Subscribe to our newsletter:
www.tni.org/en/subscribe

or scan the QR code:

Contents

Tying up Goliath

Activist strategies for confronting and harnessing digital power

Anastasia Kavada, Tina Askanius, Anne Kaun,
Alice Mattoni, Julie Uldam

The last decade has seen a sweeping change in our perception of social media platforms and their role in social movements. Within the wave of protests in 2011, from the so-called Arab Spring to the Occupy mobilisations, such platforms were often presented as technologies of liberation. Ten years on, however, social media have come to be seen as spaces of surveillance and repression that are captured by capitalism and authoritarian governments. The Edward Snowden revelations in 2013 were a turning point in this regard, when the role of commercial social media platforms in the surveillance of activists was made abundantly clear. Since then, many mainstream social media platforms have been saturated by misinformation and offensive speech. They have often been seized by far-right forces that, under the banner of 'free speech', have used them to ruthlessly attack their opponents. In 2022 we may have seen another turning point in this tale, as this was a year when the power of social media faced intense challenges. The chaotic takeover of Twitter by Elon Musk, the recent losses in the value of Meta (formerly Facebook), and the growing calls to regulate content on these platforms have been accompanied by a modest exodus from social media, and Twitter in particular, and the migration to alternative platforms such as Mastodon, even though this move might be short-lived.

Of course, mainstream social media platforms still hold significant power. They have become important conduits of news and information with research both in the US[274] and the UK showing that platforms like Facebook and YouTube are increasingly spaces where users get their news. The business model of such platforms promotes 'surveillance capitalism', the relentless gathering and selling of data on user behaviour. The companies behind them have also become too big to regulate and control, as they have been steadily acquiring smaller start-ups and adding diverse platforms and applications to their list of products. So, although social media platforms may have offered more opportunities to users to express their voice, they still reinforce the capacity of the powerful to shape public opinion as they have the resources to pay the fees charged by some of these platforms, to conduct black propaganda through bots and fake accounts, and to invest in digital ad campaigns. These platforms also have an ambivalent relationship with repressive regimes around the world, sometimes colluding with them – as the Snowden revelations amply showed – and sometimes providing a channel for dissent that is not controlled by the government, even though it is still shaped by complex geopolitical interests.

Within this landscape, progressive activists need to both challenge and harness the power of social media in an effort to build the world that they'd like to see. But how can social movements do this? And what are the obstacles they face along the way? In this essay, we explore some strategies that activists can use by focusing on the example of the environmental movement, and particularly groups and organisations mobilising against climate breakdown. These are diverse and heterogeneous, ranging from traditional non-government organisations (NGOs) and charities, to more recent groups like Extinction Rebellion (XR), which focus on direct action, to mobilisations associated with Greta Thunberg and the Fridays for Future movement.

Our analysis draws on the work of social movement scholar Dieter Rucht on the strategies that activists adopt when dealing with the tendency of the mainstream media (MSM) to misrepresent, trivialise and marginalise activist causes. In the early 2000s, Rucht observed that, in response, some activists decide to put visibility aside, and abstain from the mainstream press. Others opt to openly blame the mainstream press in an attempt to make them accountable for their biased reporting of protest. Still others choose to bypass the mainstream press by creating alternatives

to cater to their constituencies. Finally, some groups attempt to get good mainstream media coverage by seeking to understand how the media work and by adapting their communication to them. Rucht's framework was named the 'Quadruple A' as each of the four strategies begins with the letter 'A': Abstention, Attack, Alternatives, Adaptation. While Rucht's strategies originally referred to an age of dominance by the mainstream press, they still resonate today when social media platforms, as well as the press, take centre stage in the communication strategies of activist groups.

Since the mainstream media follow a capitalist model, it comes as no surprise that these four strategies echo Erik Olin Wright's (2019) discussion of the four logics that characterise anti-capitalist struggles: smashing, escaping, eroding, and taming capitalism.[275] When activists engage in collective action with the logic of smashing capitalism, they are in tune with communication strategies that revolve around attacking social media platforms. Similarly, when activists promote collective action that would allow people to escape capitalism, they are consistent with the strategy of abstention from social media platforms. When activists develop collective action that does not wholly reject capitalism but, rather, seeks to tame it, we can see a resemblance with the strategy of adaptation. Finally, anti-capitalist struggles that aim to erode capitalism link to activists who are creating alternatives to social media platforms, building and curating spaces of contention that they can manage directly.

Keeping in mind these different anti-capitalist logics and the four strategies that activist groups might employ to address the issue of visibility, we explore how the environmental movement has engaged with social media platforms.

Abstention (Escaping Capitalism)

Strategies of **abstention** involve shunning the mainstream social media completely as a form of both protest towards and protection from their business models and surveillance mechanisms. Deciding not to delegate your group's visibility to the profit logic of social media platforms is liberating. It frees activists from the constant pressure to be visible and produce content on these platforms. It also emancipates activist groups from the opacity that characterises social media algorithms – black boxes whose functioning is difficult, if not impossible, to understand. The strategy of abstention can promote more sustainable ways of maintaining membership beyond Facebook groups or Twitter threads, by developing the group's own media.

It can also protect activists from online attacks and surveillance. As the case of Greta Thunberg has shown, prominent activists can be the targets of scathing attacks on social media that range from trolling to death threats. Being present on social media also renders activist groups vulnerable to surveillance by the authorities. This is particularly dangerous for activists who use tactics of civil disobedience or push the lines of legality.[276] Such groups thus typically engage in face-to-face planning rather than online coordination. Therefore, abstaining from social media platforms is crucial for enhancing the privacy and data integrity of internal organising.

Alongside abstention, some activist groups have also launched campaigns urging people to disconnect from such platforms or to engage in practices of digital or data 'detox'. For instance, Tactical Tech provides a tool kit for creating awareness of the data traces that we leave online

and for developing alternative practices for what they call 'a more confident relationship with technology'.[277] Disconnecting from social media may also be done for environmental reasons. As Tactical Tech notes, digital detox strategies can help in the fight against climate change as digital technologies are now responsible for 3.7% of the world's global carbon emissions, a figure that may increase to 8% by 2025. 'That's currently more than the civil airline industry, and soon it's predicted to surpass the automobile industry, too.'[278] Environmental groups may therefore opt to abstain from social media in order to reduce their e-waste and carbon footprint.

However, 'digital detox' practices are often related to individual lifestyle politics rather than collective efforts to achieve systemic change. Attending digital detox camps or restricting our digital data footprints by using specific browsers and configurations involve individual practices and ways of relating to social media. They may thus have a smaller impact on challenging capitalism and Big Tech than seeking to promote structural change through regulation, for example.

Furthermore, a complete abstention from digital platforms seems virtually impossible, especially for political causes with a transnational character or those aiming to mobilise large numbers of supporters. In a world where visibility on social media has become crucial for expanding a movement's community, abstaining from these platforms means cutting oneself off from a dense network of relationships that has sustained numerous protests around the world over the past decade. The environmental movement is no exception, as evidenced by the extensive use of social media by organisations such as Greenpeace and Extinction Rebellion or movements like Fridays for Future. Instead, and as we note in the sections on the strategies of Adaptation and Alternatives, activist groups often choose to use mainstream platforms for promoting their cause to a broader audience, even if they abstain from using them for internal organising.

Attack (Smashing Capitalism)

Activists and social movements can also **attack** social media platforms and campaign for them to reform their corporate practice or the regulations governing their operation. 'Attack strategies' include anti-trust actions that challenge the size and concentration of social media companies, as well as digital rights campaigns that target the misuse or misappropriation of data by companies and national governments.

There are also many campaigns against disinformation on social media, a problem that is also enormously affecting campaigns on climate change. Large polluters such as oil companies engage in elaborate greenwashing campaigns on social media. False statements regarding climate change have proliferated, often peddled by fake accounts and 'astroturf' campaigns. Climate change denialism is rising on social media platforms, also as a result of the strengthening of far-right accounts and the lack of effective moderation. In February 2022, Reuters reported that Facebook 'failed to flag up half of posts that promote climate change denial'.[279] Research undertaken by Global Witness has found that the Facebook algorithm not only locks climate-sceptic users in echo chambers of climate denialism but also directs them 'to worse information, so that what began on a page full of distract and delay narratives, ended on pages espousing outright climate denial and conspiracy'.[280] On Twitter, the situation seems to have worsened after Elon Musk's takeover, which led to the firing of content management teams, the dismantling of the platform's sustainability arm, and the return of banned users to the platform, some of whom have a significant history of

climate denialism.[281] Consequently, the hashtag #ClimateScam has climbed in the rankings and is 'now regularly the first result that appears when 'climate' is searched on the site'.[282]

Campaigns against disinformation on social media have included the #StopHateForProfit campaign in 2020, in which various civil society groups and organisations called on advertisers to boycott Facebook for this reason. The campaign was initiated by a coalition of activist groups, including the Anti-Defamation League, Free Press, and GLAAD.[283] In February 2020, Avaaz ran a campaign specifically about climate change denialism on YouTube and other platforms, which was based on a detailed report compiled by the organisation.[284] Avaaz called 'on all social media platforms to detox their algorithms by ending the amplification and monetisation of disinformation and hate speech'. It also urged 'regulators to turn this into a legal requirement' and demanded that 'platforms work with independent experts to track and downgrade creators of repeated and deliberate disinformation'.[285] It is worth noting that the group amended the initial text of the petition to remove a 'demand to "deplatform" creators of repeated and deliberate disinformation'.[286] While no reason was given for this amendment, we suspect that it relates to the slippery slope when demands to deplatform individuals or groups peddling disinformation can be turned against progressive actors and used to restrain their voices on social media. Calls to boycott and deplatform should thus be alert to the implications for freedom of speech across the political spectrum. Furthermore, for such actions to be effective, they need backing from prominent activist groups and advertisers so that they are considered sufficiently effective for others to join and are able to draw sufficient news coverage.

Attacks can also occur more directly, such as through hacking. For example, Twitter and Facebook have been targeted by denial-of-service attacks in which computers prevent users from accessing the platform or slow down their use. Such attacks have not always been clearly linked to criticism of the platforms themselves, but to protests against the role of such platforms in giving voice to particular political viewpoints, for instance in relation to Russia's conflicts with neighbouring countries.[287] Yet, 'hacktivism' requires sophisticated technical skills and comes with the risk of arrest and other repercussions. This is probably why there are no recorded cases of environmental hacktivism, even by groups like Extinction Rebellion that focus on disruptive action (at least until their very recent change in strategy) although the group did engage in internal discussions about hacktivism during the pandemic.[288] For the academic Gabriella Coleman, who has conducted extensive research on Anonymous, this may be because there are few overlaps between hardcore hackers and hardcore environmentalists,[289] meaning that the environmental movement lacks the necessary skills and experience to engage in such activism. On the contrary, it is environmental activists who have fallen victim to hacking attacks. For instance, in 2017, environmental groups who ran a climate change campaign against Exxon Mobil received phishing emails by accounts impersonating their colleagues and lawyers, as part of 'a sprawling hacking-for-hire operation that for years has targeted the email accounts of government officials, journalists, banks, environmental activists and other individuals.'[290]

Collective actions that follow a strategy of attack are typically seen as spectacular interventions and so are likely to gain mass media attention. However, media reporting tends to focus on the attack itself, rather than on the message it attempts to convey, making it difficult to gain resonance among the broader public and policymakers. At the same time, attacks that disrupt users' daily use of social media risk generating annoyance, which again may restrict the impact of the message.

