (see Bijker, 2009; Klein and Kleinman, 2002). Each of these captures a dimension of how we should understand technology, but none is able to fully explicate the important facets described by the others.⁵ In the last three decades this problem has been taken seriously, leading to what has come to be called the *interactional* stance on technology (Friedman and Hendry, 2019), which holds that technology and society co-construct and co-vary with one another. This means that one does not purely determine or dominate the other, but rather both are inextricable from each other and both play the parts of cause and effect across time.

In *We Have Always Been Cyborgs* Sorgner picks out a number of technologies which he deems are necessary for sustaining what people most value in society, but in order for him to succeed in showing that these cannot be misappropriated, he must take this more accepted and nuanced position regarding how we understand

⁵ Ontologically, this is significant. To a large degree, this is aligned with the continental philosophical position explored in speculative realism, most notably by object-oriented ontology (OOO), which demonstrates how objects, in this case, technologies, cannot be exhausted either by saying what they are composed of, saying what they do, or a combination of those two (see Harman, 2018). Something always remains in reserve. An interactional stance says that technologies are best understood as interactional, but that does not necessarily mean that we grasp the entirety of said technology by doing so (see also, Umbrello, 2021).

technology. This is best illustrated in what can be considered one of Sorgner's strongest arguments, where he defends the mass collection of data as a necessity for sustaining publicly funded healthcare:

If a government stores all digital data, and uses them, then it can be argued that expropriation has occurred, which would be an illegitimate harm being done to persons. However, this needs to be rethought. It would not be expropriation of our digital data, that is, our intellectual property, if the data were used in a democratic way and were used so that it helped to finance our interests. Here, the issue of health comes in. The majority of citizens identify an increased health span with a higher quality of life. This matters politically. This is the reason why universal public health insurance is politically justified. Yet the costs of upholding such a system are enormous. Even in Europe, differences in the quality of universal public healthcare systems are enormous. Health-care is incredibly expensive. Yet, it is in our interest. If the digital data were used to at least partially cover the costs of universal public health insurance, it would not be an expropriation but, rather, the payment for a service which is widely requested. As having a health insurance is a widely shared human interest, it is a duty of the government to provide people with it. (Sorgner, 2021, p. 43-44).

On the face of it, there are clearly some troubling suggestions in Sorgner's proposal. The desirability of universal health insurance is certainly not in question, especially given that it is present in many countries, and in those which lack it the majority of constituents express a desire to have it (Galvin, 2021; Jones, 2020). However, Sorgner's proposal to 'democratize' the use and sale of personal data in order to fund this common good is not only utopian (a position that he explicitly rejects) but almost certain to be self-undermining given existing trends in Western democracies to appropriate digital infrastructures to collect, store, and use citizen's data against their wishes and not necessarily in their interests. Taking China's success in appropriating the digital data of its citizens in order to centralize its control, Sorgner contends that this is simply a necessity for western democratic states as well. But why? Sorgner argues that given the technological and subsequent economic advantage that China will have on the world stage as a result of these practices, the West will be forced to respond in kind if it hopes to maintain any semblance of competitive advantage. According to Sorgner, Europe must, in the face of these novel digital technologies, give up its "simple-minded and simplistic analysis [of the norm of freedom]", realizing the various "personal as well as political reasons for digitally collecting data" (Sorgner, 2021, p. 31). Fundamentally, Sorgner's analysis seems to almost entirely prize "digital data for scientific research, political decision-making processes as well as economic flourishing", placing raw data collection above data protection regulations and the institutionalized norms of freedom characteristic of the European polity (Sorgner, 2021, p. 37). In essence, the argument is that *because China is doing it, we must do it also, but democratically.*

It can be expected that the consequences for Europe will be devastating, as Europe will have to pay China to get hold of the data needed for all these enterprises. China will continue to collect more and more digital data and consequentially will gain more economic as well as political power. Europe's economy, on the other hand, will not be able to compete with China's. The main reason why the Chinese will continue to visit Europe will be its rich cultural history and its great variety of fascinating culinary experiences...These implications of our not collecting data will have an enormous relevance for our financial well-being. (Sorgner, 2021, p. 37-38).

