The obsolescence of politics: Rereading Günther Anders’s critique of cybernetic governance and integral power in the digital age

Anna-Verena Nosthoff
Albert-Ludwigs-Universität Freiburg and Universität Wien, Austria

Felix Maschewski
Humboldt Universität Berlin, Germany

Abstract
Following media-theoretical studies that have characterized digitization as a process of all-encompassing cybernetization, this paper will examine the timely and critical potential of Günther Anders’s oeuvre vis-à-vis the ever-increasing power of cybernetic devices and networks. Anders has witnessed and negotiated the process of cybernetization from its very beginning, having criticized its tendency to automate and expand, as well as its circular logic and ‘integral power’, including disruptive consequences for the constitution of the political and the social. In this vein, Anders’s works, particularly his magnum opus Die Antiquiertheit des Menschen [The Obsolescence of Man], sheds new light on the technologically organized milieus of the contemporary digital regime and also highlights a new form of cybernetic ‘conformism’. The goal of the essay is therefore, not only to emphasize the contemporary nature of Anders’s thought but also to use it to frame a critique of current neo-technocratic and, ultimately, post-political concepts, such as ‘algorithmic regulation’, ‘smart states’, ‘direct technocracy’, and ‘government as platform’. This essay argues that cybernetic capitalism is causing what Anders terms

Corresponding authors:
Anna-Verena Nosthoff, Institut für Politikwissenschaft, Universität Wien, Universitätsstraße 7, Wien, A-1010, Austria.
Email: anna-verena.nosthoff@univie.ac.at

Felix Maschewski, Institut für deutsche Literatur, Dorotheenstr. 24, 10117 Berlin, Germany.
Email: maschewf@hu-berlin.de
'Unfestgelegtheit' to disappear; that is, we are losing the originary possibility of technologically (re-)structuring our world in alternative ways, particularly given the determinist character of current technologies.

**Keywords**
algorithmic governance, Günther Anders, critical theory, cybernetic capitalism, digitization, philosophy of technology, post-politics

In ‘The Obsolescence of Privacy’, an essay written in 1958, Günther Anders puts forward a thesis that remains thought-provoking and timely today: ‘where bugging devices are used as a matter of course, the main precondition of totalitarianism has been established and totalitarianism is achieved’ (2017: 27). A few lines earlier, Anders offers the following elaboration:

> every society that allows itself the use of such devices inevitably acquires the habit of considering humans as fully exposable and as entities that are allowed to be exposed. Whilst acquiring this habit, societies inevitably risk sliding into political totalitarianism. As we have seen, technological innovations are never only technological innovations, and this makes the danger so great, for nothing is more misleading than the assertion that machines are ‘morally neutral’. (2017: 24)

Against this background and in the context of a present in which smart gadgets – which are, as Anders has reminded us, at least in theory bugging devices – penetrate our everyday lives almost ubiquitously, it is hardly surprising that the buzzword of a political and technological ‘totalitarianism’ increasingly dominates our current public discourses (cf. Schirrmacher, 2015; Welzer, 2017). If one raises the Anders-inspired question of whether smart phones are only smart phones, and algorithms only algorithms, it becomes evident that Anders’s examinations unfold with new significance in our contemporary hyper-technical age. The following essay takes up this question and is, in Anders’s own sense, *gelegenheitsphilosophisch*: it does not subscribe to a defined philosophical system but rather attempts to shed light on particular events and instances consistent with what Anders describes as an occasional interpretation of timely phenomena (cf. 1980: 414 ff.). In this manner, we seek to critically address our obscure age of post-privacy by discussing some of its most problematic dispositifs. The aim is to not only highlight Anders’s timely relevance but, explicitly relying on Anders’s thought, to problematize the prejudicing role of contemporary digital technologies. To do so, we begin by clarifying several Andersian terms that shed light on him as an interpreter of an all-encompassing process of cybernetization, thus revealing his relevance in a digital age. Subsequently, the aim is to lend credence to Anders’s early argument of an approaching technical suspension of the political with regard to current developments in the relation between contemporary politics and digital-cybernetic technicization. In a concluding section, we seek to address, and ultimately question, the locus of the critic in general, and of Anders’s criticism in particular, in the ‘post-ideological cockaigne’ (Anders, 1956: 197). Here, we address the question of whether it is reasonable to detect in Anders’s
critique a ‘technical forgetfulness that incessantly speaks against technics’, a form of critique articulated by an ‘unadaptable fellow’ (cf. Hörl, 2012). We argue, to the contrary, that Anders’s critique is better read as always-already reflecting on its own limitations, knowing that it can only transcend them on the grounds of such self-reflection – especially vis-à-vis a form of technology that is increasingly environmental and all-encompassing.

Anders’s timely relevance: On the contemporary debate over technical neutrality

The phrase ‘the obsolescence of privacy’, the title of Anders’s abovementioned essay, is currently being adopted in several TED-talks and conferences addressing the digital, albeit under very different auspices. To cite one example, Michal Kosinski, a behavioural psychologist from Stanford University, recently gave a talk entitled ‘The End of Privacy’. Kosinski’s arguments create an emphatic contrast to Anders’s thoughts on bugging devices. The data scientist claims to have shown that an algorithm is able to know a person better than his/her closest relatives based on only 150 Facebook likes and even better than his/her partner on the grounds of only 300 likes (cf. Kosinski et al., 2015). Moreover, in 2016, Kosinski, according to his own description, ‘only showed that it [the bomb] exists’ (quoted in Grassegger and Krogerus, 2017). The ‘bomb’ is metaphorical for highly individualized psychometric targeting methods, such as the display of particular ads to selected target groups that are considered most vulnerable to the messages shown. Kosinski at least indirectly inspired the development of these methods. Subsequently, the notorious data firm Cambridge Analytica began to use these so-called ‘dark ads’ in Donald Trump’s election campaign, and probably even in the British ‘leave.eu’, to help build, analyse and target millions of online voter profiles. In a panel discussion following his 2017 talk, Kosinski continued to claim that privacy was simply no longer an option with regard to the sublime and unstoppable forces of digitization. Eventually, he even went so far as to argue that it is ‘egoistic not to share your data’. Moreover – and this claim illuminates the contrast with Anders particularly drastically – the researcher and former digital consultant holds that technologies, with the sole exception of machine learning, are principally ‘as neutral [...] as a knife’ (cf. Kaltheuner et al., 2017).

What is interesting here is less that Kosinski’s thesis of neutrality is diametrically opposed to Anders’s earlier findings and more that his views are representative of a powerful common sense in Silicon Valley, a place that is well known for not putting much effort into preserving digital rights or privacy standards. In fact, Kosinski’s arguments seem to form a sort of profession of faith of business-minded programmers. For instance, during the debate on the circulation of fake news on Facebook, Mark Zuckerberg declared that it is ‘crazy’ to suggest – in any way – that the platform had any influence on the US election outcome (cf. Solon, 2016). According to Facebook’s CEO, the ‘social’ network is nothing but a neutral tech-company, that is, it is not a media outlet, as it is not focused on promoting any particular content. In a similar vein, Ex-Google-CEO Eric Schmidt and Jared Cohen, the founder of Google Ideas, state that Silicon Valley usually subscribes to the view ‘that technology is neutral but people are not’. According to Cohen and Schmidt, this is a ‘central truth[...that]...will
periodically be lost amid all the noise. However, our collective progress as citizens in the
digital age will hinge on our not forgetting it’ (2013: 66).

