



# Gaps and bumps in the political history of the internet

Félix Tréguer

*Institut des sciences de la communication (ISCC), Centre national de la recherche scientifique (CNRS), Paris, France, felix.treguer@sciencespo.fr*

Published on 18 Oct 2017 | DOI: 10.14763/2017.4.714

**Abstract:** In the past years, there has been a growing scholarly attention given to “digital rights contention”, that is political conflicts related to the expansion or restriction of civil and political rights exerted through, or affected by, digital communications technologies. Yet, when we turn to history to inform contemporary debates and mobilisations, what we often find are single-sided narratives that have achieved iconic status, studies focusing on a handful of over-quoted contentious episodes and generally over-representing North America, or scattered accounts that have so far escaped the notice of internet researchers. How can we explain these gaps in internet histories? How can we go about overcoming them to build a more fine-grained understanding of past socio-legal struggles around human rights in the context of media and communications? This essay calls for advancing the political history of the internet in order to empower scholars, activists and citizens alike as they address current (and future) controversies around internet politics.

**Keywords:** Internet history, Digital rights, Human rights

## Article information

**Received:** 14 Dec 2016 **Reviewed:** 23 Feb 2017 **Published:** 18 Oct 2017

**Licence:** Creative Commons Attribution 3.0 Germany

**Funding:** This research is partially supported by the European Commission, H2020-ICT-2015 Programme, Grant Number 688768 'netCommons' (Network Infrastructure as Commons).

**Competing interests:** The author has declared that no competing interests exist that have influenced the text.

**URL:** <http://policyreview.info/articles/analysis/gaps-and-bumps-political-history-internet>

**Citation:** Tréguer, F. (2017). Gaps and bumps in the political history of the internet. *Internet Policy Review*, 6(4). <https://doi.org/10.14763/2017.4.714>

## DISCLAIMER AND ACKNOWLEDGEMENT

This paper is based on a presentation given at the AOIR 2016 pre-conference workshop on “Challenges in Internet History and Memory Studies” in Berlin, in October 2016. The author would like to thank Camille Paloque Bergès and Dominique Trudel for their help and input on the original draft, as well as to Meryem Marzouki, Benjamin Peters, Joris Van Hoboken and

Frédéric Dubois for their constructive criticisms and suggestions during the review process.

## INTRODUCTION

I used to work as a legal analyst for a French advocacy group defending civil and political rights on the internet. When I decided to go into academia to start working on a doctoral dissertation more than four years ago, the goal was to take a step back. I sought to get out of the policy-making frenzy, to break away from the repetitive and at times even hysterical activist discourse. By studying political conflicts (Tilly & Tarrow, 2015) related to the expansion or restriction of rights exerted through, and affected by, communication technologies – what I will call “communication rights contention” (or “digital rights contention” when referring specifically to digital technologies), my goal was at once personal and political. I hoped to build a richer understanding of this community of practice in which I was taking part, but also of its political environment in order to help produce actionable knowledge for citizens interested or even mobilised around these issues, in the vein of what Stefania Milan has termed “engaged research” (Milan, 2010).

Such engaged research is far from original in the field of internet policy: many of us realise that the digital environment is one of the areas in contemporary society where political conflicts are unsettling long-standing balances in power relationships, both between and within state, market and civil society (though the quantitative question – “how much?” – and the normative one – “is it for the better?” – are of course fiercely debated).

Unsurprisingly, the amount of scholarship devoted to rights and citizenship in the online environment has kept rising since the internet's inception, fueled in the past few years by dramatic events like the WikiLeaks disclosures of 2010, the so-called Arab Spring in 2011 and the release of the first Snowden documents in 2013 (see Figure 1.). Issues such as copyright law, net neutrality, online censorship, big data surveillance, “cybersecurity” and hacking, and their impact on rights have now become mainstream news and policy items that a growing number of people in academia want to engage with.

