New Interdisciplinary Perspectives On and Beyond Autonomy

Edited by Christopher Watkin and Oliver Davis

First published 2023

ISBN: 978-1-032-36407-0 (hbk)
ISBN: 978-1-032-36409-4 (pbk)
ISBN: 978-1-003-33178-0 (ebk)

6 How liberating is liberation technology?

Simon D. Angus

DOI: 10.4324/9781003331780-9

The funder for this chapter is Monash University

Routledge
Taylor & Francis Group
NEW YORK AND LONDON

6 How liberating is liberation technology?

Simon D. Angus

A glimpse of the present

Sometime during 2018 a remarkable moment in human history occurred: more than 50% of humanity became connected to a single information and communications platform, the internet.[1] By any measure, the internet is the transformational general-purpose technology of our time (Clarke, Qiang and Xu 2015), which, together with rapidly advancing hand-held and desktop devices, has put the immense power of an interconnected informational world at our fingertips. From its beginnings in the 1960s as an experimental project linking research facilities in the United States, the internet is now an indispensable part of modern life. Indeed, the US administration under President Biden is widely expected to revisit the elevation of the internet to an *essential* telecommunications utility.[2] Importantly, this transformational wave has not emerged solely within advanced economies. Africa, the poorest continent on Earth, has embraced a 'mobile-first' telecommunications strategy, yielding significant economic, financial and informational dividends (Aker and Mbiti 2010; Asongu and Nwachukwu 2016).

But has the age of digital technology brought about a new age of freedom and autonomy? Facebook, the largest social media company, now rebranded as Meta, when submitting its S-1 filing[3] to the United States Security and Exchange Commission (SEC) stated, 'Our mission is to make the world more open and connected', typifying the optimistic tone of Silicon Valley in the early rush to establish internet mega-platforms that would serve millions, and then billions of users worldwide. However, this filing, on 1 February 2012, came not a year after one of the most dramatic, dangerous and geo-politically breathtaking periods of digital technology's first real taste of what 'connecting' people could really entail.

The '*Facebook* revolution', Egypt 2011

If there was a high point in social media's role in opening the doors to freedom and so, human autonomy, then a reasonable candidate

DOI: 10.4324/9781003331780-9

came precisely 28 days after a *Facebook* post on 15 January 2011 by then Google employee and online activist, Wael Ghonim, calling for a revolution in Egypt against the brutal regime of President Muhammad Hosni Mubarak. Here, in a matter of months, the world breathlessly witnessed mass protests and uprisings against harsh dictatorial regimes across Northern Africa carried out by brave demonstrators emerging from the shadows of oppression, invariably with mobile phones in hand.[4]

Ghonim had begun his online campaign months earlier by employing a simple, longstanding non-violent activist's technique: bearing witness. Starting a *Facebook* page in June 2010, 'We Are All Khaled Said', referring to the brutal police killing of a young man from Alexandria, Ghonim posted pictures of the victims of police violence in Mubarak's Egypt, thousands joined in, sharing their own images, and stories, building momentum for change. More and more users followed the likes of Ghonim, with estimates of 32,000 Facebook groups and 14,000 Facebook pages created in the two weeks leading up to the protests (Alaimo 2015). Using Facebook's 'event' feature, Ghonim's next move was to post a call for followers to 'take to the streets' in ten days' time, coinciding with a national holiday on 25 January 2011.[5] 'If 100,000 take to the streets, no one can stop us', he wrote. Eighteen days later, to the exhilaration of the protestors, President Mubarak stepped down on national television, after 30 years of uncompromising autocratic rule.