That the producers of digital technologies are not afflicted by Promethean shame
while still singing the song of ‘Californian ideology’ (Barbrook, 1996) seems unsur-
prising given the sweeping success of their exploitative economic logic. And yet, this
shamelessness has, undeniably, programmatic-political consequences. Indeed, so-called
‘neutral’ technologies are intimately related to a solutionist logic, or, to be more precise,
a problematic rhetoric of suspicion. As Cohen and Schmidt state quite prophetically,
even in an age of post-privacy, there will always be people

who resist adopting and using technology, people who want nothing to do with virtual
profiles, online data systems or smart phones. Yet a government might suspect that people
who opt out completely have something to hide and thus are more likely to break laws, and
as a counterterrorism measure, that government will build the kind of ‘hidden people’
registry we described earlier. If you don’t have any registered social-networking profiles or
mobile subscriptions, and online references to you are unusually hard to find, you might be
considered a candidate for such a registry. You might also be subjected to a strict set of new
regulations that includes rigorous airport screening or even travel restrictions. (2013: 173,
emphasis added)

That the spirit of capitalism is closely associated with a sometimes quite explicit
dynamic of control has already been described by Anders. In the aforementioned essay
on the end of privacy, Anders realizes not only that ‘the state and economic authorities
interested in controlling the public [are] immensely powerful’ (Anders, 2017: 30) but
that the counterforces are rather weak. Furthermore, he anticipates that the saying ‘I have
nothing to hide’ (p. 234), an ‘argument’ that was used repeatedly during the Snowden
revelations, leads to a state in which, eventually, ‘privacy is nothing other than the
excuse for hiding illicit acts’ (2017: 32). The criminalization and obvious contemptu-
ousness of privacy that is explicitly recognizable in Cohen and Schmidt’s elaborations
hint, above all, at a problematic ethics of feasibility: It delineates the current phenom-
enon that technical possibilities are usually consequentially pursued and actualized –
regardless of any preceding democratic legitimation or the anticipation of its potentially
disastrous consequences, in view of which Anders emphasizes the urgent need for ‘moral
imagination’ (1956: 271–6). In this vein, Silicon Valley’s mindless affirmation of post-
privacy is reminiscent of Jacques Rancière’s (2009: 104 ff.) description of a ‘disaster of
the promise of emancipation’, which is disastrous insofar as we are woken ‘from the
sleep-filled life of consumption, only to throw us headlong into the fatal utopias of
totalitarianism’. For, what Alphabet’s Eric Schmidt here implicitly affirms and promotes
is the implementation of a technological regime that seeks to eliminate any other or
outside. Furthermore, relying on the means of social engineering, it applies the ‘imitatio
instrumentorum’ (Anders, 1956: 36), i.e. a physical exercise in diminishing the distance
separating the individual from the machine that Anders had already examined in relation
to the individual within society as a whole.

It is likely that Anders would have traced Schmidt’s vision back to the immanent logic
of technology itself, i.e. the internal dynamics embedded in and inscribed into technical
applications. More precisely, Anders’s prior objects of critique might well have been the forms of control exerted by algorithms. Indeed, these mathematical executions are defined via the determining formula ‘logics + control’ (Kowalski, 1979), whereby it is irrelevant that algorithmic programs seem variable due to the flexibility of their parameters and the formal possibilities of extension. As sequences of determined orders, they remain dependent on unambiguousness and clear classifications. As the media theorist Roberto Simanowski (2014: 106) argues, personalized algorithms reinforce a ‘narcissism of compartmentalisation’. They are based on a binary play between yes or no, between all or nothing, 1 or 0, the visible or the invisible human. In this vein, they are fundamentally incapable of ambiguity, such as forms of tarrying or indecisiveness. They exclude the ‘third’ and thus rest on an essential totality, a moment of including exclusion. If applied to the social, algorithmic if-then clauses thus force more subtly what the experiments of human engineering already hinted at in Anders’s times: an ‘integral’ form of power (cf. Anders, 1980: 140 ff.; cf. Lanier, 2018: 5–25).

Seen from this perspective, Anders’s elaborations on the ‘prejudicing role’ (2017: 24) of technology, i.e. the fact that the apparatus is never neutral but that it always implies its use and that we, ‘irrespective of the political and economic system from within which we turn to it’, are always-already shaped by it (2017: 25), seem most relevant regarding the digital condition of the present. It is particularly in a surveillance-capitalist, increasingly mediatized infrastructure that the ‘assiduous and subtle infiltration of the communication channels in the social “flesh”’ (Lyotard, 1993: 213) unfolds with new significance. With regard to the internet of everything, it becomes obvious that the knife is not a knife – or to put it in the language of Anders, that no ‘means is just [...] a means’ (1956: 99), and furthermore, that digital technologies are characterized more than ever via their systemic character.

Most recently, the status in which technology ‘prescribes [...] or posits the grounds for’ (Anders, 2017: 24) the maxims of action instead of maxims determining the use of technology led to a partly uncanny revitalization of Anders’s thought. On the one hand, within the dogma of ‘solutionism’ (cf. Morozov, 2014), the emergence of the paradigm of what Anders already critically termed a ‘total machine’ (1980: 114) can once again be witnessed – think, for instance, of the specious fantasies about an AI-based ‘master algorithm’ (Domingos, 2015). On the other hand, experts have called for a ‘moral imagination’, albeit without referring explicitly to Anders. The mathematician Cathy O’Neil, for instance, demands a new ‘moral imagination’ (2016: 204) to anticipate the consequences of the application of algorithms. This concern is echoed by AI-researcher Kate Crawford (quoted in Solon, 2017), who calls for an ethically motivated mapping of unintended consequences regarding our use of Big Data and AI, specifically with regard to technopolitical issues such as algorithmic voter targeting, the growing influence of the so-called ‘Big 5’ (Apple, Facebook & Co.) on the political (cf. Maschewski and Nosthoff, 2017a, 2017c), data mining in the name of intelligence services, or political problem complexes such as fake-news and a fundamental messengerization of the political (cf. Fichter, 2017).

Of relevance here is both the content-related actuality of Anders’s thought and the fact that his critique of technology (that was focused on the second and third industrial revolutions) can be directly applied to our current digital age (cf. Fuchs, 2017). Indeed,
what is still decodable in the idiom of Silicon Valley apologists is a larger, and ultimately
older, movement whose powerful efficacy Anders had already noted, if even more
implicitly than explicitly: ‘Cybernetics’, writes Simanowski (2014: 49, emphasis added),
‘has always been the codeword for control to which the internet – of humans and of
things – convey more and more areas of human life’. The beginnings of this powerful
performative science can be traced back to the early 1940s, while its discursive peak is
simultaneous with the publication of the first volume of Die Antiquiertheit des Menschen
(1956). Thus, as we will elaborate in the following section, Anders’s critique of tech-
icization and technocracy needs to be read as a general critique of cybernetization,
particularly of cybernetic conformism.