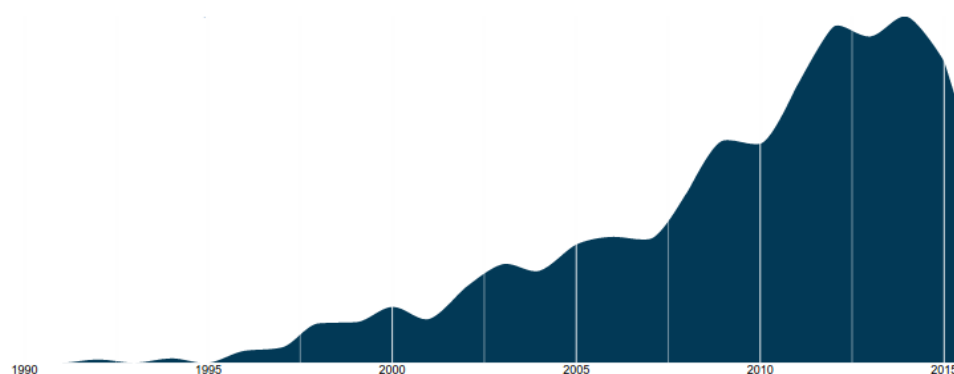


Figure 1: Volume of academic papers per year dealing with digital rights contention between 1993 and 2015.<sup>1</sup>

Unfortunately, within this field of research interested in “digital rights contention” and led by socio-legal researchers, political scientists and sociologists, relatively little attention has been paid to history. Among the references on digital rights contention surveyed in Figure 1, about 10% mentioned the term “history” in their title, abstracts, keywords or in the name of the journal in which they appeared, and these 10% include a significant amount of false positives. Of course, the rest of the literature may contain historical considerations in passing, but generally

speaking, this suggests that, until now, full-fledged historical perspectives are rather scarce in the literature on digital rights contention.

In this short essay, I reflexively draw on my own journey through various academic disciplines and streams of sources that I deem most relevant for the historical study of digital rights contention. Reflexivity is a look-back on one's own thought process, how the dominant forms of thinking and inquiring affect the researcher and the research object (Shacklock & Smyth, 2002). Here, my goal is not only to provide a short overview of the strengths and weaknesses of this existing historiography for those embarking on a similar journey – especially people in academia and in the wider “digital rights community”, but also to identify “gaps and bumps” in this literature and offer a word of caution against the way dominant historical narratives might preclude us from more complex and critical thinking on internet policy. After pointing to the positive prospects opened by the maturation of internet history as a sub-discipline, I conclude by suggesting a couple of research agendas to those, including historians, willing to “fill the gaps”, with a view to putting together a more complete and balanced picture of the internet's political history.

## IANAH (“I AM NOT A HISTORIAN”): FROM LAW TO HISTORY

IANAL – an acronym for “I am not a lawyer” – was the way Usenet users would clarify that, though they might have been giving legal advice in the course of an online interaction, they were not engaging in the unauthorised practice of law. Though I have a law degree and worked as a legal analyst, I am not a lawyer either, and I am even less of a trained historian.

Rather, my own realisation of the importance of history for the study of internet politics – and my modest practice of it – is mostly incidental. It first drew on the work of prominent US legal scholars and social theorists of the internet, such as Lawrence Lessig. Now, as stressed by one of its critics (who praises him in the regard), almost all of Lessig's talks and books “make extensive reference to the history (and to a lesser extent, sociology) of science, because he has been obsessed with the way controversies over knowledge become baked into political practice” (Mirowski, 2015). Though Lessig's books on internet policy (Lessig, 2004, 2006) were some of the very first readings that, at the end of 2008, pushed me towards digital rights activism, others ensued such as Yochai Benkler's *The Wealth of Networks* (2006), where the author grounds his social theory of the “network society” and its main normative arguments on the analysis of historical developments, such as the newspaper industry in the 19th century or the regulation of radio broadcasting in the US in the 1920s and 1930s. Then came Jonathan Zittrain, another US legal scholar who, like Lessig and Benkler, is closely associated to the Berkman Klein Center for Internet & Society at Harvard University, and whose book *The Future of the Internet* (Zittrain, 2008) went over part of the history of early computer networks to warn against the increasing centralised architecture of the internet.

Among this group of US legal scholars who have laid the intellectual ground for many digital rights activists (Mueller, Kuerbis, & Pagé, 2004), Tim Wu is probably the one that has most openly espoused history as a discipline. Already in 2006, he offered an important contribution with *Who Controls the Internet?*, co-authored with Jack Goldsmith (Goldsmith & Wu, 2006). In this book, they followed Lessig in countering cyber-libertarians like John Perry Barlow (Barlow, 1996) to show how states were reasserting their sovereignty on the supposedly “borderless

internet” through techno-legal strategies. In 2010, Wu went much further in that endeavour with *The Master Switch*, delving into greater detail in some of the examples used by his fellow colleagues. Surveying the development of communication and media industries in the US since Bell’s telephone, he went on to assert that

“history shows a typical progression of information technologies: from somebody’s hobby to somebody’s industry; from jury-rigged contraption to slick production marvel; from a freely accessible channel to one strictly controlled by a single corporation or cartel – from open to closed system (...)” (Wu, 2010).