Looking back on the event, Ghonim makes a direct connection to the role of digital technology in the revolution,

> The technology was, for me, the enabler. I would have not have been able to engage with others. I would have not been able to propagate my ideas to others without social media, without Facebook.
>
> (*PBS Frontline* 2018)

The moment was not lost on Facebook founder and CEO Mark Zuckerberg, who responded in May 2011 to a question from Maurice Lévy, Chairman and CEO of Publicis Groupe at the e-G8 Forum, on the role of Facebook in the Arab Spring revolutions,

> I do think that the overall trend that's at play here, which is people being able to share what they want with the people who they want, is an extremely powerful thing. Right? And, and we're kind of fundamentally rewiring the world from the ground up. And it starts with people.
>
> (*PBS Frontline* 2018)

Facebook's Platform Operations Manager at the time, Sandy Parakilas, went further,

> [Facebook was] relatively restrained externally about taking credit for it but internally [it was], I would say, very happy to take credit for the idea that social media is being used to effect democratic change.
>
> (*PBS Frontline* 2018)

Whilst there has been considerable academic debate as to the exact role that digital technology played in these revolutions,[6] a widely cited survey of demonstrators in Tahrir Square, Egypt, found that more than 50% of respondents had used Facebook for communicating about the protests.[7] Moreover, the role of Facebook in the lead up to the protests should not be understated. Authors Zeynep Tufekci and Christopher Wilson pinpoint the beginning of Facebook's Arabic language service in 2009 as pivotal in expanding the public sphere, 'For the first time in modern Egyptian history, political activists and others could have pointed, broad, and semi-public political discussions across vast social networks' (Tufekci and Wilson 2012, 366).

Euphoria, polarisation, shutdown

But *Facebook's* role in events in Egypt did not conclude with Mubarak's overthrow. In the political vacuum that followed, rival groups used *Facebook's* open platform to build fervent political communities. These communities quickly understood that *Facebook's* algorithms were more likely to promote sensational content to the top of user's 'feed'[8] over banal content of fact or measured opinion. Wael Ghonim himself found hundreds of posts containing fake quotes attributed to him, inflaming tensions against him and his followers. *Facebook* were either unable, or unwilling to intervene, reflecting their 'open' approach to content at the time. The political polarisation and violent conflicts that ensued amongst rival protestors grieved Ghonim, who saw *Facebook*'s role in the revolution turn almost on the spot, 'I was extremely naïve in a way I don't like, actually, now, thinking that these are *liberating tools*' (*PBS Frontline* 2018, emphasis added).

With protests raging on the streets, and the internet's social media platforms playing a prominent role in keeping them going, Mubarak's Egyptian government reached for the 'kill switch', effectively plunging Egypt into an internet black hole for a full five days, starting at midnight on the 27 January 2011.[9] Ominously, for what is now all too often a reality during state ordered, complete Internet shutdowns, *Google* engineer Tim Bray tweeted (5:24 PM, 28 January 2011), 'I feel that as soon as the world can't use the net to watch, awful things will start happening'.[10] As if to emphasise *Facebook*'s central role in the protests still raging, when the internet did come back on, *Facebook* had its highest ever number of active users in Egypt (Ali 2011).

Thus, the revolt in Egypt not only demonstrated digital technology's role in enlarging the public sphere, in dramatically lowering the costs to coordinating mass action, and then in short order, in accelerating the polarisation of political communities through algorithmic means; it was also one of the first examples of a state's willingness to reimagine this vast, open, wildly anarchic and distributed technological wonder as nothing more than a new arm of what might be called the *digital state*. In other words, in the space of just three weeks, the Egypt revolt saw the confluence of all of the key channels of digital technology's influence on political expression, human freedom and the emerging power of the digital state. What started in Egypt has only grown, mutated and expanded in form in the ensuing years, pushing civil society and governments the world over to reckon with, and often clash over, how to regulate—or even *characterise*[11]—the new powers that have emerged in the board rooms of just a handful of global technology firms.