‘Adapted to adaptation’: Günther Anders as interpreter of an
all-encompassing process of cybernetization

To set the ground for our discussion of the ‘obsolescence’ of politics it is worth tracking
the intersection of cybernetics and Anders’s critique of technology, which deploys a
terminology that at times seems overtly shaped by a cybernetic vocabulary, even though
his work only occasionally mentions cybernetics as such. Indeed, Anders (1980: 140)
writes that ‘conformist societies function as prestabilized harmonic systems’, while his
entire critique of adaptive behavior can be understood as a central aim of the Anti-
quierenheit des Menschen (cf. Hörl, 2012). Furthermore, he anticipates the progression of
cybernetic feedback processes: He writes about the ‘replacement of “responsibility” by a
mechanical “response”’ (1956: 245), that ‘transforms the ought (das Gesollte) into what
is mere chess-likely (schach-mäßig) “correct”, the prohibited into what is mere chess-
likely “incorrect”’ (p. 246). He also refers to the ‘circular or the spiral process that
sustains the conformist society’ (1980: 145). In Anders’s technosphere, machines enter
into relations with one another, and Anders thus already envisions technical milieus,
‘environments’, viz. as he notes elsewhere, a ‘Volksgemeinschaft of apparatuses’
(p. 115). Moreover, he anticipates that singular devices, characterized by a substantial
urge to expand, will integrate and connect amongst themselves. In this vein, Anders
claims that it is the ‘dream of the machines’ (p. 110) to grow into an all-encompassing,
complete system, a ‘total machine’ (p. 114). In addition, Konrad Paul Liessmann defines
Anders’s concept of information by referring to social cyberneticist Gregory Bateson’s
understanding of information as a ‘difference that makes a difference’ (cf. Liessmann,
2002; Bateson, 1981: 488).

What Anders terms the ‘silent command’ of technology (1980: 154) is thereby
increasingly accompanied by informational noise, the ‘sound of a million voices’
(p. 153), which defines the existential condition of the socio-cybernetic machine: As the
philosopher explains,

its machinery never runs entirely flawlessly […] as it is in constant danger of forfeiting its
already-won form, its coefficients of conformity, since it is always a bit in need of
improvement – it, thus, always needs to utilise its means to sustain and correct itself.
(p. 154)
It is striking that Anders already explains the self-learning and regulating programmatic in the sense of second-order cybernetics, the ‘cybernetics of cybernetics’ (Von Foerster, 1979). As such, regulation is not based on adapting to external norms or set values; it is not based on the comparison between ought and is (think of the thermostat as an iconic example in this regard) but rather on self-regulation. Thereby, adaption works almost organically on the grounds of a system’s internalized self-learning and the individual’s willing and internalized cooperation. As Anders argues explicitly:

Ultimately individuals are desired who have been tailor-made for impudence; individuals who are ready with ‘their hands on the zipper’ to be encroached on and strip-searched. Only those persuaded to actively and ‘happily’ partake in their own de-privatisation are deemed perfect. (Anders, 2017: 35)

In this vein, Anders can be seen as a critical diagnostician of what Serge Moscovici (1982: 102) would a few years later label as an approaching condition of ‘cybernetic nature’, a universe that is always-already cybernetically mediated. Moreover, one can read Anders as an analyst of precisely that form of cybernetic governmentality that is currently mirrored in the extensive quantification of the social as well as the political, i.e. that which culminates in ideas that translate the primacy of politics into the smooth and frictionless functioning of systems. From this perspective, one of the few explicit Andersian elaborations on cybernetics can be linked to a particularly forceful tendency of the digital era. As Anders explains in the chapter Über die Bombe, with computers, we have constructed creatures onto which one can foist responsibility; thus, machines of oracle, electronic automata of consciousness – for, cybernetic computing machines are nothing else; as epistemes of science (and with it, progress, and with it, the under-any-conditions human), computers now purringly assume responsibility, while the human stands beside and washes his hands of responsibility, partly thankful, partly triumphant. (Anders, 1956: 245)

As Anders proceeds to claim, in the course of this development, cybernetic computing machines become smaller, calmer, more interactive and networked; indeed, they become almost invisible – and thus, precisely, more influential, effective and fatally powerful (cf. Anders, 1980: 34 ff.; cf. Müller, 2016: 11). In addition to anticipating the disappearance of apparatuses,7 Anders describes a second timely mechanism: socio-cybernetic feedback. As ‘this does not say’, Anders writes (2017: 20),

that our existence today exclusively unfolds as instances and processes of receiving deliveries, or even that it has become one single, vast consignment, for there is a complementary process that shapes our existence no less decisively than ‘the supply of world’ (Belieferung), namely, ‘being supplied and surrendered to the world’ (Auslieferung).

Today, the reciprocal extradition of cybernetic ‘machines of oracle’ (Anders, 1956: 245) – a term that corresponds to the ‘social’ platform Facebook, in which the postfactual seems absolute – translates into a mode of algorithmic standardization. To be sure, in the case of ‘social’ networks, the user is addressed and classified individually. However, this
technical interpellation only works on the grounds of algorithmic curation and the newsfeed’s restless supply of preselected ‘information’ – the machine is fed with predefined reactions and emotions (as is illustrated by the excessive use of emoticons; cf. Maschewski and Nosthoff, 2018). Seen through Anders’s lens, a fundamental turning point solidifies here, i.e. the moment when ‘our operating of machines and the functioning of the machine forms only one singular process’ (Anders, 1980: 142). This, finally, is a process in which the ‘existence of conformity’ (p. 143), i.e. the mechanism of being adapted in its cybernetic ‘circular (viz. […] spiral) form’ (p. 142), becomes invisible. Consequently, the individual is, eventually, adapted to adaptation, as she is both passionately wooed and technically enmeshed.

Anders’s observations regarding the feedback-logical mechanics of conformism point to a systemic change, hinting at a logic of governance that circulates recursively and in a self-contained manner. The latter is exemplified by what Anders describes as a paradoxical double function, i.e. the weird symbiotic relation of the consumer as producer, the exhibitionist as spy or the Belieferung as Auslieferung. Anders describes this (a-)logic as a ‘loss of category’ (p. 31) or a system of ‘vanished differences’ (p. 84) that marks, in the first place, a totalitarian programmatic. Strikingly, however, and very much in line with his analysis of second-order cybernetics avant-la-lettre, he understands this programmatic not as a unidirectional machine à gouverner that moves the masses by merely pushing a button. Rather, going beyond the collectivizing effects of the radio or the television, Anders recognizes that in an era of ‘cybernetic capitalism’ (Tiqqun, 2007: 41), mechanisms of control that are all-encompassing but far more subtle, smooth and comfortable, become dominant. These are mechanisms that are necessarily bound to liberal-promotional propositions, to a form of ‘passivity in the costume of activity’ (Anders, 1980: 145), thus retaining the ‘illusion of freedom’.