Alternatives (Eroding Capitalism)

The strategy of **alternatives** (or eroding capitalism) entails activists building their own social media platforms or digital properties where they can network on social issues and disseminate alternative information to the public. Such platforms operate with different rules: they are often designed by advocates of Free and Open Source Software (FOSS), meaning that the code is open for everyone to use, adapt and change, provided that they are not doing it for commercial reasons. Such platforms also operate with different policies regarding anonymity and privacy, in an effort to guarantee the safety of their users. Examples include the platform N-1 developed by activists in Spain right before the first stage of the Indignados movement in 2011, as well as RiseUp!,[291] Crabgrass,[292] and Occupii, the activist alternative to Facebook created by Occupy Wall Street in 2011. Other examples include video-streaming platforms such as BitChute (previously also Vine or Periscope) or podcast channels hosted outside the dominant commercial platforms to circumvent moderation. Activists may further use platforms like Mastodon, which is now emerging as an alternative to Twitter, that, although not explicitly developed by social movements, still operate in ways that accord with progressive values.

There are also alternatives for instant messaging or email that facilitate more secure internal organising processes for social movements. For instance, Riseup.net, an independent social network based in Seattle, has provided encrypted secure email and mailing-list management services for social movements since its inception in 1999–2000. More recently, platforms such as Signal, Telegram or GroupMe have also been used for coordination, with Telegram in particular facilitating both interpersonal and broadcast communication. Such channels are also used by environmental activists that engage in more disruptive tactics.

Social movements have also created their own platforms to disseminate information about their causes and to report on their mobilisations in an effort to tackle the marginalisation and misinformation peddled by most mainstream news outlets and social media platforms. One example is Unicorn Riot, a non-profit online news collective, which was founded in 2015 by activists who were involved in alternative media around the Occupy movement, the tar sands mobilisations[293], and the Ferguson protests[294]. Unicorn Riot reported from the ground in North Dakota during the #NODAPL or Dakota Access Pipeline Protests in 2016, when different Native American tribes opposed the building of a pipeline carrying crude oil from Dakota to Illinois. Protesters considered the pipeline, which was going to pass through the Indian reservation at Standing Rock, as posing a serious hazard of water pollution. Calling themselves 'water protectors', activists established a protest camp in the area and attempted to stop the building of the pipeline. The mainstream news media provided little news coverage, while prominent investigative journalists, like Amy Goodman, co-founder and presenter of Democracy Now!, were arrested on riot charges.[295] By contrast, Unicorn Riot was able to provide independent coverage of the protests, with journalists staying in the camp and interviewing protesters.[296] The decentralised online platform is therefore a good example of the kind of community media built in the service of social movements and the continued importance of journalism produced from *within activist communities.*

With some notable exceptions, however, efforts to build anti-capitalist alternatives tend to be ephemeral, under-funded and unable to fully replace the services afforded by corporate social media. What these platforms also lack is 'network effects', a term that points to a crucial dynamic

of social networks: that the more members they acquire, the more useful they become, since they can be used to communicate with a wider range of participants. In reality, many alternative platforms are used only by the converted – experienced activists who are already familiar with the mobilisations in question. Hence, by communicating solely within these spaces, activists may effectively remain invisible within a communicative niche.

Adaptation (Taming Capitalism)

The limitations of small-scale alternative platforms often lead activists to use corporate applications like Facebook, Twitter, and Instagram to attract a wider public. Activists thus engage in a strategy of **adaptation,** meaning that they adapt to the rules of corporate platforms, trying to harness their power for increasing their movement's visibility.

Corporate social media platforms have now become key channels for publishing information about climate change. Most major activist groups and movements are using their social media accounts to disseminate information about their cause. Social media have also facilitated the rise of 'green influencers' – environmental activists who command very large followings on social media.[297] Alongside them, we find collectives like EcoTok who report on environmental issues on TikTok.[298] According to the Reuters Institute for the Study of Journalism, such channels are particularly important for users under the age of 35 who 'are often two or three times more likely to say they pay attention to celebrities, social media personalities, or activists for climate change news than people over 35'.[299]

There are also cases where social media channels have enabled marginalised voices to come to the fore. An example is the Digital Smoke Signals Facebook page, founded by the late Native American journalist Myron Dewey, which provided important coverage of the #NODAPL protests. The page was one of the most followed news outlets on the protests and some of its videos amassed more than 2.5 million views.[300] Facebook live was also used to report live from the protests, allowing activists unfiltered and uncensored reporting from the ground. In the years since the Arab Spring, livestreaming has become an important application in the hands of citizen reporters. While in the 2011 wave of mobilisations, livestreaming was provided by smaller start-up companies, by the mid-2010s most major social media platforms, including Instagram and Facebook, started to offer this functionality, thus eclipsing the smaller players in the field.

Strategies of adaptation also include the development of new approaches for engaging with the campaign targets or for demonstrating one's support for a cause, which are tailored to the social media environment. These may include relatively 'effortless' acts, such as adding a banner on your profile picture on social media to show your support for an environmental cause. While such tactics are useful for gaining visibility in a crowded media landscape, they are often derided as 'clicktivism' – a portmanteau term that combines 'click' with 'activism'. Critics point to the limited commitment needed to engage in such activism and its potential to create a misleading sense of effectiveness and connection. Yet this depends on the political context since in more restrictive and authoritarian countries a tweet or a Facebook post can easily land you in prison, or even face a death sentence. 'Clicktivism', in other words, depends on the eye of the beholder.

Strategies of adaptation are also associated with the emergence of new activist tactics such as Twitter storms, whereby users bombard a hashtag with tweets to make it into a trending topic. Hashtag hijacking is a variant of this tactic, where activists seize control of a target's hashtag. Environmental activists have also pioneered the tactic of 'greentrolling' the social media accounts that peddle climate disinformation or engage in 'greenwashing'. 'Greentrolling' is a strategy of adaptation as it is based on adopting 'a form of rebuttal better associated with the Internet's ne'er-do-wells—trolling—infused with voice, verve and mordant humor'.[301] By targeting the social media of large corporations, climate activists gain a wider reach for their messages and attract mainstream media interest. A famous example came in November 2020, when Shell put up a social media poll asking users 'what are you willing to do to reduce emissions?'. The poll received many ironic replies from environmental activists, politicians and ordinary users, including high-profile individuals such as Greta Thunberg and Alexandria Ocasio-Cortez, who used the poll to denounce Shell's role in increasing emissions. [302]

Yet, to pursue strategies of adaptation, activists have to obtain intimate knowledge of how commercial social media platforms operate. This may demand greater professionalisation of activist communications, leading movements to employ social media professionals or to provide training to social media administrators, as well as to develop specific guidelines and protocols.

The adaptation strategy has several risks for progressive activists. It forces them to give up direct management of their visibility spaces as they can exercise very limited control over the materials they publish on commercial platforms or the infrastructure that enables their publication. This makes their visibility particularly fragile: if a social media outlet decides to delete a group's profile, the entire archive of content published up to that point will probably disappear, along with the network of contacts built up through ongoing use of the platform.

Commercial social media platforms are constantly tweaking their algorithms to impede content creators from attracting wider audiences on the basis of organic reach. This allows them to charge creators for reaching their own followers with prices that are sometimes exorbitant for most activist groups. It also creates power asymmetries in activist efforts to counter disinformation. Groups that spread false information on, for instance, the role of polluters in slowing down the adoption of policies on climate change are often financed by these very polluters, capital that enables them to pay for greater reach. Social media are also exploiting the user data created by the activity of social movements on the platform. The more polarising the cause, the more profit it creates for the company as it fuels traffic and user activity. It is thus no surprise that the strategy of adaptation tends to be at odds with core values of left-leaning activist communities, such as their aversion to capitalism. In fact, the use of proprietary platforms is often at the heart of internal conflicts within activist groups, between those who support their use for pragmatic reasons and those who refuse to engage with them.

The corporate surveillance on mainstream social media also feeds into systems of state surveillance. This is the double sword of visibility, where becoming more visible on social media also makes activist groups more vulnerable to the authorities. A key strategy in this respect is to use commercial platforms to promote public events, but keep all internal organising on alternative platforms that have encrypted communication or off digital media altogether by employing the time-worn methods of secret face-to-face meetings. In other words, activist groups need to combine different

strategies and platforms, depending on the tasks they need to accomplish and their associated privacy or need for greater visibility.

Moving forwards: Collaboration, Interconnectivity and Curation

Progressive social movements, and environmental activists in particular, can use different strategies for both challenging and harnessing the power of commercial social media. They can abstain, build alternatives, go on the attack and adapt. Each has advantages and drawbacks in terms of effectiveness and impact, and depends on context. In practice, activists often deploy some or all forms.

In other words, the four types of strategies outlined in Rucht's 'Quadruple A' work better in combination rather than separately. Yet, it is exactly this art of pursuing different strategies simultaneously that is the most formidable. What should be the balance between challenging corporate platforms but at the same time harnessing their power? And can one group do all this alone or should it work in coalition, so that it can specialise in specific strategies?

In this respect, working collaboratively seems to be the way forward. This may take the form of more formal coalitions and umbrella platforms or happen more informally through the development of common themes in campaigns, the exchange of resources, as well as sharing each other's content and creating more densely hyperlinked communication properties. Environmental groups, for example have also begun to work in a more intersectional manner by considering the issues on which they campaign from the perspectives of different stakeholders and by mapping the interlocking systems of power that need to be overcome.[303] Such collaboration and coalition-making need to be reflected more strongly in the digital realm, with greater hyperlinking and interconnectivity among environmental groups, whether via social media accounts on commercial platforms or alternative media outlets. In this respect, studies on video activism around climate justice and social justice movements in the early 2010s showed very weak connections between actors on YouTube.[304] The actions and actors within social justice movements were largely disconnected – or at least they were not coming together in any meaningful way on that particular platform. Thus, as a potential site of resistance YouTube failed to provide a space for sustainable, horizontal, and radical media practices.[305]

This seems to ring even truer today – a decade on and in a context where YouTube is mainly discussed in terms of rabbit holes, radicalisation and disinformation rather than democratic broadcasting, visual evidence and radical eye-witnessing. When there is evidence to suggest that a network of connective actions is in fact materialising, the process is led by anti-democratic and far-right reactionary forces. They have largely succeeded in connecting across party lines and intra-movement differences, building a sizable audience, and forming a coherent web of related channels and content which extend into a larger media ecology of alternative far-right media. They do this through an interlocking series of connective practices including guest appearances on each other's YouTube channels, joint livestreaming, as well as various referencing and hyperlinking practices.

Even when the right have been deplatformed, for example in the wake of The Unite the Right rally in Charlottesville in 2017, far-right groups have migrated to Alt-Tech platforms that are harder to control, including Gab, Parler, Gettr, BitChute, Rumble, PewTube, Odysee, Hatreon and numerous others. These have been designed following the models of Big Tech platforms and mimic their features while also offering anonymity and far fewer restrictions on the level of offensive and harmful material that can be posted.

The far right has been very able to engage on a wide range of platforms at the same time and for different purposes – combining alternative and mainstream – while deliberately adopting a different tone for different platforms with some degree of success. It helps, of course, that in comparison to progressive movements, far-right activists have fewer scruples in using a more offensive, irreverent and populist tone that does well on social media in terms of virality and algorithmic optimisation. The far right is also less reluctant to use commercial and profit-driven platforms, and has found ways of monetising its content by interspersing business strategies with political propaganda techniques.