Liberation technology and the pursuit of freedom

The birth of liberation technology

Using the lens of quantitative social science, this chapter seeks to understand how digital technology interacts in new and often unexpected ways, with human freedom, voting and democratic principles more broadly. In a seminal work by Stanford University's Larry Diamond published in 2010 entitled, '*Liberation Technology*', Diamond highlighted the emerging tension between the overlapping realms of digital technology, individual freedom and the state. Whilst the focus of his contribution was largely on events in China, the work served to formalise and name the constellation of digital technologies supporting multi-dimensional freedom as 'liberation technology':

> Liberation technology is any form of information and communication technology (ICT) that can expand political, social, and economic freedom. In the contemporary era, it means essentially the modern, interrelated forms of digital ICT—the computer, the Internet, the mobile phone, and countless innovative applications for them, including 'new social media' such as Facebook and Twitter.
>
> (Diamond 2010, 70)

Diamond's emphasis on the *diversity* of ICT providing support for liberation technology is important. There is no single technology which is the 'killer app' of liberation technology, but instead, liberation technology is best thought of as a dynamic *ecosystem* of hardware, software and devices that together provide the new services, new channels and new spaces that support freedom of expression, association and ideation in

the online and offline world. Tufecki and Wilson (2012) provide a vivid account of just such a 'system' that emerged in Egypt leading up to the 25 January 2011 protests,

> … events in North Africa and the Middle East are now being shaped by a new system of political communication which sets into sharp relief the importance of digitally mediated interpersonal communication. This system is characterized by the increasingly interrelated use of satellite television, the Internet (particularly social media platforms such as Facebook and Twitter), and the widespread use of Internet-enabled cellphones capable of transmitting photos and video.
>
> (Tufecki and Wilson 2012, 377)

In a word, Tufecki and Wilson's 'system' is isomorphic to Diamond's 'liberation technology'. Consequently, to understand the influence of liberation technology on political freedoms and human autonomy, one must necessarily apply a broad scope: from the internet, to devices, to platforms and to the software which runs on them, and of course, to the restrictions or interventions at any point in this ecosystem by any state motivated to limit the new powers of such technology; all are within scope.

So what specifically does liberation technology bring to the question of political activism and the pursuit of freedoms? Diamond describes a series of functions:

> Liberation technology enables citizens to report news, expose wrongdoing, express opinions, mobilize protest, monitor elections, scrutinize government, deepen participation, and expand the horizons of freedom.
>
> (Diamond 2010, 70)

Together, these functions broadly sit under three headings: enlarging the public sphere, increasing transparency and facilitating political mobilisation. However, as we have seen, the new powers conferred by liberation technology are not restricted to the citizenry: the state is also an active player. Diamond (2010, 70) notes that even by 2010, 'China, Belarus, and Iran have acquired (and shared) impressive technical capabilities to filter and control the Internet, and to identify and punish dissenters'. As a result, he saw a struggle ensuing between democrats and autocrats who will compete to 'master' these new technologies, with factors beyond the technological sphere ('political organization and strategy and deep-rooted normative, social, and economic forces', 70) determining who will gain the upper hand.

If democratisation is the measure of the enabling success of liberation technology, then the project either has failed, or is failing, even in democratic countries. The most recent *Freedom House* report on the state of

democratic freedoms across Europe and Eurasia, 'Nations in Transit 2017–2021', finds that 18 of 29 countries saw declines in scores of democratic freedoms, while only six countries' scores moved positively over the period. Darkly, the report summarises, 'This marked the 17th consecutive year of overall decline in *Nations in Transit*, leaving the number of countries that are designated as democracies at its lowest point in the history of the report' (Freedom House 2021, 1). Of course, there are any number of reasons why democratic freedoms might not have advanced over this period, but if liberation technology was supposed to push down (and keep open) the doors of freedom against all other forces, this vision now sadly nestles in the crowded file marked 'utopian'.

The new tools of autocracy

Perhaps then, from the perspective of 2020 and beyond, Diamond's framing seems strikingly naïve. The struggle for freedom in a digital age is not, we now know, played out on a stage with merely two reductionist *dramatis personae*: democrats versus autocrats. There is a third, powerful force who would facilitate the drama of the Arab Spring as a supporting cast member, but now looms large in the floor lights and has been influencing both democratic and autocratic actors ever since. Diamond, writing in 2019, reflects, 'Rarely in history have views about the social impact of a new technology swung so quickly from optimism (if not euphoria) to pessimism (if not despair) as has been the case with respect to social media' (Diamond 2019, 20).