Indeed, Anders foresaw that during a time when everyone participates in the conformist noise of ratings and rankings, in which everyone looks into the same smart Gehäuse, thus following standardised presentational patterns for the ‘individual’ self (cf. Maschewski and Nosthoff, 2018), the promise of total functioning seemingly manages to install an instrument of power that is more effective than any externally enforced synchronization of thoughts. In fact, it could be argued that today, it is various forms of solutionism that are colonizing the socio-political imaginary – think of, for instance, Google’s Sidewalk Lab in Toronto or China’s social Credit Score. As we will exemplify further in the next section, some of these approaches go so far as to redefine the state as a social network and politics as mere logistics. One prior aim of these endeavours is to optimize the political through a form of mathematical thinking, which subsequently leads to the suspension of politics itself. Strikingly, this development echoes one specific thought of Anders: as technical devices gain relevance, they eventually tend to suspend the political, which is understood, above all, as a realm of (reasonable) dissensus.

**Anders’s critique of technical politics as a critique of (neo-)cybernetic models of politics**

More precisely, Anders particularly considered political revolutions to become obsolescent, with the political remaining at best an irrelevant super-structural phenomenon.
‘Freedom exists only as auto-mobility’, writes Liessmann (1993: 106), with particular regard to Anders’s analysis, ‘equality as TV for all and fraternity as the community of users of databases’. Peter Sloterdijk (quoted in Meerman, 2011) has argued in a similar vein: Instead of being the subject of a revolutionary uprising, the demos rather suffers from the ‘revolution’, a revolution that designers and programmers impose upon it and declare against citizens’ everyday lives. Thus, today, one could indeed claim that sovereign is he who decides on the norm. Following Anders’s arguments regarding the technical suspension of political revolutions, sovereign is he who forcefully redesigns and shapes our life forms, thus eventually creating irreversible facts.

Respectively, the limitations of the contemporary sociopolitical imaginary can be witnessed with regard to new disruptive, neo-cybernetic models and practices of governance that culminate in various forms of algorithmic steering – ranging from ‘smart states’, ‘government as platform’, and ‘direct technocracy’ to concepts such as ‘nudging’ and ‘algorithmic regulation’. Politics is hereby understood mainly as an automatically processing system of coordination that reacts to irritations. The allegedly horizontal, direct-democratic freedom from hierarchies – Facebook and Co. are hereby often seen as role models (cf. Khanna, 2018) – subsequently installs a neo-cybernetic mode of governance that aims at liquidating ‘obsolescent’ institutions (parliamentary democracy, parties, etc.) as well as their intervening regulatory powers (cf. Noveck, 2015). Indeed, these evidence-based processes of automation actualize Anders’s thesis that once technology starts to intervene in, colonize, and ultimately suspend the political, its significance ‘gain[s] the upper hand to such an extent that the political occurrence ultimately plays out within its frames [the frames of technology]’ (1980: 108).

The aforementioned critique of cybernetic control can thus also be read against the background of what Anders calls the ‘perfect integration’ (2017: 27) of the state. As he writes in the second volume of Die Antiquiertheit des Menschen, an integral state, ideally, has no ‘blank spots on its map’ (2017: 26). It either reaches all individuals or produces citizens who are themselves voluntarily ‘eager to accommodate’ it and are transparent and without walls. In brief: the totalitarian state would be perfect only if ‘discretion’ (as conceived by natural philosophy) did not exist, not to mention selfhood, ‘privacy’ and ‘intimacy’ in the psychological sense. (2017: 26)

When Anders articulated this diagnosis, the public was witnessing the first theoretical approaches to a cybernetic state, which can be seen as theoretical predecessors of current post-political developments in the realm of digital governance (cf. Maschewski and Nosthoff, 2019a). Management cybernetician Stafford Beer developed the quasi-autonomous, so-called ‘Viable System Model’, which later formed the notional basis of his attempt to cybernetically steer the Chilean economy (and, on a theoretical level, politics; cf. Medina, 2011). Four years later, political scientist Karl Deutsch published one of the most prominent conceptions of this approach, The Nerves of Government (1963). Two decades before, the founder of cybernetics in Germany, Hermann Schmidt, had, in a similar sense, insisted on the following goal: ‘regulate what is regulatable and render regulatable what is not yet regulated’ (1941: 41).
Similar to current models of algorithmic regulation, the early forerunners of cybernetic governance were, corresponding to Shannon and Weaver’s (cf. 1949) influential model of information, focused on the intensity of communication instead of its content or semantics. Indeed, Karl Deutsch was convinced that the higher the intensity of communication was, the more democratic the state. In line with this, central to political-cybernetic thinking was the registration and subtle steering of the people’s will as well as the informative integration of that will into a larger systemic context. To do this, cybernetics was reliant on a socially embedded system of feedback that focused precisely on what was so vehemently criticized by Anders: *adaptive behaviour*. In this vein, the aim was to establish spontaneous orders and to avoid a content-related dissensus, or any other form of political antagonism.

At the same time, Beer focused on implementing a dialectics between freedom and control. According to him, freedom was a ‘programmable function of effectiveness’ (Beer, 1973: 6) or, as he described the relationship elsewhere: ‘The freedom we embrace must yet be in control’ (Beer, 1974: 88). Günther Anders also sought to decode this particular conflation: According to him, it is part of the ‘duty of the conformist that he never slips free from freedom’ (1980: 143). In this vein, freedom and control are, particularly in a highly technological age, about to enter a problematic relation, whereby ‘the privation of freedom […] goes hand in hand with the ideology of freedom’ and the ‘abolition of freedom […] usually proceeds in the name of freedom’ (Anders, 1980: 195). In this ‘integral system’ (p. 187), participation is, as Anders writes, reduced to mere ‘acts of playing along’ (Mit-tuns) (p. 184), an observation that indeed anticipates the reductive dimension of the cybernetic understanding of politics, which, as Dieter Mersch has recently noted, encompasses only the dimension of *Teilnahme* (in the sense of merely attending) and precisely not that of *Teilhabe* (to partake or have a part).11 As has already been emphasized, Anders refrains from describing the mechanisms of participatory integrality in the sense of a deterministic logic of direction; rather, cybernetic capitalism works on the grounds of a pre-structured horizon of possibility:

> As our gateways (*Einfallstore*) are wide open because there are no longer walls between us and the system – since we live in ‘congruency’ with its contents […] – it is always self-evident to us […] how far we can exceed the limits of this system and how far we cannot. (1980: 186)

Anders’s notion that a totalitarian potential belongs to the ‘essence of the machine’ (1980: 439) itself can indeed be read in the context of the cybernetic adaption of the other to the self-learning, flexible whole. Deutsch’s depiction of a cybernetic state was thereby explicitly formulated against fascism; it was mainly focused on preserving order technically and thus thought of itself as neutral. Anders, by contrast, noticed early on that this formula did not work as intended: As he claims provocatively, political totalitarianism is nothing but an ‘effect and variant of this technological elementary fact’ that ‘the tendency to totality (*Totalitären*) […] originally stems from the realm of technics’ (1980: 439).