In sum, the question explored by these legal scholars is whether the internet, despite its countless founding techno-utopias about its subversive and democratic potential, was undergoing the same process of “feudalisation” as past information technologies, and how law and policy might help stop that fate.

These few US East Coast legal scholars were of course not the only ones resorting to history to shed light on internet policies (e.g., Hargittai, 2000; Spar, 2003; Braman, 2009, 2012). In doing so, they actually followed a long stream of legal research in the US, and in particular Ithiel de Sola Pool’s foundational work on the relationship between communications technologies, the law and human rights (Pool, 1983). For me, coming from a region where the legal culture has traditionally been much less in dialogue with social sciences than in common law countries, their analysis was extremely refreshing. Rather than sticking to law and policy “in the book” as is too often the case on this side of the Atlantic, these scholars suggested that we seek to understand how they developed as both discourses and practices, through history.

## OTHER CONTRIBUTIONS TO THE HISTORY OF DIGITAL RIGHTS CONTENTION

With a better appreciation of the fact that, “in order to explain the structures of contemporary societies, one must investigate their historical origins and development” (Deflem & Lee Dove, 2013), I sought to extend my understanding of the political history of the internet. This group of US legal scholars had pointed to an interesting direction, but their use of history is in some ways often selective and repetitive, sometimes biased by the underlying normative assumptions. As I started my PhD, I turned to three other streams of reference to understand the political genealogy of the internet (each being comprised of various disciplines and approaches): the history of technologies, technologists and “internet revolutionaries”; the production and use of internet technologies by social movements; the net’s cultural and economic histories.

Table 1. Streams of literature relevant to the history of digital rights contention

Category (shorthand)	Disciplines/approaches	Representative authors	Positive features	Possible shortcomings
1. History of law and policy	Law, political science	Wu, Lessig	Focus on policy and law “in practice”, comparative cross-temporal analysis	US-centric, selective and repetitive use of history

2. History of technology and technologists	Science and Technology Studies, journalistic chronicles, biographies	Hafner & Lyon, Abbate, Levy	Document the history of technology and its seminal political framing, account for the first contentious episodes	US-centric, hyperbolic tone, individualistic focus on a few “computer heroes”
3. History of social movements	Political sociology, anthropology	Coleman, Jordan, Mueller	Focus on processes of identity formation, emergence of action repertoires in digital rights activist groups	Overly celebratory or theoretical, lack of diversity in the actors/groups studied
4. Cultural history	Cultural history, political economy, critical theory	Turner, Mattelart, Barbrook, Schiller	Transdisciplinary critiques of the “rhetoric of technological sublime”	May appear too distant from contemporary debates

The first stream is two-fold. On the one hand, it is comprised of early works influenced by Science and Technology Studies (STS) on the history of internet technologies and technologists: references such as Hafner and Lyon's *Where Wizards Stay Up Late* (1998), Abbate's *Inventing the Internet* (2000) or Bardini's *Bootstrapping* (2000). They put the spotlight on the scientist's lab in a Cold War America and help explain the technical origin of design choices that have had significant political implications. Based on extensive interviews with key protagonists who took part in the elaboration of personal computers and internet protocols, they are sometimes similar in tone to the descriptions of “how the Internet came to be” offered by some of the net's so-called “founding fathers” (e.g. Cerf & Aboba, 1993).

On the other hand, we also find sources are not tied to an academic discipline like STS but are rather based on journalistic or observant-participant dive-ins to the early underground world of hackers and other early computer cultures (Levy, 1984; Hafner & Markoff, 1995; Ludlow, 1996; Hauben & Hauben, 1997; Rheingold, 2000). These references also include accounts offered by prominent actors as well as their biographers and chroniclers, whether they were hackers or activists who witnessed and took part in some of the first contentious episodes surrounding rights in the digital environment from the late 1980s on (Wieckmann, 1989; Bowcott & Hamilton, 1990; Sterling, 1993; Levy, 2001; Godwin, 2003; Dreyfus & Assange, 2012; Greenberg, 2012). These references are interesting because they capture the political understandings of computer technologies at the time, and document the first interactions between early “internet revolutionaries” and their political environment – for instance the first waves of repression targeting hacker groups in the 1980s and 1990s. By recording the making of the internet and of what would become the so-called “digital rights movement”, they generally offer a good starting point for the history of digital rights contention.