So then, key components of liberation technology *themselves* emerge as the third powerful force in the struggle for freedom in the digital age. The social media and digital tech-giants, or simply 'platforms' in today's digital vernacular—Facebook, Twitter, Apple, Google, Amazon, Microsoft—are a further necessary component of any consideration of freedom in the digital age. For despite the lofty sentiments of their founders, these platforms are deeply flawed allies in the pursuit of freedom due to their unashamedly commercial motivations. Diamond again, 'The fundamental dilemma is that what is good for digital business is not necessarily good for democracy—or even for our individual mental and physical health' (Diamond 2019, 21).

But these three players—democrats, autocrats and platforms—exist in an increasingly tangled ecosystem of their own, for the last decade has seen a remarkable collaboration emerge that has as much increased the complexity of these forces as it has amplified their powers. Whereas elaborate algorithms developed by the thousands of software engineers at the main platforms were designed chiefly to 'serve' ever more precise advertisements to users, personalising the user experience beyond any pre-*Facebook* marketing agency's wildest dreams,[12] authoritarian rulers and other actors saw an opportunity for a far more sinister kind of personalisation. These same technologies provide the autocrat with an

exquisite opportunity to surveil and control their citizens at *individual scale*. Deibert (2019, 34) writes,

> Thanks to social media, autocrats can now reach across borders and steal silently into the pockets, papers, and communications of dissidents, secretly listening to and watching all that they do, often with perilous consequences.

This leads him (35) to ask the obvious question, 'Why would a government bother building its own surveillance machine when the private sector already provides one?'

To be clear, the question is not an academic abstraction. One need only look to China's enormous digital platform enterprises and their global reach to understand just how enmeshed commercial-grade digital technology has become with the digital state. A recent report by the Australian Strategic Policy Institute (ASPI, Cave et al. 2019) estimates that by 2016 the Chinese Communist Party (CCP) had established upwards of 1.3 million party committees in private firms, a dramatic increase from the mere 178,000 such committees in 2006.[13] The authors note (7), 'Today, whether the companies, their leadership, and their employees like it or not, the CCP is present in private and public enterprise'. CCP influence and intelligence gathering is only one arm of the state's exploitation of private tech for digital authoritarianism. Laws introduced in 2017 ensure that the Chinese government has been carrying out precisely the scenario Deibert envisages.

There is, however, an even darker coda to the Chinese state's fully interconnected control of public and private online platforms in support of their digital surveillance state: the export of digital authoritarianism. Through extensive research into the practices, accounts and business registrations of Chinese partially or fully owned big-tech, ASPI has recently documented the extent of Chinese technology now put in place by authoritarian-leaning and developing governments around the world. By studying just 12 key Chinese companies, ASPI's research uncovered over 1,700 overseas geo-locations where these companies have a presence, including 404 university and research partnerships, 75 'smart city' or 'public security solution' projects (most in Europe, South America and Africa), backed by 202 data centres and over 100 owned or leased undersea or terrestrial fibre optic cables (Cave et al. 2019).

Freedom House triangulates these findings, asserting that not only does China carry out 'the most sophisticated, global, and comprehensive campaign of transnational repression in the world' (2021, 15), but that the emerging trend is to use social media platforms for this transnational surveillance and repression, singling out WeChat specifically. So the pursuit of freedom via liberation technology in the digital age has so far turned out to be a fraught journey where powerful geo-political and state interests have intervened in this new realm to re-purpose the

very open, highly connected and disaggregated informational platforms to their darker aims.

The nuances of liberation technology

To this point, we have traced the broad chronology of liberation technology from the 'euphoria' of the early days of the 'Facebook revolutions' across northern Africa and the Middle East, through the darkening, polarising role of platforms, 'big-tech' and the state, and onwards towards a growing digital authoritarianism, perfected in China and practiced transnationally. These are the main currents in the pursuit of freedom via liberation technology. But there is granularity here that needs to be engaged with, nuance that must be understood in identifying the loci that matter in our state-society struggle for freedom. To look closer, we turn to quantitative and computational social science, whose practitioners have also seen an unprecedented opportunity in liberation technology: as a social science laboratory, at global scale.