Far-right activists have thus built an ecosystem of Alt-Tech platforms that has outdistanced progressive alternative media in terms of crowdsourcing and successful fundraising for tech start-ups. Of course, the recent success of the far right has resulted not only from savvy social media strategies, but also from a broader political context that is conducive to its goals. After the repression – and, in some quarters, perceived failure – of the 2011 progressive movements, some of the same anger towards the establishment has been harnessed by reactionary, conservative actors. Far-right activists have thus made the most of the opportunities that come with being in line with broader political currents and particularly the rise in the politics of fear that go along with uncertainty and increasing inequality. Yet, the perfect storm of economic, social and climate crises that we are currently facing is also presenting an opening for radical change on the progressive side of the political spectrum. Developing greater connectivity across groups, issues and digital media properties is paramount within this context.

Apart from hyperlinking and *interconnectivity, consistency and continuity* will also help progressive groups, and the environmental movement in particular, in harnessing digital power. Lasting bonds of collaboration can alleviate the immense efforts of voluntary labour for establishing and running alternative platforms through the development of routines and a repository of knowledge and experience. Such labour is also necessary for attacking commercial social media, which is often based on the painstaking collection of information about the profit-driven logics of Big Tech. Sustained collaboration over a period of time makes this voluntary labour possible as it enables knowledge transfer across different activist groups and generations, gathering insights from past experiences, from what works and what doesn't, and ensuring that these lessons are passed on and combined with new insights for new generations of activism.

As demonstrated by the example of the far right, the curation of digital content is another crucial aspect of interconnectivity and collaboration. Curation refers to the process of finding, selecting, organising, and interlinking suitable messages. It thus helps to create a collaborative network of interconnected actors and communications that provides a rich and consistent message and offers users different entry points to the 'message space' of progressive movements. At its core, curation is all about the cultivation of community, connectivity and participation, a logic that

goes against social media business models which foster individualism and the personalisation of political action.

Obviously, such strategies of collaboration often encounter many obstacles. Doctrinal and ideological differences, however minute they may seem to outsiders, may split progressive movements and increase factionalism. Greater collaboration can pose risks to legitimacy, as groups may be afraid to align more closely with, for instance, a more radical actor, since they can be tainted by association. Or the reason may be more self-interested, as groups may want to retain audiences in their own social media properties rather than sharing them with related actors. The lack of funding and resources for progressive politics may lead to competing for audiences and a lack of connectivity between activist groups online.

Thus, for collaboration to work, activists need to be committed to working together in providing alternatives. Moving ahead, it is this belief in the value of building broader networks of networks that can help activists in harnessing the power of digital media, resisting Big Tech and changing the world.

BIOGRAPHIES

Anastasia Kavada is a Reader in Media and Politics in the School of Media and Communication at the University of Westminster, where she is leading the MA in Media, Campaigning and Social Change. Her research focuses on the links between digital media, social movements, participatory democracy and campaigning for social change.

Tina Askanius is an Associate Professor in Media and Communication Studies at the School of Arts and Communication at Malmö University and affiliated researcher at the Institute for Futures Studies in Stockholm. Her research concerns the interplay between social movements, media technologies and processes of mediation.

Anne Kaun is Professor of Media and Communication Studies at Södertörn University. She is a 2021 Wallenberg Academy fellow and leads several projects exploring the digital welfare state and automated decision-making. In 2023, her co-authored book *Prison Media* will appear with MIT Press.

Alice Mattoni is an Associate Professor in the Department of Political and Social Sciences at the University of Bologna. She researches the relationship between social movements and media, digital and otherwise. She is one of the three co-founders and current editor of the Routledge Series Media and Communication Activism.

Julie Uldam is an Associate Professor at Copenhagen Business School where she leads the project Imagining Digital Power and the Power of Digital Imagination in Business and Society Encounters. Her research explores the role of activism digital media in societal challenges, including the climate crisis and democratic debate.

Endnotes

1 Texas Attorney General et al. (2022) In Re: Google Digital Advertising Antitrust Litigation, available at: https://www.nysd.uscourts.gov/sites/default/files/2022-09/In%20re%20Gogle%20Digital%20Advertising%20Antitrust%20Lirtigation.pdf

2 US DoJ (2020) Justice Department Sues Monopolist Google For Violating Antitrust Laws, Washington DC: Department of Justice, available at: https://www.justice.gov/opa/pr/justice-department-sues-monopolist-google-violating-antitrust-laws

3 Online advertising can be differentiated between programmatic and contextual advertising; the former represents advertising targeted at individuals on the basis of their interests and preferences, which are inferred from their personal data, while the latter represents advertising attached to webpages that correspond to the advert's contents see Hwang (2020) for more on the implications of this difference.

4 Mirowski, P. and Nik-Khah, E. (2017) The Knowledge We Lost in Information, Oxford: Oxford University Press.

5 Texas Attorney General et al., 2022, p.104)

6 ibid., p.107

7 Birch, K. (2017) What Exactly is Neoliberalism?, The Conversation (2 November), available at: https://theconversation.com/what-exactly-is-neoliberalism-84755

8 Hayek, F. (1945) The Use of Knowledge in Society, available at: https://www.econlib.org/library/Essays/hykKnw.html?chapter_num=1#book-reader

9 Again, see Mirowski and Nik-Khah's book on the history of 'information' in orthodox economics.

10 Amadae, S.M. (2016) Prisoners of Reason, Cambridge: Cambridge University Press.

11 McMillan, J. (2003) Market Design: The Policy Uses of Theory, Stanford Business School: Working Paper No.1781, available at: https://www.gsb.stanford.edu/faculty-research/working-papers/market-design-policy-uses-theory

12 Birch, K. (2020) Automated neoliberalism? The digital organization of markets in technoscientific capitalism, New Formations 100-101: 10-27.

13 Birch, K. and Bronson, K. (2022) Introduction: Big Tech, Science as Culture 31(1): 1-14. There are several books on the rise of Big Tech which are worth reading (and many not worth reading). My suggestions are: Cohen (2019), Doctorow (2020), Foroohar (2019), Lanier (2014), Pasquale (2015), Srnicek (2016), and Zuboff (2019). There are, of course, many more books, articles, etc. worth reading, I simply can't put them in this endnote.

14 I use the term enclaves' rather than 'enclosure' to reflect the fact that digital personal data has to be *made, rather than existing in a raw state ready for anyone to collect and use. So, collection comes to define use in ways that lead to problematic outcomes, as I have discussed in an open access journal article with two colleagues (*Birch et al., 2021).

15 US House of Representatives (2020) Investigation of Competition in Digital Markets, Washington, DC: House of Representatives.

16 Leonard, C. (2022) The Lords of Easy Money, New York: Simon & Schuster.

17 Birch, K., Cochrane, D.T. and Ward, C. (2021) Data as asset? Unpacking the measurement, governance, and valuation of digital personal data by Big Tech, Big Data & Society 8(1): 1-15; Morozov, E. (2022) Critique of Techno-feudal Reason, New Left Review 133/134, 89-126.

18 Viljoen, S., Goldenfein, J. and McGuigan, L. (2021) Design choices: Mechanism design and platform capitalism, Big Data & Society 8(2): 1-13. Algorithmic technologies refer to a range of developments often lumped under umbrella terms like 'artificial intelligence' or 'machine learning'. Rather than go into a debate about to what extent these technologies represent actual 'intelligence' (which I don't think they do), I prefer to refer to them in terms of how they function, which is primarily as algorithms (i.e. they take in inputs and give you outputs based on some internal operation, which can be transparent or opaque). I especially like Meredith Whittaker's (2021) take on these technologies, since it demystifies them: 'we must first recognize that the "advances" in AI celebrated over the past decade were not due to fundamental scientific breakthroughs in AI techniques. They were and are primarily the product of significantly concentrated data and compute resources that reside in the hands of a few large tech corporations'.

19 Collins, G. (2020) Why the infinite scroll is so addictive, available at: https://uxdesign.cc/why-the-infinite-scroll-is-so-addictive-9928367019c5

20 Birch et al., 2021

21 CPRC (2022) Duped by Design: Manipulative Online Design: Dark Patterns in Australia, Melbourne: Consumer Policy Research Centre, available at: https://cprc.org.au/dupedbydesign/

22 See Salomé Viljoen's (2021) great article about this.

23 Borgesius, F.Z. (2020) Price discrimination, algorithmic decision-making, and European non-discrimination law, European Business Law Review 31(3): 401-422

24 Rosenblat, A. and Stark, L. (2016) Algorithmic Labor and Information Asymmetries: A Case Study of Uber's Drivers, The International Journal of Communication 10: 3758-3784.

25 Baker-White, E. (2022) Swiping Right As Much As You Want On Tinder Costs Users Wildly Different Amounts, A Study Found, BuzzFeed News (8 February), available at: https://www.buzzfeednews.com/article/emilybakerwhite/tinder-plus-pricing-study

26 Where I live, in Canada, the federal government has introduced legislation to update data protection and privacy regulations, which have not changed for over 20 years; however, its government's approach to reform is premised on enabling companies to keep collecting and processing our data within a new privacy framework, rather than challenging that collection and use itself (Birch, 2022).

27 Doctorow, C. (2021) End of the Line for Uber, Pluralistic (10 August), available at: https://pluralistic.net/2021/08/10/unter/#bezzle-no-more

28   Roy, R. (2020) Doordash and Pizza Arbitrage, Margins (17 May), available at: https://www.readmargins.com/p/doordash-and-pizza-arbitrage

29   Goldfischer, E. (2022) Scams: The Dark Side of Alternative Accommodations, Hertelier (3 August), available at: https://www.hertelier.com/post/airbnb-booking-com-scams

30   Birch, K. (2020)

31   Posner, E. and Weyl, E.G. (2019) Radical Markets, Princeton: Princeton University Press.

32   Wiley, B. and McDonald, S.M. (2018) What is a Data Trust?, Centre for International Governance Innovation (9 October), available at: https://www.cigionline.org/articles/what-data-trust/

33   Scholz, T. and Calzada, I. (2021) Data Cooperatives for Pandemic Times, Public Seminar (19 April), available at: https://publicseminar.org/essays/data-cooperatives-for-pandemic-times/

34   Zuboff, S. (2019) The Age of Surveillance Capitalism, New York: Public Affairs.

35   Dorsey, J. (2021) 'You don't own "web3." The VCs and their LPs do. It will never escape their incentives. It's ultimately a centralized entity with a different label. Know what you're getting into...'. Twitter.