For Anders, technocracy is thus not merely defined as the domination of technicians. It rather highlights the fact that the world and our relation to it are mediated
technologically, thus culminating in a universe that is, de facto and unchangeably, always-already technological. Technocracy in Anders’s sense is thus best understood etymologically: It primarily addresses not a particular state form but rather the increasing dominance of a technology that is in the process of becoming absolute. At the end of this process, technology remains the only forceful subject of history (cf. Dries, 2012: 171 ff.). In a similar vein, what political cybernetics understood as systemic adaptation primarily aimed at rendering noise and irritations productive by integrating them automatically – not least to weaken the possibility for actual overthrows. For instance, Karl Deutsch (1963: 227) mainly thought of the French Revolution as a problem of information. Quoting Deutsch literally, in general, the ‘history of revolutions appears to a significant extent as the history of internal intelligence failures in the governments that were overthrown’ (1963: 158).

In this context, it is vital to consider what Anders decodes as technology’s power to act, including its tendency towards automation. According to him, cybernetic technologies become increasingly autonomous, as they tend to ‘join in with another greater machine’, thereby attempting ‘to take over their environment’ (1980: 119). This thesis is currently echoed politically with respect to phenomena such as social bots, the affect-centered dynamics of filter bubbles or ‘filter clashes’ (cf. Pörksen, 2018: 118) and the systemic-integral power of platforms – including their idiosyncratic logic of autonomous adaption and expansion.

However, despite what Anders decodes as the tendency towards automation, he is far from formulating – in any sense – a technical-deterministic approach. It is true that he repeatedly emphasizes the increasing autonomy of networks. Yet, he does not refrain from referring to powerful tech-representatives – to quote him literally, as producers and ‘dominators of apparatuses (Gerätebeherrscher)’ (Anders, as quoted in Dries, 2012: 171). Indeed, both factors are currently significant for understanding the contemporary situation. It is arguably precisely the dialectics between the capital of tech-apologists and the quasi-autonomous power of technologies that multiplies the discursive dominance of tech-producers. This is also the reason why the social imaginary seems almost incapable of creating alternative visions for the social apart from subscribing to technocentric pseudo-utopias produced and pitched in and by Silicon Valley. In Anders’s sense, thus, the future seems at best fabricated. It appears produced in the very sense that a potential ‘futurelessness’, i.e. ‘the possibility of its own abandonment’ (1956: 282) is inscribed into it. In this vein, one can indeed conclude that the current form of cybernetization is based on a very peculiar totalitarian logic that tends to bring about the ultimate disappearance of the political as such. What replaces politics, then, is not merely a technocracy in Anders’s sense, that is, a technocracy that totalizes the ‘principle of machines’ (2002b: 49). On the one hand, what is manifested, too, is a non-ideological ideology, viz., what Anders termed an alluring ‘world of a post-ideological cockaigne’ (1956: 197). On the other hand, with regard to new, seemingly hyper-ideological phenomena of ‘resistance’ mediated by tech, for example the alt-right, whose members primarily interact via Facebook groups, reddit, as well as so-called ‘alt-tech’ networks (Gab or WrongThink), one can even witness the emergence of a new form of anti-politics. The latter is both anti-political in the sense that it reinforces an intolerant attitude of closure and in undermining any meaningful form of discourse by primarily addressing
situational affects, not least by communicating heavily through what Anders would term a ‘global flood of images’ (1956: 3) (the contemporary equivalents of which are fake videos, undifferentiated GIFs and Memes). At the same time, in the case of the left, it has been argued that current forms of activist clicktivism tend to weaken long-term emancipatory potentials and progressive party politics (cf. White, 2016).

One can interpret the detected correlation between an increasingly cybernetized form of communication and the disappearance of the political as proof of the adequacy and aptness of Anders’s method of prognostic hermeneutics, including its ‘exaggerations in the direction of truth’ (Anders, 2002a). This holds specifically regarding ‘the end of politics’ that was, from the 1970s onwards, subsequent to Anders’s earliest illuminating analyses, frequently diagnosed – in particular by Baudrillard (1978), Flusser (2009), and, most recently, Tiqqun (2007). Although Anders was increasingly sceptical vis-à-vis the potential of his earlier concept of a ‘moral imagination’, his insightful observations reveal, in hindsight, the gelegenheitsphilosophische sharpness of the ‘forward swept historian (vorwärts gekehrten Historiker[s])’ (1980: 429).

Concluding meditations regarding the question of critique: The potential of Anders’s method

As we have examined in this paper, the peculiar diachronic contemporariness of Anders’s thought specifically results from the fact that the process of cybernetization, whose speculative beginnings Anders witnessed with criticism, has now given rise to an extensive new form of governmentality. Indeed, as we have noted, the theoretical end of cybernetics as an institutionalized science went hand in hand with a programmatic actualization of its systemic logic in various areas of our being. Currently, it marks a movement that affects not only the social in its totality but also political thinking and current forms of governance.

Strikingly, in this context, Dieter Mersch diagnoses a ‘discursive totalisation’ (2013: 49). As he claims, any diagnosed problem is often more or less automatically linked to a solutionist logic, which correlates with an excess of data, automation and interconnectedness. Mersch hereby explains the aforementioned imaginary deficits – in quite the sense anticipated by Anders – by referring to the fundamental (cybernetic) ‘misjudgement’ (p. 55) that the ‘nets and channels obtain basic democratic potential, that through them, non-hierarchical spaces could be built, that they are technologically reprogrammable’. Mersch further claims that the opposite is the case:

The nets are regimes of authorization, regimes of dressage. They are such precisely through their openness. [...] If the saying of their democratization is meaningful at all, then it is at best in the sense of an egalization of control, its interiorization of self-access. (p. 56)

In this context, the media philosopher recognizes a ‘dictate of interconnectivity’ (p. 60), an observation that indeed mirrors Anders’s early critique: Participation is only possible if one fundamentally affirms its grounding form of communication, its technicity and prejudicing character.13
In this mode, as Anders noted decades ago, effectivity is precisely not grounded in a suspension or suppression of individual communication. Productivity rather means letting that communication expand, to enforce a generalized ‘wall-lessness (Wandel-sigkeit)’ (Anders, 1980: 150). Within self-organizing systems, control proceeds through constant ranking, rating and monitoring. It operates on the basis of infinite feedback loops (cf. Bröckling, 2008; Mau, 2017). Power hereby becomes manifest in the management of effects, in the alignment of the channels of communication. The prior aim of cybernetic governmentality can thus be defined as the unconditional perpetuation and expansion of its characteristic forms of circulation (cf. Tiqqun, 2007). Facebook, for instance, is a closed system, but it is focused on installing a constantly expanding system of (self-)regulatory feedback – a space that suppresses, in the long run, any subjective, individual form of expression. (cf. Maschewski and Nosthoff, 2019b)

Following Günther Anders, one could argue today that based on these mechanisms, a new form of conformism emerges: A conformism that must not even focus on synchronizing content or semantics, i.e. delivering the ‘equal […] and the same material’ to individuals (Anders, 1980: 150). Today, it suffices to determine the channel – or the interface – through which one communicates in order to maintain control over that channel’s direction. Indeed, we have reached a point where even forms of resistance cause effects that are systemically productive, as long as they do not negate the circles of communication.