Beyond algorithms: the human complexity of social media

Mobile liberation

For many people engaged in the struggle for freedom, there is one liberation technology nexus that matters above all others: social media on mobile phone. From the palms of the loud, defiant demonstrators massing in Egypt's Tahrir Square in January 2011, to those of the hushed, anxious and no less brave mothers, grand-mothers and daughters huddled together in a packed sub-way station cum bomb-shelter of Kyiv in February 2022,[14] a line can be drawn: the mobile phone. The ability to access the internet on mobile: to message friends and family and private groups in encrypted conversations, to view diverse media news reports, to upload footage of events in real time has perhaps been the most promising development in the ecosystem of liberation technologies of the last two decades. Adoption rates have been staggering across both the developed and developing world. The most recent estimates from the ITU put the change in 'Active mobile-broadband subscriptions' in the Least Developed Countries (LDCs) at a *hundred-fold* over just 2010 to 2021. And on mobile, the world of social media apps are the tool of choice for the vast majority of users, with young people especially likely to use social media apps, both in developed[15] and developing countries.[16]

But are there nuances to the way that social media platforms intersect with political expression and freedom online beyond the basic story of mobilisation and polarisation? Here, a number of fascinating studies, and experiments, have been conducted that show a more complex picture, widening once again the aperture of our understanding of liberation technology and its role in the pursuit of freedom.

Algorithmic echo chambers?

Most interest has been applied to the claim that 'algorithms' increase political polarisation creating online 'echo chambers' re-enforcing one's own views, down-emphasising any so-called cross-cutting content sourced from media outlets and users across the political divide. However, breaking down the way that social media feeds are composed and consumed is instructive. In an early study, Bakshy, Messing and Adamic (2015) studied the distribution and selection of 'hard news' (national news, politics or world affairs) among over 10 million *Facebook* users who self-reported their ideological affiliation. By analysing over 7 million unique web links, hard news sources were identified by machine learning, and then classified as liberal or conservative by averaging the ideological affiliation of each user who shared the link. They draw several conclusions: first, around 20% of *Facebook* friendships maintained by both liberals and conservatives are with people who are the opposite ideological affiliation (i.e. on average, networks do not display pure homophily); second, users with liberal friends receive around 24% of potential cross-cutting hard news stories, versus around 35% for conservatives (i.e. users do not, on average, fully restrict news they share to strongly self-aligned content only); and third, users then click on around 21% and 30% of available cross-cutting hard news that has been served or 'exposed' to the user in their feed (i.e. there is only a few percentage point drop in likelihood after algorithmic ranking has been applied and the user has made an engagement decision). One caveat to these figures is that the envelope of all hard news content being engaged with is, on average, just 7%; 93% of content users click on *Facebook* is not classified as hard news content.

What the study effectively shows is that yes, algorithms are playing a role in what users on *Facebook* are seeing and engaging with, but this role is small relative to the impact that users' friends have on curating the content that is being ranked by algorithms in the first place. In other words, before there are algorithms, first there are *communities*. The low-cost nature of free association, 'friend' making (and breaking) on *Facebook* leads to strongly (but not purely) homophilic communities, which play the dominant role in whether cross-cutting information is seen within it.

So perhaps algorithms could be used to feed more aggressively cross-cutting information to users, breaking down polarisation and driving political and social empathy? Unfortunately, again, the situation is more complex. A controlled field experiment on *Twitter* by Bail et al. (2018) shows that *backfire* is a real danger of such a naïvely simple strategy. In their work, over 1600 *Twitter* users were enrolled and assigned either to a control group, or a treatment group, in which subjects were paid $11 to follow a *Twitter* bot which retweeted 24 cross-cutting messages (tweets) from politically opposing accounts each day for a month. They find that whilst democrats showed little difference in their post-treatment liberal/conservative scale score, treated republicans became significantly *more*

conservative. Indeed, the effect rose as the respondents were more compliant with the study's design. Again, the human-technology interaction produces unexpected results.