36   Muoio, D. (2017) The early Uber investor suing Travis Kalanick turned its $12 million investment into $7 billion stake. *Business Insider*. https://www.businessinsider.com/benchmarks-uber-investment-worth-7-billion-2017-8

37   Crunchbase (2022a) Amazon—Funding, Financials, Valuation & Investors. https://www.crunchbase.com/organization/amazon/company_financials

38   Crunchbase (2022b) Query Builder | Google Funding Rounds. https://www.crunchbase.com/search/funding_rounds/field/organization.has_investor.reverse/funding_total/google

39   StartupRanking (2022c) Facebook Funding Rounds | Startup Ranking. https://www.startupranking.com/startup/facebook/funding-rounds

40   Crunchbase (2022d) Airbnb—Funding, Financials, Valuation & Investors. https://www.crunchbase.com/organization/airbnb/company_financials

41   Crunchbase (2022e) Uber—Funding, Financials, Valuation & Investors. https://www.crunchbase.com/organization/uber/company_financials

42   Klinge, T.J., Hendrikse, R., Fernandez, R. and Adriaans, I. (2022) Augmenting digital monopolies: A corporate financialization perspective on the rise of Big Tech. *Competition & Change* 10245294221105572. https://doi.org/10.1177/10245294221105573

43   Summers, L.H. (2016, 15 February) The age of secular stagnation. *Foreign Affairs*. https://www.foreignaffairs.com/articles/united-states/2016-02-15/age-secular-stagnation

44   Bank of England (2022) Quantitative easing. https://www.bankofengland.co.uk/monetary-policy/quantitative-easing

45   Tech Nation (2021) *The future UK tech built—Tech Nation Report 2021*. https://technation.io/report2021/

46   European Commission (2017) A Fair and Efficient Tax System in the European Union for the Digital Single Market. COM/2017/0547 final

47   Tech Nation (2021), op. cit.

48   Teare, G. (2022) Global Venture Funding And Unicorn Creation In 2021 Shattered All Records. Crunchbase News. https://news.crunchbase.com/business/global-vc-funding-unicorns-2021-monthly-recap/

49   Nicholas, T. (2019) *VC: an American history*. Cambridge, MA: Harvard University Press.

50   Uber Technologies Inc. (2019) Form S-1 Registration Statement. https://www.sec.gov/Archives/edgar/data/1543151/000119312519103850/d647752ds1.htm#toc647752_16

51   Davies, H., Goodley, S., Lawrence, F., Lewis, P., O'Carroll, L. and Cutler, S. (2022, 11 July) Uber broke laws, duped police and secretly lobbied governments, leak reveals. *The Guardian*. https://www.theguardian.com/news/2022/jul/10/uber-files-leak-reveals-global-lobbying-campaign

52   Chen, A. (2021) *The cold start problem: How to start and scale network effects*. New York: Harper Business.

53   Horan, H. (2019) Uber's path of destruction. *American Affairs Journal*, 3(2). https://americanaffairsjournal.org/2019/05/ubers-path-of-destruction/

54   Levingston, I. (2022, 15 August) Uber raises prices by about 5% in London to attract more drivers. Bloomberg. https://www.bloomberg.com/news/articles/2022-08-15/uber-raises-prices-by-about-5-in-london-to-attract-more-drivers

55   Agence France-Presse (2018, 25 February) Gobee.bike pulls out of France due to 'mass destruction' of its dockless bike fleet. *The Guardian*.

56   Taylor, A. (2018, 22 March) Bike share oversupply in China: Huge piles of abandoned and broken bicycles. *The Atlantic*. https://www.theatlantic.com/photo/2018/03/bike-share-oversupply-in-china-huge-piles-of-abandoned-and-broken-bicycles/556268/

57   Lunden, I. (2022) Berlin's Gorillas lays off 300, exits four markets. TechCrunch. https://techcrunch.com/2022/05/24/berlins-gorillas-lays-off-300-explores-strategic-options-in-4-countries-as-funds-dry-up-for-its-3b-instant-grocery-play/

58   Lee, R. (2022) Layoffs.fyi. https://layoffs.fyi/

59   Steinschaden, J. (2019) Startups Spend $44b on Google, Facebook and Amazon. Could this be a sign for a new bubble burst? Trending Topics. https://www.trendingtopics.eu/startups-spend-44b-on-google-facebook-and-amazon-could-this-be-a-sign-for-a-new-bubble-burst/

60   Wigglesworth, R. (2021, 23 November) The 'Tesla-financial complex': how carmaker gained influence over the markets. *Financial Times*.

61   Greenfield, P. (2019, 2 October) World's top three asset managers oversee $300bn fossil fuel investments. *The Guardian*. https://www.theguardian.com/environment/2019/oct/12/top-three-asset-managers-fossil-fuel-investments

62   Buller, A. and Braun, B. (2021, 7 September) Under new management: Share ownership and the growth of UK asset manager capitalism (Finance). Common Wealth. https://www.common-wealth.co.uk/reports/under-new-management-share-ownership-and-the-growth-of-uk-asset-manager-capitalism

63   Kruppa, M. and Parkin, B. (2021, 27 July) Tiger Global: the technology investor ruffling Silicon Valley feathers. *Financial Times*. https://www.ft.com/content/54bb342c-230f-4438-a4d7-7cbde010ea1a

64   Muoio, D. (2017) The early Uber investor suing Travis Kalanick turned its $12 million investment into $7 billion stake. *Business Insider*. https://www.businessinsider.com/benchmarks-uber-investment-worth-7-billion-2017-8

65   Scahill, J. and Greenwald, G. (2014.) 'The NSA's Secret Role in the US Assassination Program', *The Intercept* [online], 9 February. Available at: https://theintercept.com/2014/02/10/the-nsas-secret-role/. (Accessed 1 December 2022.)

66   Friedersdorf, J. (2012.) 'How Team Obama Justifies the Killing of a 16-Year-Old American', *The Atlantic [online], 24 October. Available at:* https://www.theatlantic.com/politics/archive/2012/10/how-team-obama-justifies-the-killing-of-a-16-year-old-american/264028/. (Accessed 1 December 2022.)

67   Taylor, A. (2015.) 'The US Keeps Killing Americans in Drone Strikes, Mostly by Accident', *Washington Post [online], 23 April. Available at:* https://www.washingtonpost.com/news/worldviews/wp/2015/04/23/the-u-s-keeps-killing-americans-in-drone-strikes-mostly-by-accident/. (Accessed 1 December 2022.)

68   Tau, B. (2021.) 'Military Intelligence Agency Says It Monitored US Cellphone Movements without Warrant', *Wall Street Journal* [online], 22 January. Available at: https://www.wsj.com/articles/military-intelligence-agency-says-it-monitored-u-s-cellphone-movements-without-warrant-11611350374. (Accessed 28 November 2022.)

69   Heinrich, T. (2002.) 'Cold War Armory: Military Contracting in Silicon Valley', *Enterprise & Society 3(2), 247-284. Available at:* https://www.jstor.org/stable/23699688. (Accessed 25 November 2022.)

70   Kaplan, F. (2016.) 'The Pentagon's Innovation Experiment', *Technology Review [online], 19 December. Available at:* https://www.technologyreview.com/2016/12/19/155246/the-pentagons-innovation-experiment/. (Accessed 15 November 2022.)

71   Kastrenakes, J. (2014.) 'Google Signs 60-Year Lease on NASA Airfield and Hangars', *The Verge* [online], 10 November. Available at: https://www.theverge.com/2014/11/10/7190057/nasa-leases-moffett-airfield-to-google-60-years. (Accessed 20 November 2022.)

72   Myrow, R. (2019.) 'That Giant Structure off 101 once Housed a Flying Aircraft Carrier', *KQED Bay Curious* [podcast], 11 April. Available at: https://www.kqed.org/news/11738379/that-giant-structure-off-101-once-housed-a-flying-aircraft-carrier. (Accessed 21 November 2022.)

73   Kaplan F. (2016.) 'The Pentagon's Innovation Experiment', *Technology Review [online], 19 December. Available at:* https://www.technologyreview.com/2016/12/19/155246/the-pentagons-innovation-experiment/. (Accessed 15 November 2022.)

74   Hempel, J. (2015.) 'DOD Head Aston Carter Enlists Silicon Valley to Transform the Military', *Wired* [online], 18 November. Available at: https://www.wired.com/2015/11/secretary-of-defense-ashton-carter/. (Accessed 19 November 2022.)

75   Ibid.

76   Mehta, A. (2016.) 'Carter Names Three to Innovation Board', *Defense News* [online], 10 June. Available at: https://www.defensenews.com/industry/techwatch/2016/06/10/carter-names-three-to-innovation-board/. (Accessed 18 November 2022.)

77   Mitchell, B. (2018.) 'No Longer an Experiment—DIUx Becomes DIU, Permanent Pentagon Unit', *FedScoop* [online], 9 August. Available at: https://fedscoop.com/diu-permanent-no-longer-an-experiment/. (Accessed 17 November 2022.)

78   Williams, L. (2018.) 'DIUx Gets a Big Boost in FY19 Budget', *FCW* [online], 12 February. Available at: https://fcw.com/acquisition/2018/02/diux-gets-a-big-boost-in-fy19-budget/198959/. (Accessed 22 November 2022).

79   Behrens, J. (2019.) 'FY 20 Budget Request: DOD Science and Technology,' *AIP [online], 28 March. Available at:* https://www.aip.org/fyi/2019/fy20-budget-request-dod-science-and-technology. (Accessed 30 November 2022.)

80   Reinert, J.T. (2013.) 'In-Q-Tel: The Central Intelligence Agency as Venture Capitalist', *Northwestern Journal of International Law & Business* 33(3), 677-709. Available at: https://scholarlycommons.law.northwestern.edu/cgi/viewcontent.cgi?article=1739&context=njilb. (Accessed 5 January 2023.)

81   Louie, G. (2017.) Quoted in an interview with Ernestine Fu at Stanford University, 8 May. Available at: https://www.youtube.com/watch?v=DfUm0RxXWxI. (Accessed 3 December 2022.)

82   Paletta, D. (2016.) 'The CIA's Venture-Capital Firm, Like Its Sponsor, Operates in the Shadows', *Wall Street Journal [online], 30 August. Available at:* https://www.wsj.com/articles/the-cias-venture-capital-firm-like-its-sponsor-operates-in-the-shadows-1472587352. (Accessed 2 December 2022.)

83   Cook, C.R. (2016.) 'DIUx: Capturing Technological Innovation', *The RAND Blog* [online], 23 November. Available at: https://www.rand.org/blog/2016/11/diux-capturing-technological-innovation.html. (Accessed 1 December 2022.)

84   Schachtman, N. (2010.) 'Google, CIA Invest in "Future" of Web Monitoring', *Wired* [online], July 28. Available at: https://www.wired.com/2010/07/exclusive-google-cia/. (Accessed 3 December 2022.)

85   Levine, Y. (2018.) 'Google Earth: How the Tech Giant is Helping the State Spy on Us', *The Guardian* [online], 20 December. Available at: https://www.theguardian.com/news/2018/dec/20/googles-earth-how-the-tech-giant-is-helping-the-state-spy-on-us. (Accessed 8 December 2022.)

86   Kehualani Goo, S. and A. Klein. (2007.) 'Google Makes Its Pitch to Expand Federal Business', *Washington Post* [online], 28 February. Available at: https://www.washingtonpost.com/archive/business/2007/02/28/google-makes-its-pitch-to-expand-federal-business/7d045b92-a5bb-44eb-bd6e-c85355210caf/. (Accessed 10 December 2022.)

87   Szoldra, P. (2016.) '14 Cutting Edge Firms Funded by the CIA', *Business Insider* [online], 21 September. Available at: https://www.businessinsider.com/companies-funded-by-cia-2016-9. (Accessed 12 December 2022.)

88   Fang, L. (2016.) 'The CIA Is Investing in Firms that Mine Your Tweets and Instagram Photos', *The Intercept* [online], 14 April. Available at: https://theintercept.com/2016/04/14/in-undisclosed-cia-investments-social-media-mining-looms-large/. (Accessed 10 December 2022.)

89   Wang, Maya. (2019.) 'China's Algorithms of Oppression', *Human Rights Watch Report* [online], 1 May. Available at: https://www.hrw.org/report/2019/05/01/chinas-algorithms-repression/reverse-engineering-xinjiang-police-mass. (Accessed 15 December 2022.)

90   Work, R.O. (2017). Official US government memorandum, 26 April. Available at https://www.govexec.com/media/gbc/docs/pdfs_edit/establishment_of_the_awcft_project_maven.pdf. (Accessed 15 December 2022.)