Participation, the ‘necessity to connect (Sichanschließen-müssen)’ (Mersch, 2013: 49) to the channels of communication, including their characteristic forms of individual profiling, thereby reflects the ‘prejudicing role’ of technology in a highly atomistic manner – and yet, those channels of communication determine society as a whole. As an example, the individual is provided with a variety of options – Facebook offers around 60 potential sexes. However, rather than providing greater freedom, this vast selection is based on a perverse logic that is decisive for cybernetic capitalism: The more options being offered, the more precise the choice, the more determined the profile, the more valuable the information. In this vein, Andreas Bernard hints at the paradox that the ‘promises of freedom of the pioneer years still form the ideological foundations of all new apparatuses. However, the methods of individualisation no longer aim at diffusing the subject but determining it’ (2017: 46) – which is the decisive point.

‘If there are markers today’, writes Günther Anders, ‘then it is not us who mark the apparatuses but it is, inversely, the apparatuses that mark us. We become their impression (Abdrücke), their […] expression [Ausdruck]’ (1980: 424). What is interesting about this claim is not an alleged, hidden technological determinism that media and cultural theorists have repeatedly, and falsely, ascribed to Anders. Anders is also far from revealing a technical forgetfulness in any sense, that is, he is not subscribing to any pre-technical position. Rather, what is articulated here is an existential finding that is linked to Anders’s early anthropological observations, particularly the fact that freedom is only realized in the practice of undetermined technical Einrichten, i.e. a form of existential ‘non-specificity’ (Müller, 2016: 155), a contingent artificiality that is characteristic of the human per se (cf. Anders, 1937). This early intuition is indeed inscribed into his later magnum opus; however, it remains realistic regarding actual existing as well as potential future technologies. Furthermore, for Anders, it is precisely the
pharmacological character of technology itself that is threatened by the process of machinization, which subsequently undermines its free use.

Anders’s critique thus strongly reflects its own technological embeddedness – even more so, it redefines this embeddedness in the sense of an aporetic-existential task confronting thinking itself. As Anders writes self-critically, there is ‘no one who is not in any sense brought into line (gleichgeschaltet wäre). This holds too [ . . . ] for the writer of these lines’ (1980: 141). What follows from this is, however, precisely not the unconditional surrender in the face of the technically constructed but rather the necessity of a constant confrontation with it, the testing of the human limits compared to the all-powerful machine. Such a method would, in the least, give rise to a widening of one’s own imaginary horizon. The formulation of this space of thinking is, for Anders, a practical exercise that aims at a ‘hyperextension (Überdehnung)’ of the ‘habitual achievements of fantasy and emotion (gewohnten Phantasie- und Gefühlsleistungen)’ (1956: 274).

Seen from this perspective, Anders’s critique articulates an existential concern that is uncannily timely: the human-induced fascination with the processes of cybernetization and machinization could, finally, undermine his originary openness, his undeterminedness and disclosedness. As such, it is difficult to catch up with developments in the realm of artificial intelligence via the development of a ‘moral imagination’:

essentially new and unheard-of (unerhört) is the alteration of our body [ . . . ] because we conduct the transformation of the self for the love of our apparatuses; because we make them the model of our alterations, thus, passing on ourselves as a benchmark and, as a consequence, narrowing or giving up our freedom. (p. 46)

Indeed, the loss of an original undeterminedness reinforced by a determining technology is echoed by the existential – as Anders would claim, totalitarian – potential of current technical developments. Their mechanisms of systemic enclosure are described by Anders in an early parable, with which we conclude:

As the king liked little that his son, leaving the controlled roads, roved about cross-country
to form his own opinion about the world, he gave him a chariot and a horse.

‘Now you don’t have to walk any longer,’ were his words.

‘Now you must not do it any longer’, was their sense.

‘Now you cannot do it any longer,’ was their effect. (p. 97)

Acknowledgements

An earlier German version of this article has been published in Behemoth. A Journal on Civilization 11(1). The authors would like to thank the anonymous reviewers and especially the editors of this special issue, Christopher Müller and David Mellor, for very helpful remarks. Furthermore, Christian Dries and Wibke Liebhart have provided insightful thoughts and comments on an earlier version of the article. Moreover, we would like to express our gratitude to the participants and the organizers of the Günther Anders Conference 2017, Christian Dries and Oliver Marchart. The conference offered a first opportunity to discuss a very early draft of this paper.
Funding
The author(s) received no financial support for the research, authorship, and/or publication of this article.

Notes
1. On software as programmatic ideology viz. the existing forms of control of technical protocols see Chun (2004) and Galloway (2004). Wolfie Christl and Sarah Spiekermann (2016) provide one of the most detailed examinations of algorithmic targeting and big data analytics in contemporary surveillance capitalism with particular attention to the extent of corporate surveillance by so-called data brokers.

2. ‘Solutionism’ is described by Evgeny Morozov (2013: 5) as a Silicon Valley-based mind-set, which recasts ‘all complex social situations either as neatly defined problems with definite, computable solutions or as transparent and self-evident processes that can be easily optimized – if only the right algorithms are in place!’

3. It is important to highlight that Anders anticipates concepts such as cybernetic ultrastability and autonomous self-regulation. As he explains, the ‘universal machine’ is not meant as a complex that operates as ‘totally total’, as it is in the interest of the machines’ self-preservation to maintain a partial ‘independence of the parts’ from the whole. The ‘totalitarian maxim vis-a-vis the parts is: “I need you entirely, but in the case of emergency, I don’t”’ (1980: 114).

4. The age of digitization has most recently repeatedly been described as an age of cybernetization (see Mersch, 2013; Galloway, 2014; Simanowski, 2016 in this regard).

5. This is one, if not the most essential, concept of the early cybernetics of Norbert Wiener, W. Ross Ashby, Karl Deutsch and, later, Stafford Beer.

6. The term ‘Volksgemeinschaft’ is particularly hard to translate without losing its fascist overtones. The German National Socialists used the exclusionary concept during the Third Reich to capture the German people as a biological and homogenous entity. Anders thus provocatively uses the term here to point to totalitarian potentials and the homogeneity of technical apparatuses.

7. The already-quoted Eric Schmidt has most recently – repeatedly and euphorically – pointed to the ‘disappearance’ of the internet, by which he refers to its omnipresence and potency – in quite the same sense in which Anders spoke of the ‘invisibility of monsters’ (Anders, 1956: 424). At the World Economic Form 2015, he explained (see Tsukayama, 2015) regarding the question of the future of the internet: ‘I will answer very simply that the internet will disappear – there will be so many IP addresses [...] so many devices, sensors, things that you are wearing, things that you are interacting with that you won’t even sense it. It will be part of your presence all the time.’

8. Anders has already reflected on the process of feeding – the ‘to feed’ – of the electronic brain viz. the computer with data (cf. 1956: 61). While these elaborations are explicitly related to the military complex at the time of the Korean conflict, it seems striking that the current ‘machines of oracle’ in the form of social networks, which are nothing but decision machines (cf. Mersch, 2013: 81), are often described with reference to military metaphors and terminology (cf. Kosinski in Grassegger and Krogerus, 2017).