Taken together, these empirical and computational social science studies illustrate the complexity that has arisen at the nexus between human behaviour, political expression and digital technology. What is striking in these findings is how this nexus at times challenges or even up-ends well-intentioned motivations to 'fix' or 'solve' the emerging class of risks associated with liberational technology. Whilst democratic governments are now slowly moving to regulate the platforms that stand behind these technologies, it is clear that second-order, unintended consequences of such a complex human-techno space abound. More understanding, on all sides, will be needed to navigate these challenges wisely. Meta CEO, Mark Zuckerberg, seems to have come around to the same perspective:

> But I think the big mistake that we've made looking back on this is viewing our responsibility as just building tools, rather than viewing our whole responsibility as making sure that those tools are used for good.[17]

Can liberation technology be recovered?

We conclude with a series of observations, and a note of hope. First, the experience of liberation technology of the last two decades has shown, if anything, that the pursuit of freedom remains as it always has been: an unending project of every generation. Liberation technology, as Zuckerberg perhaps has come to realise around 15 years too late, is not wholly 'good'; it is mere technology after all, and technology can be re-purposed to a variety of ends, from aiding Mubarak's downfall to exporting the 'China model' and its peers across the world.

Second, the techno-human system that underpins liberation technology is rich, multi-layered and complex. The internet itself—an autonomous self-healing, self-directing network of hundreds of thousands of individual nodes, switches, cables and wiring—constitutes just one complex layer, underlying the complex social networks, software systems and platform architectures that together create the digital experience and 'tools' of liberation technology. Add to this the complexities of human–techno interaction and it is perhaps now obvious, from the perspective of 2020 and beyond, that we were naïve to think liberation technology could be steered always and ever towards the gates of freedom. It will take significant investment by civil society, corporations and democratic governments to ramp up the urgently needed *slow science* that can inform policy, regulation and intervention to protect the original ideals of liberation technology given the complexity of the substrate context.

Third, the interplay of actors is a key part of the history, and future, of liberation technology, and perhaps, carries the key to its recovery. Far

from the initial ideal of a 'democrats versus autocrats' dualism, we now see a crowded environment of players: state, society, platforms; each carrying shades of democratic, autocratic or commercial purpose with them. A recent NBER paper by political economists Daron Acemoglu and James A Robinson (2017) theorises around just this balance. Their starting point is the empirical paradox that we see states which display vast institutional diversity despite near identical or highly similar structural characteristics (e.g. location, geography, culture, history). By building a multi-stage model where the state and civil society can make investments in their strength before a productive round for economic output creation, Acemoglu and Robinson find three distinct equilibrium outcomes. First, a weak state which emerges due to a relatively strong society which limits political hierarchy to form (the authors suggest the examples of Montenegro and Somalia). Second, a strong, despotic state which arises from conditions where the state is powerful but the society is weak (e.g. Prussia, China). However, the strength of the state in this equilibrium is limited by the fact that little competition is needed with society, so the state's strength is not at its full potential. The third equilibrium, which they name 'inclusive state', is the most intriguing. Here, both state and society make large investments in their strength, and this leads to a balanced outcome, with both a strong state and strong society (e.g. UK, Switzerland) able to develop its own strengths and inciting the state to compete with it (Acemoglu and Robinson 2017, 2).

Such theorising gives a tentative blueprint for the recovery of liberation technology. We have seen already how digital technology can be powerful in both the hands of society and the state; however, even in Egypt, society's power was quickly quenched by a total internet shutdown by the state. Better would be a state which recognises, as argued by Acemoglu and Robinson, that a strong society will help it to develop the best capacity to perform its central functions for the benefit of the entire socio-economic system in which it serves. To realise this potential will require coalitions of academic, NGO and volunteer groups upskilling and investing in the digital capacity of society, while critically examining, testing and analysing the actions of the newly forming and strengthening digital state. Perhaps in this light, liberation technology has a necessary place for state and society to co-exist, for the freedom of all.