91   Allen, G.C. (2017) 'Project Maven Brings AI to the Fight against ISIS', *Bulletin of the Atomic Scientists [online], 21 December. Available at:* https://thebulletin.org/2017/12/project-maven-brings-ai-to-the-fight-against-isis/. (Accessed 13 December 2022.)

92   Ibid.

93   Pellerin, C. (2017.) 'Project Maven to Deploy Computer Algorithms to War Zone by Year's End', *DOD News* [online], 21 July. Available at: https://www.defense.gov/News/News-Stories/Article/Article/1254719/project-maven-to-deploy-computer-algorithms-to-war-zone-by-years-end/. (Accessed 12 December 2022.)

94   Conger, K. (2018.) 'The Pentagon's Controversial Drone AI-Imaging Project Extends beyond Google', *Gizmodo* [online], 21 May. Available at: https://gizmodo.com/the-pentagons-controversial-drone-ai-imaging-project-ex-1826046321. (Accessed 20 December 2022.)

95   Statt, N. (2018.) 'Google Reportedly Leaving Project Maven Military AI Program after 2019', *The Verge* [online], 1 June. Available at: https://www.theverge.com/2018/6/1/17418406/google-maven-drone-imagery-ai-contract-expire. (Accessed 21 December 2022.)

96   Conger, K. (2018.) Google Plans Not to Renew Its Contract for Project Maven', *Gizmodo* [online], 1 June. Available at https://gizmodo.com/google-plans-not-to-renew-its-contract-for-project-mave-1826488620.

97   Ibid.

98   Conger, K. (2018.) 'Google Employees Resign in Protest against Pentagon Contract', *Gizmodo* [online], 14 May. Available at https://gizmodo.com/google-employees-resign-in-protest-against-pentagon-con-1825729300.

99   Ibid.

100 Pichar, S. (2018.) 'AI at Google: Our Principles', *Google Blog* [online], 7 June. Available at: https://blog.google/technology/ai/ai-principles/. (Accessed 10 December 2022.)

101 Fang, L. (2019.) 'Defense Tech Startup Founded by Trump's Most Prominent Silicon Valley Supporters Win Secretive Military AI Contract', *The Intercept* [online], 9 March. Available at: https://theintercept.com/2019/03/09/anduril-industries-project-maven-palmer-luckey/. (Accessed 11 December 2022.)

102 Tech Inquiry (2021.) 'Easy as PAI' [online report], 10 September. Available at: https://techinquiry.org/EasyAsPAI/resources/EasyAsPAI.pdf. (Accessed 30 August 2022.)

103 Kelly, M. (2018.) 'Microsoft Secures $480 Million HoloLens Contract from US Army', *The Verge* [online], 28 November. Available at: https://www.theverge.com/2018/11/28/18116939/microsoft-army-hololens-480-million-contract-magic-leap. (Accessed 29 November 2022.)

104 Lecher, C. (2019.) 'Microsoft Workers' Letter Demands Company Drop Army HoloLens Contract', *The Verge* [online], 22 February. Available at: https://www.theverge.com/2019/2/22/18236116/microsoft-hololens-army-contract-workers-letter. (Accessed 4 December 2022.)

105 Riley, C. and S. Burke (2019.) 'Microsoft CEO Defends US Military Contract That Some Employees Say Crosses a Line', *CNN* [online], 25 February. Available at: https://www.cnn.com/2019/02/25/tech/augmented-reality-microsoft-us-military/index.html. (Accessed 5 December 2022.)

106 Conger, K. (2018.) 'Amazon Workers Demand Jeff Bezos Cancel Face Recognition Contracts with Law Enforcement', *Gizmodo* [online], 21 June. https://gizmodo.com/amazon-workers-demand-jeff-bezos-cancel-face-recognitio-1827037509. (Accessed 10 December 2022.)

107 Leskin, P. (2018.) 'Amazon Employees Are Reportedly Gearing Up to Confront CEO Jeff Bezos at an All-Staff Meeting This Week about Selling Facial Recognition Software to Law Enforcement', *Business Insider* [online], 6 November. Available at: https://www.businessinsider.com/amazon-workers-confront-jeff-bezos-facial-recognition-software-2018-11. (Accessed 3 December 2022.)

108 Keane, T. (2021.) 'Azure Government Top Secret Now Generally Available for US National Security Missions', *Microsoft Azure Blog* [online], 16 August. Available at: https://azure.microsoft.com/en-us/blog/azure-government-top-secret-now-generally-available-for-us-national-security-missions/. (Accessed 29 December 2022.)

109 Oracle (2023.) 'Oracle Cloud for the Defense Department', *Oracle website* [online], n.d. Available at: https://www.oracle.com/industries/government/us-defense/. (Accessed 29 March 2023.)

110 Amazon Web Services. (2018.) 'Amazon Web Services for the Warfighter' [online video], 9 August. Available at: https://www.youtube.com/watch?v=HHbBizyTet4. (Accessed 22 December 2022.)

111 Price, D. dual use

112 O'Mara, M. (2018.) 'Silicon Valley Can't Escape the Business of War', *New York Times* [online], 26 October. Available at: https://www.nytimes.com/2018/10/26/opinion/amazon-bezos-pentagon-hq2.html. (Accessed 22 December 2022.)

113 Tucker, P. (2015.) 'How US Special Forces Uses Google Maps', *Defense One* [online], 7 January. Available at: https://www.defenseone.com/technology/2015/01/how-us-special-forces-uses-google-maps/102396/. (Accessed 20 December 2022.)

114 O'Mara, M. (2018.) 'Silicon Valley Can't Escape the Business of War', *New York Times* [online], 26 October. Available at: https://www.nytimes.com/2018/10/26/opinion/amazon-bezos-pentagon-hq2.html. (Accessed 22 December 2022.)

115 Heinrich, T. (2002.) 'Cold War Armory: Military Contracting in Silicon Valley', *Enterprise & Society 3(2), 247-284. Available at:* https://www.jstor.org/stable/23699688. (Accessed 25 November 2022.)

116 Poulson, J. (2019.) Personal communication, 19 June.

117 We use 'migrant(s)' to refer to people on the move without differentiating between refugees, asylum seekers or economic migrants.

118 Cáceres, G. and Gressier, R. (2021, 14 May) 'Sting operation against migrant caravan arrests working-class migrants as human traffickers', *El Faro.* https://elfaro.net/en/202105/el_salvador/25479/Sting-Operation-against-Migrant-Caravan-Arrests-Working

119 Johnson, R. (2021, 15 January) 'Aplaudo a las autoridades salvadoreñas que están tomando acción contra quienes quieren engañar a los ciudadanos con caravanas y promesas falsas Solo promueven #UnViajeEnVano', Twitter. https://twitter.com/FGR_SV/status/1350133335549501443

120 de Goede, M. and Westermeier, C. (2022) 'Infrastructural geopolitics'. *International Studies Quarterly*, 66(3): 1–12. http://dx.doi.org/10.1093/isq/sqac033.

121 Muñiz, A. (2022) *Borderland Circuitry: Immigration surveillance in the United States and beyond*. Oakland, CA: University of California Press; see also Mijente, Immigrant Defense Project, NIPNLG (2018) 'Who's behind ICE'. https://mijente.net/wp-content/uploads/2023/02/Who-is-Behind-ICE-The-Tech-and-Data-Companies-Fueling-Deportations_v4.pdf

122 This lens also enables us to emphasise the connection to historical antecedents such as physical transit and trade infrastructure 'modernisation' projects, where the link to state violence is indisputable (e.g. railway construction projects and genocide of indigenous peoples in Sonora from 1880 to the 1900s). See Guidotti-Hernández, N. (2011) *Unspeakable Violence: remapping U.S. and Mexican national imaginaries.* Durham, NC & London: Duke University Press. We emphasise that this scale is no departure from the racialised logics that have defined border practices in this region for decades. See Rosas, G. (2006) 'The managed violences of the borderlands: treacherous geographies, policeability, and the politics of race'. *Latino Studies*, 4(4): 401–418. https://doi.org/10.1057/palgrave.lst.8600221

123 See, for example, Shivkumar, G., O'Neil, K. and Nordhaug, L. (2021, 30 August) 'How to bring digital inclusion to the people who need it most'. https://www.weforum.org/agenda/2021/08/4-reasons-you-should-care-about-digital-public-infrastructure/ ('[Digital Public Infrastructure (DPI)] refers to digital solutions that enable basic functions essential for public and private service delivery, i.e. collaboration, commerce, and governance. Think about our existing shared public infrastructure such as roads and education, but online: that's DPI in a nutshell'); Masiero, S. and Arvidsson, V. (2021) 'Degenerative outcomes of digital identity platforms for development'. *Information Systems Journal*, 31(6): 903–928. https://doi.org/10.1111/isj.12351; Massally, K. and Frankenhauser, C. (2022, 3 August) 'The right way to build digital public infrastructure: 5 insights'. https://www.weforum.org/agenda/2022/08/digital-public-infrastructure/

124 Aizeki, M., et al (2021) *Smart Borders or A Humane World*, https://www.tni.org/en/publication/smart-borders-or-a-humane-world

125 Andersson, R. (2018) *Illegality, Inc.: clandestine migration and the business of bordering Europe*. Oakland, CA: University of California Press, Miller, T. (2019), op. cit.; Akkerman, M. (2021) *Border Wars*. Amsterdam: Transnational Institute.

126 Paley, D. (2014) *Drug War Capitalism*. Oakland, CA: AK Press.

127 Miller, T. (2019) *Empire of Borders: The Expansion of the U.S. Border around the World*. London, New York: Verso.

128 Ibid, p. 177

129 Immigrant Defense Project, Mijente, and NIPNLG (2018), 'Who's Behind ICE: The Tech and Data Companies Fueling Deportations'. https://mijente.net/wp-content/uploads/2023/02/Who-is-Behind-ICE-The-Tech-and-Data-Companies-Fueling-Deportations_v4.pdf

130 FOIA request 330020322000471 directed to the National Institute of Migration. https://r3d.mx/wp-content/uploads/Oficios-y-anexos-471.pdf.

131 Watch CBP Intel (2019) 'Central American Caravans and Migration Crisis Flow - Update 32'. U.S. Customs and Border Protection. https://r3d.mx/wp-content/uploads/Central-American-Caravans-and-Migration-Crisis-Flow-Update-32.pdf.

132 Meissner, D., Kerwin, D.M., Chisti, M. and Bergeron, C. (2013) *Immigration Enforcement in The United States: a formidable machinery*. Washington, DC: Migration Policy Institute. https://www.migrationpolicy.org/pubs/enforcementpillars.pdf.

133 Woodward, J. (2005) 'Using biometrics to achieve identity dominance in the Global War on Terrorism'. *Military Review*; see also Jacobsen, A. (2021) *First Platoon: a story of modern war in the age of identity dominance*. New York: Dutton.

134 Angel, A. (2020, 15 December) 'Población en cárceles crece a ritmo récord en 2020: hay 14 mil reos más que al inicio del año', Animal Político. https://www.animalpolitico.com/2020/12/poblacion-carceles-crece-record-2020/#:~:text=Mientras%20que%20en%20diciembre%20de,de%20que%20cometieron%20un%20delito

135 Romero, O.A. (2014, 10 February) 'La criminalización de la pobreza y el sistema de justicia penal', Información Sididh. http://centroprodh.org.mx/sididh_2_0_alfa/?p=31418

136 de Goede, M. & Westermeier, C. (2022), op. cit.