9. See in this regard – in addition to Noveck and Khanna – the approaches of Tim O’Reilly (2010, 2013) and Alex Pentland (2015) as well as Sunstein and Thaler’s (2009) influential concept of nudging. The early models of cybernetic politics (Deutsch, 1963; Easton, 1965; Beer, 1974; Lang, 1970) were focused on adaptive behavior, a concept that was vehemently criticized by Anders. Current neo-cybernetic forms of politics, despite being rather oriented toward second-order cybernetics, revitalize a few foundational premises of earlier political
cybernetics and thus need to be put into critical (Andersian) perspective (as we have expanded on elsewhere; see Maschewski and Nosthoff, 2019a). On the history of political cybernetics, see Benjamin Seibel’s instructive study on *Cybernetic Government* (2016).

10. This holds particularly with respect to the most recent publications of neo-technocrats such as Parag Khanna (cf. 2017) or the less radical Beth Noveck (2015) who, to a greater or lesser extent, propose an efficient ‘democracy without politics’ (Khanna, 2017: 75), thereby affirming the allegedly neutral ‘ideology of pragmatism’ (p. 14).

11. This diagnosis is echoed in the already-quoted premise by Karl Deutsch that democratic potentials necessarily result from the design but not the content of the channels of communication.

12. Strikingly, Christopher John Müller (2016: 149) also links this colonization of an open and still undetermined future, i.e. a future that is still to-come, to what Anders already described as a dawning form of *human* obsolescence. According to him, as Anders early noted, this technically mediated future is increasingly post-human in the sense that it functions without her, most ironically on the grounds of her own voluntary cooperation: ‘in the words of Anders, we seem willing to exert effort so as “to not function as ourselves”, turn away from humans and adapt our behavior to allow the machine to serve us to the best of its ability. By doing so, we tie ourselves ever further into infrastructures, adapt our habits to technological solutions and expose ourselves to increasingly undemocratic constellations of power and big data applications that are actualizing a version of the future in which human contributions are no longer required.’

13. Anders also refers to this as the oligarchic tendency of technology, which he describes as per se anti-democratic (cf. Anders, 2003: 196; Müller, 2016: 140 ff.).

**References**

Anders G (1937) Pathologie de la Libértè. Essai sur la non-identification. *Recherches philosophiques* VI: 22–54.

Anders G (1956) *Die Antiquiertheit des Menschen, Bd. I. Über die Seele im Zeitalter der zweiten industriellen Revolution*. Munich: Beck.

Anders G (1980) *Die Antiquiertheit des Menschen, Bd. II. Über die Zerstörung des Lebens im Zeitalter der dritten Revolution*. Munich: Beck.

Anders G (2002a) *Überreibungen in Richtung Wahrheit. Stenogramme, Glossen, Aphorismen*. Munich: Beck.

Anders G (2002b) *Wir Eichmannsöhne. Offener Brief an Klaus Eichmann*. Munich: Beck.

Anders G (2003) *Die atomare Drohung. Radikale Überlegungen zum atomaren Zeitalter*. Munich: C.H. Beck.

Anders G (2017) The obsolescence of privacy. *CounterText* 3(1): 20–46.

Barbrook R (1996) The Californian ideology. *Science as Culture* 6(1): 44–72.

Bateson G (1981) *Ökologie des Geistes*. Frankfurt a. M.: Suhrkamp.

Baudrillard J (1978) *Kool Killer oder der Aufstand der Zeichen*. Berlin: Merve.

Beer S (1964) *Cybernetics and Management*. New York: Wiley.

Beer S (1973) *Fanfare for Effective Freedom. Cybernetic Praxis in Government*. Brighton: Brighton Polytechnic.

Beer S (1974) *Designing Freedom*. New York: Wiley.

Bernard A (2017) *Komplizen des Erkennungsdienstes. Das Selbst in der digitalen Kultur*. Frankfurt a. M.: Fischer.
Bröckling U (2008) Über Feedback. Anatomie einer kommunikativen Schlüsseltechnologie. In: Hagner M and Hörl E (eds) Die Transformation des Humanen. Beiträge zur Kulturgeschichte der Kybernetik. Frankfurt a. M.: Suhrkamp, 326–347.

Christl W and Speikermann S (2016) Networks of Control. A Report on Corporate Surveillance, Digital Tracking, Big Data & Privacy. Wien: Facultas.

Chun W (2004) Software, or the persistence of visual knowledge. Grey Room 18: 26–51.

Cohen J and Schmidt E (2013) The New Digital Age. New York: Alfred A. Knopf.

Deutsch K (1963) The Nerves of Government. New York: The Free Press.

Domingos P (2015) The Master Algorithm: How the Quest for the Ultimate Learning Machine Will Remake Our World. New York: Basic Books.

Dries C (2012) Die Welt als Vernichtungslager. Eine kritische Theorie der Moderne im Anschluss an Günther Anders, Hannah Arendt und Hans Jonas. Bielefeld: transcript.

Easton D (1965) A Systems Analysis of Political Life. Englewood Cliffs: Prentice Hall.

Fichter A (2017) Über die ‘Messingerisierung’ der Politik. In: Fichter A (ed.) Smartphone-Demokratie. Zurich: NZZ Libro, 132–142.

Fuchs C (2017) Günther Anders’ undiscovered critical theory of technology in the age of Big Data capitalism. tripleC 15(2): 582–611.

Flusser V (2009) Kommunikologie weiter denken. Die Bochumer Vorlesungen. Frankfurt a. M.: Fischer.

Galloway A (2004) Protocol. How Control Exists after Decentralization. Cambridge, MA: MIT Press.

Grassegger H and Krogerus M (2017) The data that turned the world upside down. Vice, 27 January, p. 17. Available at: https://motherboard.vice.com/en_us/article/mg9vvn/how-our-likes-helped-trump-win (accessed 12 March 2018).

Hörl E (2012) Die technische Verwandlung: Zur Kritik der kybernetischen Einstellung bei Günther Anders. In: Berz P (ed.) Spielregeln. 25 Aufstellungen in Technik & Medien, Ökonomie, Kunst & Psychoanalyse. Eine Festschrift für Wolfgang Pircher. Zurich: Diaphanes, pp. 327–343.

Kalthneider F, Kosinski M and Leitner J (2017) Ethical Issues of AI and New Technologies. Panel Discussion, CeBit 2017. Available at: https://www.youtube.com/watch?v=wrpzE05MO7A (accessed 12 March 2018).

Khanna P (2017) Technocracy in America: Rise of the Info-State. Charleston, SC: CreateSpace Independent Publishing Platform.

Khanna P (2018) Facebook can still save American democracy from itself. Available at: https://www.fastcompany.com/40565623/facebook-can-still-save-american-democracy-from-itself (accessed 1 May 2018).

Kosinski M, Youyou W and Stillwell D (2015) Computer-based personality judgments are more accurate than those made by humans. Proceedings of the National Academy of Sciences (PNAS) 112(4): 1036–1040.