What Sorgner proposes, despite his explicit goal of an 'as-good-as-it-gets' approach, is nonetheless utopian given his instrumental understanding of the use of digital data. Such digital data and the tools used to collect, store, analyze, or archive it are not neutral tools that can be used simply for good or ill purposes. To be sure, an instrumental element of technologies is one facet important for our understanding of them, but this does not capture technologies in their entirety. In point of fact, how technologies are designed makes them more or less capable of supporting and/or constraining particular human behaviors and values, as well as what potential future technologies can be developed out of those existing (or currently being developed). This interactional understanding of technology characteristic of the design turn in applied ethics thus construes technologies not as isolated artefacts, but rather as sociotechnical infrastructures; infrastructures that semi-determine how society functions and which constrain the potential design choices of future technological iterations. One of the dangers, therefore, that this conception of technology helps us to uncover is that sociotechnical infrastructures become normalized and pervasive over time, making them hard to remove in the event that they become damaging to society or manifest unwanted consequences. This is often referred to as the Collingridge dilemma, and refers to the fact that we cannot know the full consequences of any technology until it is deployed in the world, but once it is deployed in the world, it can be difficult (if not impossible) to then remove that technology from society (Genus and Stirling, 2018; Kudina and Verbeek, 2019). This understanding of technology and society therefore gives reason to look before leaping, as it were, given the very tangible and difficult-to-renege consequences of releasing technologies into the world haphazardly.

4. SOCIOTECHNICAL INFRASTRUCTURES OF DOMINION

Fascism recognizes the real needs which gave rise to socialism and trade unionism, giving them due weight in the guild or corporative system in which divergent interests are coordinated and harmonized in the unity of the State.
The Doctrine of Fascism (1932) by Benito Mussolini and Giovanni Gentile

Established by the United States Congress in 2018, the National Security Commission on Artificial Intelligence is an independent commission charged with “review[ing] advances in artificial intelligence, related machine learning developments, and associated technologies” (NSCAI, 2022). The commission, as of 2022, is chaired by former chairmen and CEO of Google, Eric Schmidt, and is composed of fourteen other commissioners, including the CEO of Oracle, the former Deputy Secretary of Defense, the CEO of In-Q-Tel, the director of Microsoft Research Labs, the CEO of Amazon Web Services, the former FCC commissioner, and the head of Google Cloud AI, among others.

In 2019, the Electronic Privacy Information Center (EPIC), a leading organization concerning the privacy and human rights implications of the use of AI systems, successfully filed two Freedom of Information Act (FOIA)/Federal Advisory Committee Act requests with the Department of Defense and the NSCAI (EPIC, 2020). The two governmental bodies eventually produced a series of documents, one of which included “internal correspondence and a report about China’s social scoring, facial recognition tools, and AI-based surveillance. The internal report highlights the “draconian” consequences of China’s AI use but states that “Mass surveillance is a killer application” for AI and that “having streets carpeted with cameras is good infrastructure for smart cities” (EPIC, 2020).⁶ More concerning, the document highlighted the various “structural barriers” and therefore changes that need to be made to American society in order to ensure that the United States maintains technological superiority over China. Vice-chair of NSCAI, Robert Work⁷, went on to detail “how the U.S. national security apparatus should approach artificial intelligence, including a focus on how the government can work with industry to compete with China’s ‘civil-military fusion’ concept.” (EPIC, 2019b).

In a presentation titled “Chinese Tech Landscape Overview”, the NSCAI presented what they deemed to be a significant “national security” threat posed by China given its technological readiness level and that, in order for the United States to meet this

⁶ In particular, see Third AI Commission Production Record Part 9, (EPIC, 2019a).

⁷ Robert Work is the former Deputy Secretary of Defense of the United States and Senior Counselor for Defense and Distinguished Senior Fellow for Defense and National Security (CNAS, 2022).

challenge, what is required is nothing short of a wholesale overhaul of America's society and economy (EPIC, 2019a). Despite the majority of AI innovation taking place in the U.S., the NSCAI document highlights that, compared to China, the U.S. is not on par with the adoption of said technologies to a sufficient degree. The documents lay this issue at the feet of "structural factors" that are characteristic of the contemporary U.S. economy and society that China has since cleared away. The documents imply that the U.S. must similarly do away with such structural factors in order to catch up, if not surpass China, in this regard. The documents highlight the primary structural factor that poses an obstacle to the adoption of AI technologies in the U.S. as what is referred to as "legacy systems" (see Figure 1).

Creation, Adoption, Iteration.