Notes

1 International Telecommunications Union (ITU) estimates of internet users worldwide, www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx

2 The United States Federal Communications Commission (FCC) first ruled that the internet was a Title II Telecommunications entity in 2015, under the Presidency of Barack Obama, ensuring 'net neutrality' (the treatment of all internet traffic as the same) and elevated government oversight, but this ruling was overturned under the Trump Presidency. Biden has since appointed a pro-Net Neutrality Chairwoman to lead the FCC, with expectations that

Title II will be re-instated, www.fcc.gov/document/acting-chairwoman-rose nworcel-designation-lead-fcc

3 Following the mission statement, the declaration goes on to assert, 'People use Facebook to stay connected with their friends and family, to discover what is going on in the world around them, and to share and express what matters to them to the people they care about'. Form S-1 REGISTRATION STATEMENT Under The Securities Act of 1933, *Facebook*, Inc., www.sec.gov/Archives/edgar/data/1326801/000119312512034517/d287954ds1.htm

4 Tufekci and Wilson (2012), write (367), 'By late 2010, cell phone penetration had reached 80% in Egypt overall and was even higher in major cities such as Cairo'.

5 Ghonim's full *Facebook* post, on 14 January 2011, reads, 'Today is the 14th … January 25 is Police Day and it's a national holiday … If 100,000 take to the streets, no one can stop us … I wonder if we can?' (p.5, Alaimo, 2015).

6 See for example, Lynch (2011) or Clark and Kocak (2020). Notably, Lynch (2011, 302) writes, 'it is surprisingly difficult to demonstrate rigorously that these new media directly caused any of the outcomes with which they have been associated'.

7 For Twitter, the figure given in Tufekci and Wilson, 2012, Table 2 is 13%, but much can be attributed to *Twitter*'s small penetration relative to *Facebook* among users, a market characteristic that persists today.

8 The *Facebook* news feed feature is an automatically curated listing of updates from across a user's social network, news providers, and advertisers.

9 Early internet monitors reported that almost all of Egypt's internet space became unreachable during the event by the simultaneous withdrawal of Egypt's entire Border Gateway Protocol (BGP) routing information. Without these tables, no traffic could be sent or received across Egyptian network boundaries. *The Guardian*, 28 January 2011, 'Egypt cuts off Internet access', www.theguardian.com/technology/2011/jan/28/egypt-cuts-off-internet-access .

10 Tim Bray's tweet, 28 January 2011, https://twitter.com/timbray/status/30873840858955777 .

11 See note 3.

12 Few of us ever read them, but the Terms of Service from the major platforms carry startingly unabashed statements of how they do what they do. Facebook (now Meta) carries the following as the first substantive statement of its terms:

> We don't charge you to use Facebook or the other products and services covered by these Terms. Instead, businesses and organisations pay us to show you ads for their products and services. By using our Products, you agree that we can show you ads that we think will be relevant to you and your interests. We use your personal data to help determine which ads to show you
>
> (www.facebook.com/terms.php)

13 It should be stressed that CCP infiltration of private firms should not be dismissed as only applying to insignificant firms. The authors collate the number of party branches *within* major firms such as Alibaba, Tencent and Huawei, at 200, 89 and 'more than 300' respectively (Cave et al., 2019).

14 Of many examples one could draw, perhaps the exclamation of Dmytry Khorkin, Ukraine Radio's general producer, makes the point, 'Our

programmes are being shared on TikTok!' he posted on Facebook, one week into the Russian military invasion of Ukraine (Dyczok 2022).

15 Our World In Data estimates that for young people aged 16–24 in OECD countries, 90% engage In 'social networking online' (2014), https://ourworldindata.org/rise-of-social-media .

16 Developing country use of Facebook and WhatsApp amongst 18–29 year olds is around the same figure, 80–90%, according to Pew Research (2018), https://ourworldindata.org/rise-of-social-media .

17 Mark Zuckerberg, CEO of Meta (then, Facebook), during testimony to the US Senate Committees on the Judiciary and Commerce, Science and Transportation, 10 April 2018.

References

Acemoglu, Daren, and James A. Robinson. 2017. *The Emergence of Weak, Despotic and Inclusive States* (No. 23657; NBER Working Paper Series). www.nber.org/papers/w23657

Ackermann, Klaus. 2017. *Limiting the Market for Information as a Tool of Governance: Evidence from Russia*. Working paper. https://sites.google.com/site/acck1aus/

Aker, Jenny C., and Isaac M. Mbiti. 2010. 'Mobile Phones and Economic Development in Africa'. *Journal of Economic Perspectives* 24, 3, 207–232.