137 Woodward, J. (2005) 'Using biometrics to achieve identity dominance in the Global War on Terrorism'. *Military Review*. https://www.rand.org/pubs/reprints/RP1194.html; see also Jacobsen, A. (2021) op. cit.

138 Kwet, M. (2021), 'Digital Colonialism'. https://longreads.tni.org/digital-colonialism-the-evolution-of-us-empire

139 DHS Office of Inspector General (2021) 'CBP Targeted Americans Associated with the 2018–2019 Migrant Caravan'. https://www.oig.dhs.gov/sites/default/files/assets/2021-09/OIG-21-62-Sep21.pdf

140 LIS and R3D (2023 forthcoming) 'Uso de las tecnologías digitales en los contextos migratorios: necesidades, oportunidades y riesgos para el ejercicio de los derechos humanos de las personas migrantes, defensoras y periodistas'. www.r3d.mx/publicaciones.

141 Open Society Justice Initiative (2019), *Unmaking Americans: insecure citizenship in the United States,* p. 102. https://www.justiceinitiative.org/uploads/e05c542e-0db4-40cc-a3ed-2d73abcfd37f/unmaking-americans-insecure-citizenship-in-the-united-states-report-20190916.pdf

142 Chambers, S., Boyce, G., Launius, S. and Dinsmore, A. (2019) 'Mortality, surveillance and the tertiary "funnel effect" on the U.S.-Mexico border: a geospatial modeling of the geography of deterrence'. J*ournal of Borderlands Studies*, 36(3): 443–468. https://doi.org/10.1080/08865655.2019.157086

143 Muñiz, A. (2022), op. cit.

144 Rosas, G. (2006), op. cit.

145 Jacobsen, A. (2020), op. cit.

146 Guidotti-Hernandez, N. (2011) *Unspeakable Violence: Remapping U.S. and Mexican National Imaginaries*. Durham & London: Duke University Press. Woodward, J. (2005), op. cit.

147 Woodward, J. (2005), op. cit.

148 Muñiz, A. (2022), op. cit.; Rosas, G. (2006), op. cit; Khan, J. (2019) Islands of Sovereignty: Haitian migration and the borders of empire. Chicago: University of Chicago Press.

149 Rosas, G. (2006), op. cit.

150 McCoy, A. (2017) *In the Shadows of the American Century: The Rise and Decline of US Global Power*. Chicago: Haymarket Books.

151 Endnotes: Scheer, S. (2021). Israel signs cloud services deal with Amazon, Google. *Reuters*. [online] 24 May. Available at: https://www.reuters.com/technology/israel-signs-cloud-services-deal-with-amazon-google-2021-05-24/ [Accessed 20 Mar. 2023].

152 Fung, B. (2021). *Amazon Web Services disables cloud accounts linked to NSO Group | CNN Business*. [online] CNN. Available at: https://edition.cnn.com/2021/07/19/tech/amazon-nso-group-pegasus-cloud-accounts/index.html [Accessed 20 Mar. 2023].

153 Middle East Eye. (2021). *Meet Blue Wolf, the app Israel uses to spy on Palestinians in the occupied West Bank*. [online] Available at: https://www.middleeasteye.net/news/israel-whats-blue-wolf-app-soldiers-use-photograph-palestinians.

154 WhoProfits. (2021). *Hewlett Packard Enterprise (HPE)*. [online] Available at: https://www.whoprofits.org/company/hewlett-packard-enterprise-hpe/ [Accessed 20 Mar. 2023].

155 Investigate & Dismantle Apartheid. (2022). *Al Haq issues landmark report 'Israeli Apartheid: Tool of Zionist Settler-Colonialism'*. [online] Available at: https://antiapartheidmovement.net/updates/view/al-haq-issues-landmark-report-israeli-apartheid-tool-of-zionist-settler-colonialism/15 [Accessed 20 Mar. 2023].

156 Amnesty International. (2022). *Israel's apartheid against Palestinians*. [online] Amnesty International. Available at: https://www.amnesty.org/en/latest/campaigns/2022/02/israels-system-of-apartheid/.

157 Stop The Wall. (n.d.). *Digital Walls*. [online] Available at: https://stopthewall.org/digitalwalls/ [Accessed 20 Mar. 2023].

158 Stop The Wall. (n.d.). *Digital Walls*. [online] Available at: https://stopthewall.org/digitalwalls/#militarization [Accessed 20 Mar. 2023].

159 Khan, A. (2021). Hidden Pentagon Records Reveal Patterns of Failure in Deadly Airstrikes. *The New York Times*. [online] 18 Dec. Available at: https://www.nytimes.com/interactive/2021/12/18/us/airstrikes-pentagon-records-civilian-deaths.html.

160 Brewster, T. (2021). *Project Maven: Amazon And Microsoft Scored $50 Million In Pentagon Surveillance Contracts After Google Quit*. [online] Forbes. Available at: https://www.forbes.com/sites/thomasbrewster/2021/09/08/project-maven-amazon-and-microsoft-get-50-million-in-pentagon-drone-surveillance-contracts-after-google/?sh=549483dc6f1e [Accessed 20 Mar. 2023].

161 Strout, N. (2022). *Intelligence agency takes over Project Maven, the Pentagon's signature AI scheme*. [online] C4ISRNet. Available at: https://www.c4isrnet.com/intel-geoint/2022/04/27/intelligence-agency-takes-over-project-maven-the-pentagons-signature-ai-scheme/.

162 Big Tech Sells War. *Big Tech Sells War - How Big Tech Sells War on our Communities*. [online] Available at: https://bigtechsellswar.com/ [Accessed 20 Mar. 2023].

163 Big Tech Sells War. *Big Tech Sells War - How Big Tech Sells War on our Communities*. [online] Available at: https://bigtechsellswar.com/#timelines-home [Accessed 20 Mar. 2023].

164 Nextgov.com. (2021). *NSA Awards Secret $10 Billion Contract to Amazon*. [online] Available at: https://www.nextgov.com/it-modernization/2021/08/nsa-awards-secret-10-billion-contract-amazon/184390/.

165 www.theregister.com. (2022). *$10b US defense cloud contract re-awarded to AWS*. [online] Available at: https://www.theregister.com/2022/04/28/nsa_wands_aws/.

166 Novet, J. (2021). *Microsoft wins U.S. Army contract for augmented reality headsets, worth up to $21.9 billion over 10 years*. [online] CNBC. Available at: https://www.cnbc.com/2021/03/31/microsoft-wins-contract-to-make-modified-hololens-for-us-army.html.

167 Israel Innovation. *Attack is the Best Form of Defense*. [online] Available at: https://innovationisrael.org.il/en/reportchapter/attack-best-form-defense [Accessed 20 Mar. 2023].

168 Mondoweiss. (2014). *Israel surveils and blackmails gay Palestinians to make them informants*. [online] Available at: https://mondoweiss.net/2014/09/blackmails-palestinian-informants/ [Accessed 20 Mar. 2023].

169 Abukhater, J. (2022). *Under Israeli surveillance: Living in dystopia, in Palestine*. [online] www.aljazeera.com. Available at: https://www.aljazeera.com/opinions/2022/4/13/under-israeli-surveillance-living-in-dystopia-in-palestine.

170 Alys Samson Estapé. (2021). *Israel: the model coercive state* and why boycotting it is key to emancipation everywhere [online] Available at: https://longreads.tni.org/stateofpower/israel-the-model-coercive-state [Accessed 20 Mar. 2023].

171 VentureBeat. (2015). *Microsoft confirms it has acquired cloud security platform Adallom*. [online] Available at: https://venturebeat.com/business/microsoft-confirms-it-has-acquired-cloud-security-platform-adallom/ [Accessed 21 Mar. 2023].

172 Lunden, I. (2017). *Microsoft to buy Israeli security firm Hexadite, sources say for $100M*. [online] TechCrunch. Available at: https://techcrunch.com/2017/06/08/microsoft-confirms-its-acquired-hexadite-sources-say-for-100m/?guccounter=2 [Accessed 21 Mar. 2023].

173 Algemeiner, T. (2021). *Unit 81: The Elite Military Unit That Caused a Big Bang in the Israeli Tech Scene - Algemeiner. com*. [online] www.algemeiner.com. Available at: https://www.algemeiner.com/2021/01/08/unit-81-the-elite-military-unit-that-caused-a-big-bang-in-the-israeli-tech-scene/ [Accessed 21 Mar. 2023].

174 Scheer, S. (2022). Google activates Israel's first local cloud region. *Reuters*. [online] 20 Oct. Available at: https://www.reuters.com/technology/google-activates-israels-first-local-cloud-region-2022-10-20/ [Accessed 21 Mar. 2023].

175 notechforice.com. *About | #NoTechForICE*. [online] Available at: https://notechforice.com/about/ [Accessed 21 Mar. 2023].

176 7amleh, the Arab Center for Social Media Development (2021). *#Hashtag Palestine 2021*. [online] Available at: https://7amleh.org/storage/Hashtag%202021%20EN.pdf

177 Statt, N. (2018). *Google reportedly leaving Project Maven military AI program after 2019*. [online] The Verge. Available at: https://www.theverge.com/2018/6/1/17418406/google-maven-drone-imagery-ai-contract-expire.

178 Kantor, J., Weise, K. and Ashford, G. (2021). The Amazon That Customers Don't See. *The New York Times*. [online] 15 Jun. Available at: https://www.nytimes.com/interactive/2021/06/15/us/amazon-workers.html

179 Couldry, N. & Mejias, U. (2019b) Making data colonialism liveable: How might data's social order be regulated? Internet Policy Review, 8(2). https://doi.org/10.14763/2019.2.1411

180 Viljoen, S. (2021) A relational theory of data governance. The Yale Law Journal, 131(2): 370–781. https://www.yalelawjournal.org/feature/a-relational-theory-of-data-governance

181 Polanyi, K. (1957 [1944]) The Great Transformation: The political and economic origins of our time. Boston, MA: Beacon Press.

182 Fraser, N. (2014) Can society be commodities all the way down? Post-Polanyian reflections on capitalist crisis. Economy and Society, 43(3): 541–558. https://doi.org/10.1080/03085147.2014.898822

183 Bhambra, G. K. (2021) Colonial global economy: Towards a theoretical reorientation of political economy. Review of International Political Economy, 28(2): 307–322. https://doi.org/10.1080/09692290.2020.1830831

184 Ashiagbor, D. (2021) Race and colonialism in the construction of labour markets and precarity. Industrial Law Journal, 50(4): 1–26. https://doi.org/10.1093/indlaw/dwab020

185 Beckert, S. & Rockman, S. (eds.) (2016) Slavery's Capitalism: A new history of American economic development. Philadelphia, PA: University of Pennsylvania Press; Berry, D. R. (2017) The Price for Their Pound of Flesh: The value of the enslaved, from womb to grave, in the building of a nation. Boston, MA: Beacon Press.

186 Fraser (2014).

187 Polanyi (1957), p.54.

188 Ensmenger, N. (2018) The environmental history of computing. Technology and Cutlure, 59(4): S7–S33. https://doi.org/10.1353/tech.2018.0148

189 Mazzucato, M. (2013) The Entrepreneurial State: Debunking public vs. private sector myths. London. Anthem Press.

190 Peters, B. (2016) How Not to Network a Nation: The uneasy history of the Soviet internet. Cambridge, MA: MIT Press.

191 Medina, E. (2011) Cybernetic Revolutionaries: Technology and politics in Allende's Chile. Cambridge, MA: MIT Press.

192 Levine, Y. (2018) Surveillance Valley: The secret military history of the internet. New York: Public Affairs.

193 Staab, P. (2019) Digitaler Kapitalismus. Berlin: Suhrkamp.

194 Crain, M. (2021) Profit over Privacy. How surveillance advertising conquered the internet. Minneapolis, MN: University of Minnesota Press.