Kowalski R (1979) Algorithm = Logic + Control. Communications of the ACM 22(7): 425–436.

Lang E (1970) Zu einer kybernetischen Staatslehre. Salzburg: Pustet.

Lanier J (2018) Ten Arguments for Deleting Your Social Media Accounts Right Now. New York: Henry Holt and Company.

Liessmann KP (1993) Günther Anders und die Philosophie. In: Le Rider J and Pfersmann A (eds) Günther Anders. Rouen: Centre d’Études et de Recherches Autrichiennes, 101–112.

Liessmann KP (2002) Günther Anders: Philosophieren im Zeitalter der technologischen Revolutionen. Munich: Beck.

Lytard JF (1993) Libidinal Economy. Bloomington: Indiana University Press.
Maschewski F and Nosthoff AV (2017a) ‘Order from Noise’: On Cambridge Analytica, cybernetic governance and the technopolitical imaginary. Public Seminar, 20 March, p. 17. Available at: http://www.publicseminar.org/2017/03/order-from-noise/ (accessed 12 March 2018).

Maschewski F and Nosthoff AV (2017b) Wo ist das egalitäre Internet geblieben? Neue Zürcher Zeitung 38(105): 27.

Maschewski F and Nosthoff AV (2017c) Künstliche Intelligenz: Das Netz ist nie neutral. Neue Zürcher Zeitung 238(146): 39.

Maschewski F and Nosthoff AV (2017d) Der Monopolist des Lichts. Neue Zürcher Zeitung 238(274): 35.

Maschewski F and Nosthoff AV (2018) Vergib mir deine Punkte. Neue Zürcher Zeitung 239(46): 45.

Maschewski F and Nosthoff AV (2019a) We have to coordinate the flow’ oder: Die Sozialphysik des Anstoßes. Zum Steuerungs- und Regelungsdanken neokybernetischer Politiken. In: Friedrich A et al. (eds) Jahrbuch Technikphilosophie 2019. Baden-Baden: Nomos, 31–46.

Maschewski F and Nosthoff AV (2019b) Netzwerkaffekte. Über Facebook als kybernetische Maschine und das Verschwinden des Subjekts. In: Breljak A et al. (eds) Affekt Macht Netz. Bielefeld: transcript, pp. 55–80.

Mau S (2017) Das metrische Wir. Berlin: Suhrkamp.

Medina E (2011) Cybernetic Revolutionaries. Cambridge, MA: MIT Press.

Meerman M (2011) The End of Cyberutopia. Available at: https://www.youtube.com/watch?v=oSsmt1GkrY&t=2436s (accessed 12 March 2018).

Mersch D (2013) Ordo ab Chao – Order from Noise. Zurich: Diaphanes.

Morozov E (2014) To Save Everything. Click Here. Technology, Solutionism and the Urge to Fix Problems that Don’t Exist. London: Penguin.

Moscovici S (1982) Versuch über die menschliche Geschichte der Natur. Frankfurt a. M.: Suhrkamp.

Müller CJ (2016) Prometheanism: Technology, Digital Culture and Human Obsolescence. London and New York: Rowman & Littlefield.

Noveck B (2015) Smart Citizens, Smarter State. The Technology of Expertise and the Future of Governing. Cambridge, MA: Harvard University Press.

O’Neill C (2016) Weapons of Math Destruction. How Big Data Increases Inequality and Threatens Democracy. London: Penguin.

O’Reilly T (2010) Government as platform. innovations 6(1). Available at: http://www.mitpressjournals.org/doi/pdf/10.1162/INOV_a_00056 (accessed 12 March 2018).

O’Reilly T (2013) Open Data and Algorithmic Regulation. Available at: http://beyonddisparancy.org/chapters/part-5/open-data-and-algorithmic-regulation/ (accessed 12 March 2018).

Pentland A (2015) Social Physics. How Social Networks Can Make Us Smarter. London: Penguin.

Pörksen B (2018) Die grosse Gereiztheit. Munich: Hanser.

Rancière J (2009) Aesthetics and Its Discontents. London: Polity.

Schirmacher F (ed.) (2015) Technologischer Totalitarismus. Eine Debatte. Berlin: Suhrkamp.

Schmidt H (1941) Denkschrift zur Gründung eines Institutes für Regelungstechnik. Berlin: VDI Verlag.

Seibel B (2016) Cybernetic Government. Wiesbaden: Springer.

Shannon C and Weaver W (1949) The Mathematical Theory of Communication. North Yorkshire: Combined Academic Publishers.

Simanowski R (2014) Data Love. Berlin: Matthes & Seitz.

Simanowski R (2016) Facebook-Gesellschaft. Berlin: Matthes & Seitz.

Solon O (2016) Facebook’s fake news: Mark Zuckerberg rejects ‘crazy idea’ that it swayed voters. The Guardian, 11 November. Available at: https://www.theguardian.com/technology/2016/
Solon O (2017) Artificial intelligence is ripe for abuse, tech researcher warns: ‘a fascist’s dream’. The Guardian, 13 March. Available at: https://www.theguardian.com/technology/2017/mar/13/artificial-intelligence-aiabuses-fascism-donald-trump (accessed 18 March 2018).

Sunstein CR and Thaler RH (2003) Libertarian paternalism. The American Economic Review 93(2): 175–179.

Sunstein CR and Thaler RH (2009) Nudge. Improving Decisions about Health, Wealth and Happiness. London: Penguin.

Tiqqun (2007) Kybernetik und Revolte. Zurich: Diaphanes.

Tsukayama H (2015) What Eric Schmidt meant when he said ‘the Internet will disappear’. In: Washington Post, 23 January. Available at: https://www.washingtonpost.com/news/the-switch/wp/2015/01/23/what-eric-schmidt-meant-when-he-said-the-internet-will-disappear/?utm_term=.4826fa7831b0 (accessed 20 February 2018).

Von Foerster H (1979) Cybernetics of cybernetics. In: Krippendorff K (ed.) Communication and Control in Society. New York: Gordon and Breach, pp. 5–8.

Welzer H (2017) Die smarte Diktatur: Der Angriff auf unsere Freiheit. Munich: S. Fischer.

White M (2016) The End of Protest: A New Playbook for Revolution. Toronto: Penguin Random House.

**Author biographies**

**Anna-Verena Nosthoff** is currently a PhD Candidate at the Institute of Sociology of the University of Freiburg and a lecturer at the University of Vienna, where she teaches in the Politics Department. Her academic work has been published in various edited volumes and journals, including Cultural Politics, Culture, Theory & Critique, Jahrbuch Technikphilosophie, and Critical Research on Religion. She also works as an essayist for, among others, Neue Zürcher Zeitung and Die Republik.

**Felix Maschewski** is currently a PhD Candidate at the German Department of Humboldt-University in Berlin, where he is a member of the Research Cluster ‘Das Wissen der Literatur’. Most recently, he was a visiting scholar at Princeton University, where he did research on cybernetic realism. Felix Maschewski is also a research assistant at Institut für Wirtschaftsgestaltung Berlin and is an essayist for, among others, Neue Zürcher Zeitung and Die Republik.