Alaimo, Kara. 2015. 'How the Facebook Arabic Page "We Are All Khaled Said" Helped Promote the Egyptian Revolution'. *Social Media and Society* 1, 2. https://doi.org/10.1177/2056305115604854

Ali, Amir Hatem. 2011. 'The Power of Social Media in Developing Nations: New Tools for Closing the Global Digital Divide and Beyond'. *Harvard Human Rights Journal* 24, 2, 185–219.

Asongu, Simplice A., and Jacinta C. Nwachukwu. 2016. 'The Mobile Phone in the Diffusion of Knowledge for Institutional Quality in Sub-Saharan Africa'. *World Development* 86, 133–147.

Bail, Christopher A., Lisa P. Argyle, Taylor W. Brown, John P. Bumpus, Haohan Chen, M. B. Fallin Hunzaker, Jaemin Lee, Marcus Mann, Friedolin Merhout, and Alexander Volfovsky. 2018. "Exposure to Opposing Views on Social Media Can Increase Political Polarization". *Proceedings of the National Academy of Sciences of the United States of America* 115, 37, 9216–9221.

Bakshy, Eytan, Solomon Messing, and Lada A. Adamic. 2015. 'Exposure to Ideologically Diverse News and Opinion on Facebook'. *Science* 348 (6239), 1130–1132.

Cave, Danielle, Samantha Hoffman, Alex Joske, Fergus Ryan, and Elise Thomas. 2019. 'Mapping China's Technology Giants'. *Australian Strategic Policy Institute Issues Paper* 15, 15, i–ii, 1–26.

Clarke, George R. G., Christine Zhenwei Qiang, and Lixin Colin Xu. 2015. 'The Internet as a General-Purpose Technology: Firm-Level Evidence from around the World'. *Economics Letters* 135, 24–27.

Clarke, Killian, and Korhan Kocak. 2020. 'Launching Revolution: Social Media and the Egyptian Uprising's First Movers'. *British Journal of Political Science* 50, 3, 1025–1045.

Deibert, Ronald J. 2019. 'Three Painful Truths about Social Media'. *Journal of Democracy* 30, 1, 25–39.

Diamond, Larry. 2010. 'Liberation Technology'. *Journal of Democracy* 21, 3, 69–83.

Diamond, Larry. 2019. 'The Road to Digital Unfreedom: The Threat of Postmodern Totalitarianism'. *Journal of Democracy* 30, 1, 20–24.

Dyczok, Marta. 2022. 'Ukraine's Information Warriors'. *Journal of Democracy*, 9 March. www.journalofdemocracy.org/ukraines-information-warriors/

Falck, Oliver, Robert Gold, and Stephan Heblich. 2014. 'E-lections: Voting Behavior and the Internet'. *American Economic Review* 104, 7, 2238–2265.

Freedom House. 2021. *China: Transnational Repression Case Study*. https://freedomhouse.org/report/transnational-repression/china

Gentzkow, Matthew. 2006. 'Television and Voter Turnout'. *Quarterly Journal of Economics* 121, 3, 931–972.

Lynch, Marc. 2011. 'After Egypt: The Limits and Promise of Online Challenges to the Authoritarian Arab State'. *Perspectives on Politics* 9, 2, 301–310.

PBS Frontline. 2018. 'The Facebook Dilemma', Producers J. Jacoby, A. Bourg, D. Priest, M. Robertson, Boston: WGBH.

Tufekci, Zeynep, and Christopher Wilson. 2012. 'Social Media and the Decision to Participate in Political Protest: Observations from Tahrir Square'. *Journal of Communication* 62, 2, 363–379.

Youyou, Wu, Michal Kosinski, and David Stillwell. 2015. 'Computer-based Personality Judgments Are More Accurate Than Those Made by Humans'. *Proceedings of the National Academy of Sciences* 112, 4, 1036–1040.