195 Levine (2018).

196 Haggart, B. (2018) 'The government's role in constructing the data-driven economy', Center for International Governance Innovation [online]. https://www.cigionline.org/articles/governments-role-constructing-data-driven-economy/

197 Starosielski, N. (2015) The Undersea Network. London: Duke University Press.

198 Tully, J. (2009) A Victorian ecological disaster: Imperialism, the telegraph, and gutta-percha. Journal of World History, 20(4): 559–579. https://www.jstor.org/stable/40542850

199 Blum, A. and Baraka, C. (2022, 10 May) 'Sea change', Rest of World [online]. https://restofworld.org/2022/google-meta-underwater-cables/

200 [Al Jazeera English] (2019) Is Big Tech colonising the internet? | All Hail The Algorithm, YouTube [online]. https://www.youtube.com/watch?v=_fC7acShZkg

201 Global Witness (2022) A deadly decade for land and environmental activists—with a killing every two days [online]. https://www.globalwitness.org/en/press-releases/deadly-decade-land-and-environmental-activists-killing-every-two-days/

202 Ross, C. (2014) The tin frontier: Mining, empire, and environment in Southeast Asia, 1870s—1930s. Environmental History, 19: 454–479. http://dx.doi.org/10.1093/envhis/emu032

203 Friends of the Earth (2012) Mining for smartphones: The true cost of tin [online]. https://www.foe.co.uk/sites/default/files/downloads/tin_mining.pdf; Simpson, C. (2012, 24 August) 'The deadly tin inside your smartphone', Bloomberg [online]. https://www.bloomberg.com/news/articles/2012-08-23/the-deadly-tin-inside-your-smartphone

204 Zhong, R. and Chang Chien, A. (2021, 8 April) 'Drought in Taiwan pits chip makers against farmers', The New York Times [online]. https://www.nytimes.com/2021/04/08/technology/taiwan-drought-tsmc-semiconductors.html

205 Gaydos, E. (2019) In the shadow of big blue: The birthplace of IBM is struggling to live in its shadow. Logic, 9 [online]. https://logicmag.io/nature/in-the-shadow-of-big-blue/

206 Hogan, M. (2015) Data flows and water woes: The Utah data center. Big Data & Society, 2(2). https://doi.org/10.1177/2053951715592429

207 Adjei, A. (2014, 19 April) 'Life in Sodom and Gomorrah: The world's largest digital dump', The Guardian [online]. https://www.theguardian.com/global-development-professionals-network/2014/apr/29/agbogbloshie-accra-ghana-largest-ewaste-dump

208 Bauman, Z. (2004) Wasted Lives: Modernity and its outcasts. Cambridge: Polity.

209 Dwoskin, E., Whlen, J. and Cabato, R. (2019, 25 July) 'Content moderators at YouTube, Facebook and Twitter see the worst of the web—and suffer silently', The Washington Post [online]. https://www.washingtonpost.com/technology/2019/07/25/social-media-companies-are-outsourcing-their-dirty-work-philippines-generation-workers-is-paying-price/; Elliott, V. and Tekendra, P. (2020, 22 July) 'The despair and darkness of people will get to you', Rest of World [online]. https://restofworld.org/2020/facebook-international-content-moderators/

210 Couldry, N. and Mejias, U. (2019a) The Cost of Connection: How data is colonizing human life and appropriating it for capitalism. Stanford, CA: Stanford University Press, p. 5, emphasis original.

211 Ibid., p. 117.

212 Boyd, d. and Crawford, K. (2012) Critical questions for big data. Information, Communication & Society, 15(5): 662– 679. https://doi.org/10.1080/1369118X.2012.678878

213 Cohen, J. E. (2019) Between Truth and Power: The legal constructions of informational capitalism. Oxford: Oxford University Press.

214 Viljoen (2021).

215 Micheli, M., Ponti, M., Craglia, M. and Suman, A. (2020) Emerging models of data governance in the age of datafication, Big Data & Society, 7(2). https://doi.org/10.1177/2053951720948087

216 Sadowski, J., Viljoen, V. and Whittaker, M. (2021) Everyone should decide how their digital data are used—not just tech companies. Nature, 595: 169–171. https://doi.org/10.1038/d41586-021-01812-3

217 Bria, F. (2018) A new deal on data, in McDonnell, J. (ed.) Economics for the many, London: Verso, pp. 164– 171; Hind, D. (2019, 20 September) The British digital cooperative: A new model public sector institution. Common Wealth [online]. https://www.common-wealth.co.uk/reports/the-british-digital-cooperative-a-new-model-public-sector-institution; Delacroix, S. and Lawrence, N. D. (2019) Bottom-up data trusts: Disturbing the 'one size fits all' approach to data governance. International Data Privacy Law, 9(4): 236–252. https://doi.org/10.1093/idpl/ipz014; Sadowski, Viljoen and Whittaker (2021).

218 Beraldo, D. and Milan, S. (2019) From data politics to the contentious politics of data. Big Data & Society, 6(2). https://doi.org/10.1177/2053951719885967

219 Piasna, A. and Zwysten, W. (2022) New wine in old bottles; organizing and collective bargaining in the platform economy. International Journal of Labour Research, 11(1-2): 36-46. [online]. https://www.ilo.org/actrav/international-journal-labour-research/WCMS_856837/lang--en/index.htm; Qadri, R. and Raval, N. (2021) Mutual aid stations. Logic 13 [online]. https://logicmag.io/distribution/mutual-aid-stations/

220 Kwet, M. (2022) The digital tech deal: A socialist framework for the twenty-first century. Race and Class, 63(3): 63–84. https://doi.org/10.1177/03063968211064478

221 Hickel, J. and Kallis, G. (2019) Is green growth possible? New Political Economy, 25(4): 469–486. https://doi.org/10.1080/13563467.2019.1598964

222 Internet Archive (2021) Available at: https://archive.org/details/the-wizard-of-oz-1080p. (Accessed 13 March 2023).

223 'Alan Turing' (2023) Wikipedia, the Free Encyclopaedia. Available at: https://en.wikipedia.org/wiki/Alan_Turing (Accessed 13 March 2023).

224 'Hal 9000' (2023) Wikipedia, the Free Encyclopaedia. Available at: https://en.wikipedia.org/wiki/HAL_9000 (Accessed 13 March 2023).

225 Página12 (2018) La inteligencia artificial de Urtubey. Available at: https://www.pagina12.com.ar/107412-la-inteligencia-artificial-de-urtube (Accessed 13 March 2023)

226 Microsoft News Center LATAM (2017) Microsoft y el gobierno de Salta firman un acuerdo para aplicar la inteligencia artificial en la prevención de los problemas más urgentes. Available at: https://news.microsoft.com/es-xl/microsoft-gobierno-salta-firman-acuerdo-aplicar-la-inteligencia-artificial-la-prevencion-los-problemas-mas-urgentes/ (Accessed 13 March 2023)

227 Perfil (2018) Albino dijo que el preservativo no protege porque "el virus del SIDA atraviesa la porcelana" Available at: https://www.perfil.com/noticias/politica/albino-dijo-que-el-preservativo-no-protege-del-vih-porque-atraviesa-la-porcelana.phtml (Accessed 13 March 2023)

228 Alonso, A. (2018) Microsoft democratiza la IA y los servicios cognitivos, It.sitio, 28 March. Available at: https://www.itsitio.com/es/microsoft-democratiza-la-ia-y-los-servicios-cognitivos/ (Accessed 13 March 2023)

229 'Deep neural networks' (2023) *Wikipedia, the Free Encyclopaedia.* Available at: https://en.wikipedia.org/wiki/Deep_learning#Deep_neural_networks (Accessed 13 March 2023).

230 'Bayesian networks' (2023) *Wikipedia, the Free Encyclopaedia.* Available at: https://en.wikipedia.org/wiki/Bayesian_networks (Accessed 13 March 2023).

231 'Markov chains' (2023) Wikipedia, the Free Encyclopaedia. Available at: https://en.wikipedia.org/wiki/Markov_chains (Accessed 13 March 2023).

232 Brunet, P., Font, T., Rodríguez, J. (2022) Robots asesinos: 18 preguntas y respuestas. Available at: https://centredelas.org/publicacions/robots-asesinos-18-preguntas-y-respuestas/?lang=es (Downloaded 13 March 2023).

233 Eubanks, V. (2018) Automating Inequality; How high-tech tools profile, police and punish the poor. New York: St Martin's Press.

234 Ortiz Freuler, J. and Iglesias, C. (2018) Algoritmos e Inteligencia Artificial en Latinoamérica: Un Estudio de implementaciones por parte de Gobiernos en Argentina y Uruguay. World Wide Web Foundation. Available at: https://webfoundation.org/docs/2018/09/WF_AI-in-LA_Report_Spanish_Screen_AW.pdf (Accessed 13 March 2023)

235 Laboratorio de Inteligencia Artificial Aplicada (2018) Sobre la predicción automática de embarazos adolescentes. Available at: https://liaa.dc.uba.ar/es/sobre-la-prediccion-automatica-de-embarazos-adolescentes/

236 Barron, K., Kung, E., and Proserpio, D. (2020) 'The effect of home-sharing on house prices and rents: Evidence from Airbnb'. *Marketing Science* 40(1):23–47. https://ssrn.com/abstract=3006832

237 Bernardi, M. (2 October 2018) 'The impact of AirBnB on our cities: Gentrification and 'disneyfication' 2.0'. *The Urban Media Lab*. https://labgov.city/theurbanmedialab/the-impact-of-airbnb-on-our-cities-gentrification-and-disneyfication-2-0/

238 Griffith, E. (2020, 10 December) 'Airbnb tops $100 billion on first day of trading'. *The New York Times.* https://www.nytimes.com/2020/12/10/technology/airbnb-tops-100-billion-on-first-day-of-trading-reviving-talk-of-a-bubble.html

239 Airbnb, Inc. (2021, 11 February) 'Annual Report for the fiscal year ended Dec. 31, 2020.' Form 10-K, United States Securities and Exchange Commission. https://www.sec.gov/Archives/edgar/data/1559720/000155972021000010/airbnb-10k.htm

240 Tang, D. (2022, 5 January) 'WIPO: the IP Office of the future'. *World Trademark Review*. https://www.worldtrademarkreview.com/report/special-reports/q4-2021/article/wipo-the-ip-office-of-the-future

241 WIPO. (2017) *World Intellectual Property Report 2017: Intangible capital in global value chains*. Geneva: World Intellectual Property Organization. https://www.wipo.int/edocs/pubdocs/en/wipo_pub_944_2017.pdf

242 WIPO. (2021) *IP for the Good of Everyone: Report of the Director General to the 2021 WIPO Assemblies*. Geneva: World Intellectual Property Organization. https://www.wipo.int/dg-report/2021/en/

243 Patent Progress. 'Too Many Patents'. https://www.patentprogress.org/systemic-problems/too-many-patents/

244 Boyle, J. (2008) *The Public Domain: Enclosing the commons of the mind*. New Haven & London: Yale University Press. https://scholarship.law.duke.edu/cgi/viewcontent.cgi?article=5385&context=faculty_scholarship