- The US leads in the "Creation" stage. Core technology and new user paradigms are still largely invented here.
- But "Adoption" happens far more quickly in China due to structural factors. The most significant of these are...
 1. **Lack of legacy systems** e.g. lack of credit cards = mobile payment
 2. **Scale of consumer market** e.g. extreme urban density = on-demand service adoption
 3. **Explicit government support** and involvement e.g. facial recognition deployment
- **Iteration:** What happens when you have a huge highly receptive user-base to iterate on, and the investment that justifies? Eventually, the resultant experience has evolved so much that it is nearly unrecognizable...

epic.org EPIC-19-09-11-NSCAI-FOIA-20200331-3rd-Production-pt9 000545
EPIC-2019-001-000613

Figure 1. Slide 12 of the Chinese Tech Landscape Overview NSCAI Presentation (Source: EPIC, 2019a)

These legacy systems include infrastructures like the Western financial system that continue to use credit cards and cash as forms of accepted payment and individual ownership of vehicles (see EPIC, 2019a, slide 78). The latter, in particular, can be ameliorated, as in China, via upscaling the consumer market best characterized in areas of high-urban density, which, subsequently, results in greater adoption of "on-demand

services” rather than individual ownership. This can best be achieved through the mass surveillance measures characteristic of China, like facial recognition, in order to more successfully achieve scaling of the consumer market. This requires, as the NSCAI argues, “explicit government support”, particularly in the collection of citizen data in order to train AI systems (i.e., such as databases containing facial data [see Epic, 2019a, slide 93]) as well as “utilizing government DNA data” similar to that of Chinese biotech and healthcare.

Finally, and as the composition of the NSCAI commission already demonstrates (a mixture of Big Tech, Defense, and the Intelligence community), the NSCAI argues that China promotes an “outwardly embraced” degree of “public-private cooperation”, markedly different from the transactional nature characteristic of Silicon Valley’s relationship with the U.S. government. In order to foster this type of cooperation, the government would be required to clear away “regulatory barriers”, particularly those specific to private citizen data, to better foster the adoption of ‘on-demand services’ like autonomous vehicles in smart cities (EPIC, 2019a, slide 80).

The reason why it merits discussing the above occurrence is for at least two reasons. The first is that it demonstrates how technologies, in this case, ‘legacy systems’, functionally serve as ‘structural factors’ which can inhibit the development and adoption of other technological systems. This clearly demonstrates how technologies are not monadic tools, but rather best understood as infrastructures that are pervasive and support or constrain future technological innovation options. Second, it shows how technologies like, for example, AI systems, can be appropriated in order to centralize power and hegemonic control over citizens. Given the dependency that AI systems have on Big Data, it is no wonder why bodies like the NSCAI require regulatory barriers to be removed, giving them and developers access to the large stores of citizen data necessary for training those systems to be more accurate and effective, just like in China. Sorgner and the NSCAI have a parallel rationale here; because China does it, then so must we. To be fair, Sorgner does say that we must do so democratically, whatever exactly that means, but at the end of the day his argument presents a distressing mirror to those of the NSCAI.

Democratic or not, however, what these public-private partnerships have shown in practice is that, in conjunction with the intelligence community and the U.S. government, those who create these technologies (e.g., Silicon Valley) will do so with an eye towards the ends of those public-private partnerships. There are reasons to support this type of design though, as these technologies form an infrastructure that can scaffold subsequent technologies; big data permits better AI, AI permits better autonomous vehicles, and those autonomous vehicles make smart cities more efficient, along with many other potential goods. This subsequently influences human behavior, our

relationships with other people and with the systems we use, illustrating the sociotechnical nature of technology, betraying a reality that extends far beyond the narrow confines of an instrumentalist understanding of technology.

It remains to be seen whether or not China will indeed become the dominant (economic) power in the world, replacing American hegemony, as Sorgner presumes. This is, however, a view that aligns with that of the NSCAI, and their underlying presumption for suggesting that we adopt a mass surveillance society modeled in many ways after China's. But either way, taking Sorgner's arguments for commodifying personal data as a means to subsidize public health insurance as a given would pave the way for the large collection and use of personal data that bodies like the NSCAI explicitly state is necessary. In the knowledge that these bodies want such data precisely for the purposes of enabling mass surveillance and a China-like police state, we have reason to proceed with extreme caution.

5. CONCLUSIONS

In *We Have Always Been Cyborgs*, Stefan Sorgner provides what is unquestionably the most comprehensive account of 'transhumanism' and its philosophical underpinnings, extricating the idea from both the utopian and dystopian thoughts which have plagued many of the discourses surrounding it. Proposing an 'as-good-as-it-gets' approach, Sorgner makes the case for a European approach to adopting certain technologies in order to ensure healthy and happy lives. However, in doing so he misses the forest for the trees, looking at technology as a tool and thus instrumentalizing it and ignoring its sociotechnical nature. As a result, Sorgner's siloed conception of technology is itself utopian, and leaves open a worrying number of doors through which malicious actors may appropriate sociotechnical infrastructures (citizen data, AI, biotech) for malevolent, or at least non-ideal ends.

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