245 Blumberg A. and Sydell L. (2011, 22 July) 'When Patents Attack'. *This American Life* [Podcast]. https://www.npr.org/sections/money/2011/07/26/138576167/when-patents-attack

246 Owles, E. (2017, 22 June) 'The making of Martin Shkreli as "pharma bro"'. *The New York Times*. https://www.nytimes.com/2017/06/22/business/dealbook/martin-shkreli-pharma-bro-drug-prices.html

247 Gilmore, R. W. (2020, 10 June) 'What are we talking about when we talk about "a police-free future"?' MDP150. https://www.mpd150.com/what-are-we-talking-about-when-we-talk-about-a-police-free-future/

248 Duda. J. (2017, 9 November) 'Towards the horizon of abolition: A conversation with Mariame Kaba'. *The Next System Project.* https://thenextsystem.org/learn/stories/towards-horizon-abolition-conversation-mariame-kaba

249 International Network of Civil Liberties Organizations. (2013) '"Take back the streets": Repression and criminalization of protest around the world'. https://www.aclu.org/sites/default/files/field_document/global_protest_suppression_report_inclo.pdf

250 Critical Resistance. 'What is the PIC? What is Abolition?' https://criticalresistance.org/mission-vision/not-so-common-language/

251 Brown, A. (2020, 15 November) 'In the mercenaries' own words: Documents detail TigerSwan infiltration of Standing Rock'. *The Intercept*. https://theintercept.com/2020/11/15/standing-rock-tigerswan-infiltrator-documents/

252 Mural Arts Philadelphia. *Standing Rock: Decolonizing Creative Practice in the Environmental Justice Movement*. [online video]. https://www.youtube.com/watch?v=z5A2Xf5B7Lc

253 Cadena-Roa, J. and Puga, C. (2021) 'Protest and Performativity', in S. Rai, M. Gluhovic, S. Jestrovic and M. Saward (eds.) *The Oxford Handbook of Politics and Performance*. New York: Oxford University Press, pp. 101–116.

254 Reuters. (2019, 4 January) 'Basra youth adopt new tactic for peaceful protest'. https://uk.movies.yahoo.com/basra-youth-adopt-tactic-peaceful-131430647.html

255 Brown, M. (2015, 3 September) 'Activists plan oil protest at British Museum'. *The Guardian.* https://www.theguardian.com/culture/2015/sep/03/art-not-oil-plan-protest-british-museum

256 Haiven, M. (2017) 'Monsters of the Financialized Imagination: From Pokémon to Trump', in N. Buxton and D. Eade (eds.) *State of Power 2017*. Amsterdam: Transnational Institute. http://longreads.tni.org/state-of-power/age-of-monsters/

257 WIPO. (2022) *The Role of Border Measures in IP Enforcement.* Geneva: World Intellectual Property Organization. https://www.wipo.int/meetings/en/details.jsp?meeting_id=72168

258 Kelly, A. (2019, 16 December) 'Apple and Google named in US lawsuit over Congolese child cobalt mining deaths'. *The Guardian.* https://www.theguardian.com/global-development/2019/dec/16/apple-and-google-named-in-us-lawsuit-over-congolese-child-cobalt-mining-deaths

259 Ochab, E. U. (2020, 13 January) 'Are These tech companies complicit in human rights abuses of child cobalt miners in Congo?' Centre de Ressources sur les Entreprises et les Droits de l'Homme. https://www.business-humanrights.org/fr/derni%C3%A8res-actualit%C3%A9s/are-these-tech-companies-complicit-in-human-rights-abuses-of-child-cobalt-miners-in-congo/

260 Vermeer, K. (2020, 21 September) 'Two sides of the same coin: How the pulp and paper industry is profiting from deforestation in the Amazon rainforest'. *Environmental Paper Network.* https://environmentalpaper.org/2020/09/two-sides-of-the-same-coin-how-the-pulp-and-paper-industry-is-profiting-from-deforestation-in-the-amazon-rainforest/

261 China Labor Watch. (2021, 13 December) 'Abuse in the printing supply chain: An investigation into two cartridge manufacturers'. *China Labor Watch.* https://chinalaborwatch.org/zh/abuse-in-the-printing-supply-chain-an-investigation-into-two-cartridge-manufacturers/

262 Ro, C. (2021, 11 February) 'Reducing the environmental toll of paper in the publishing industry'. *Book Riot.* https://bookriot.com/environmental-toll-of-paper-in-publishing/

263 Good Electronics. (2021, 25 March) 'Global South: The dumping ground for the world's electronics waste'. *Good Electronics.* https://goodelectronics.org/topic/health-safety/

264 Vats, A. and Keller, D. A. (2018) 'Critical Race IP'. *Cardozo Arts & Entertainment Law Journal*, 36(3).

https://scholarship.law.pitt.edu/fac_articles/512

265 Chander, A. and Sunder, M. (2004) 'The romance of the public domain'. *California Law Review*, 92:1331. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=562301

266 Electronic Frontier Foundation. 'Creativity and Innovation'. https://www.eff.org/issues/innovation

267 ILO. (2022, 12 September) '50 million people worldwide in modern slavery'. Geneva: International Labour Organization. https://www.ilo.org/global/about-the-ilo/newsroom/news/WCMS_855019/lang--en/index.htm

268 Gilens, M. and Page, B. (2014, 18 September) 'Testing theories of American politics: Elites, interest groups, and average citizens'. *Perspectives on Politics*, 12(3): 564–581. https://doi.org/10.1017/S1537592714001595

269 Barnett, J. M. (2021) *Innovators, Firms, and Markets: The organizational logic of intellectual property*. New York: Oxford University Press. https://academic.oup.com/book/33492

270 Michel, P. R. (2022, 5 August) 'Big Tech has a patent violation problem'. *Harvard Business Review*. https://hbr.org/2022/08/big-tech-has-a-patent-violation-problem

271 Schiffner, C. (2022, 31 May) 'As tech giants push for IP reform, plaintiffs firms see new momentum for litigation'. *The National Law Journal*. https://www.law.com/nationallawjournal/2022/05/31/as-tech-giants-push-for-ip-reform-plaintiffs-firms-see-new-momentum-for-litigation/

272 Riekeles, G. (2022, 28 June) 'I saw first-hand how US tech giants seduced the EU—and undermined democracy'. *The Guardian*. https://www.theguardian.com/commentisfree/2022/jun/28/i-saw-first-hand-tech-giants-seduced-eu-google-meta

273 Pegoraro, R. (2015, 30 June) 'Why the tech industry hates patent trolls, and you should too'. *Yahoo Tech.* https://finance.yahoo.com/news/why-the-tech-industry-hates-patent-trolls-and-you-121628489339.html

274 https://www.pewresearch.org/fact-tank/2021/01/12/more-than-eight-in-ten-americans-get-news-from-digital-devices/

275 https://www.datadetoxkit.org/en/wellbeing/environment/

276 https://www.reuters.com/business/cop/facebook-climate-change-can-falsehoods-be-reined-2022-02-23/

277 https://www.globalwitness.org/en/campaigns/digital-threats/climate-divide-how-facebooks-algorithm-amplifies-climate-disinformation/

278 https://www.theguardian.com/technology/2022/dec/02/climate-change-denialism-flooding-twitter-scientists

279 https://www.theguardian.com/technology/2022/dec/02/climate-change-denialism-flooding-twitter-scientists

280 https://reutersinstitute.politics.ox.ac.uk/digital-news-report/2021/how-and-why-do-consumers-access-news-social-media ; https://www.freepress.net/sites/default/files/2022-11/stop_toxic_twitter_coalition_open_letter_to_twitter_final.pdf

281 https://secure.avaaz.org/campaign/en/youtube_climate_misinformation/

282 https://secure.avaaz.org/campaign/en/detox_the_algorithm_loc/

283 https://secure.avaaz.org/campaign/en/detox_the_algorithm_loc/

284 https://www.theguardian.com/books/2019/oct/04/shoshana-zuboff-surveillance-capitalism-assault-human-automomy-digital-privacy ; https://www.live5news.com/story/10860187/hackers-attack-twitter-facebook-also-slows-down/

285 https://techmonitor.ai/technology/cybersecurity/the-return-of-hacktivists

286 https://techmonitor.ai/technology/cybersecurity/the-return-of-hacktivists

287 https://www.nytimes.com/2020/06/09/nyregion/exxon-mobil-hackers-greenpeace.html

288 https://riseup.net/

289 Rucht D. (2004). "'The quadruple 'A': mMedia strategies of protest movements since the 1960s', in." In W.Van De Donk, B. D. Loader, P. G. Nixon and D. Rucht (eds) *Cyberprotest: New media, citizens and social movements*, pp.eds. Van De Donk Wim, Loader Brian D., Nixon Paul G., Rucht Dieter, 25–48. London, England: Routledge.

290 https://techcrunch.com/2016/10/15/multi-media-journalists-face-jail-time-for-reporting-on-north-dakota-pipeline-protest/?guccounter=1&guce_referrer=aHR0cHM6Ly93d3cuZ29vZ2xlLmNvbS88&guce_referrer_sig=AQAAAGHZ8r3PFUD0h5BYi7TYQ-_-A8TMriPAiEkmwNz0SI6xv_VXjtIRjXOPfQkeQi9NZaotuw4g9LDe5fzkwPoHO7qGa-JtJqcDcPvfmeAs1TvoX40QrO_9HJyE0tuIIkIgRO3IH5SIGKNUChzcBfk0fGhbZZHs9jmxOp00H60aUANV

291 https://unicornriot.ninja/tag/standing-rock/

292 https://reutersinstitute.politics.ox.ac.uk/digital-news-report/2022/how-people-access-and-think-about-climate-change-news

293 The tar sands mobilisations were protests against the building of pipelines carrying tar-sands in Canada in 2014. Tar sands are low quality oil whose extraction and processing tends to be more environmentally hazardous. In the tar sands mobilisations, environmental groups were joined by First Nations protesters. Idle No More was a key group behind the organisation of protests.

294 The Ferguson protests were a key event in the Black Lives Matter movement. They emerged in Ferguson, Misouri after the killing of Michael Brown by police in August 2014.

295 https://reutersinstitute.politics.ox.ac.uk/digital-news-report/2022/how-people-access-and-think-about-climate-change-news

296 https://reutersinstitute.politics.ox.ac.uk/digital-news-report/2022/how-people-access-and-think-about-climate-change-news

297 Martini, M. (2018) 'Online distant witnessing and live-streaming activism: emerging differences in the activation of networked publics'. *New Media & Society*, 20(11): 4035–4055.

298 Kavada, A. and Specht, D. (2022) 'Environmental movements and digital media', in M. Grasso and M. Guigni (eds) *Routledge Handbook of Environmental Movements*. New York: Routledge.

299 https://www.washingtonpost.com/business/2021/07/30/greentrolling-big-oil-greenwashing/

300 https://www.washingtonpost.com/business/2021/07/30/greentrolling-big-oil-greenwashing/

301 https://juststopoil.org/background/

302 Askanius, T. (2012) *Radical online video: YouTube, video activism and social movement media practices*, Doctoral thesis, Lund Studies in Media and Communication 17, Lund University.

303 Wright, E. O. (2019) *How to be an anti-capitalist in the 21st century.* London: Verso. Books

304 Uldam, J. (2018). 'Social media visibility: challenges to activism'. *Media, Culture & Society*, 40(1): 41–58. https://doi.org/10.1177/0163443717704997

305 https://tacticaltech.org/projects/data-detox-kit/