In academic writings on internet policy, the history of technologies, technologists and “internet revolutionaries” are extremely influential. Some of them, such as Steven Levy's *Hackers*, have even achieved iconic status, to the point of being must-reads for any informed discussion on hackers. But despite their hyper-visibility, they also come with certain flaws. First of all, they tend to be overly individualistic. As Roy Rosenzweig already observed in a seminal review of the net's historiography published in 1998, early STS approaches to internet history tend to trace the development of a technology by following “great men” of science navigate technical

challenges and bureaucratic conundrums (Rosenzweig, 1998). In doing so, they sometimes overlook the role of institutions and ideologies in the shaping of technology, downplay the importance of the wider context by insisting on the role of key individuals on technological paths. Though the second stream – the one concerned with early hackers – is often more attentive to the personal histories, political commitments and ideologies of “computer heroes” who had significant influence on the political framing of the internet, it also focuses on a handful of individuals and tends to flatten out the diversity of the actors involved in early underground computer cultures.

What is more, both streams tend to be subject to the celebratory, hyperbolic tone of their times. As James Curran writes, “their central theme is that utopian dreams, mutual reciprocity and pragmatic flexibility led to the building of a transformative technology that built a better world” (Curran, 2012). This bias begs the question of their double-status as historical objects: many of these works self-identify as scholarly works of history, and most can indeed be treated as such, but they also suffer from methodological and epistemological flaws (Serres, 2000). For that reason, they have often reinforced dominant “grand narratives”, sustaining taken-for-granted assumptions about the supposedly emancipatory essence of the internet.

To help alleviate these shortcomings, I delved into two other streams of works. These form our third and fourth branches of the internet scholarship most relevant for the history of digital rights contention.

The third branch documents the production and use of internet technologies by social movements. Besides hacker groups, international NGOs had started using computer networks in their increasingly global advocacy efforts from the early 1980s on (Murphy, 2005; Willetts, 2010), but it was really the launch of the Web that broadened access to these tools in the 1990s, in particular with the rapid growth of the Global Justice movement formed to oppose neo-liberal globalisation. The Global Justice movement and its enduring legacy have received a lot of attention by social theorists and sociologists (Atton, 2005; Dahlberg, 2007; Cardon & Granjon, 2010; Hands, 2011; Wolfson, 2014; Gerbaudo, 2017; Funke & Wolfson, 2017), and in particular the self-publishing platform Indymedia founded during the 1999 protests in Seattle (Halleck, 2004; Pike, 2005; Pickard, 2006). Sociologists and anthropologists have also paid attention to the centrality of the free software movement (Kelty, 2008; Coleman, 2012), of hackers (Jordan & Taylor, 2004; Coleman, 2014; Jordan, 2016), to the emergence and evolution of new digital action repertoires (Costanza-Chock, 2003; 2004; Markovic, 2000; Sauter, 2014; Zügar, Milan & Tanczer, 2015; Coleman, 2017; Vlavo, 2017), and of digital rights activism itself (Jordan, 1999, MacKinnon, 2012; Mueller, Kuerbis, & Pagé, 2004, 2007; Breindl, 2011; Croeser, 2012; Postigo, 2012). Like legal scholars, some of these authors tend to adopt an instrumental use of history, offering only a brief genealogy of a group or an action repertoire. But when they are anchored in mobilisations and pay attention to actors and their political practice rather than being too theoretically-driven – which until recently has been an overall trend in the literature on activist uses of digital media (Neumayer & Rossi, 2016) –, these references collectively present a collection of contentious episodes, one that is now constantly expanding thanks to the growing body of empirically-grounded work on contemporary digital rights contention.

The last stream of references I turned to is formed by cultural historians, critical theorists and political economists. Here we find works such as Paul Edwards' *The Closed World* on the reciprocal relationship between Cold War discourse and ideology on the one hand and early computer research on the other (Edwards, 1996), Fred Turner's exploration of the liberal and counter-cultural roots of “cyberculture” (Turner, 2006, 2013), but also other critical research

looking at the founding utopias of digital technologies and their legacy (Barbrook & Cameron, 1995; Mattelart, 2000; Kirk, 2002; Mirowski, 2002; Galloway, 2004; Barbrook, 2007; Chun, 2008; Streeter, 2010; Proulx & Breton 2012; Schulte, 2013; Morozov, 2013; Loveluck, 2015). Next to cultural historians and critical theorists, we can also include communications scholars like Dan Schiller or Robert McChesney, who have surveyed the internet's political economy and its evolution over time (Schiller, 2000; Pickard, 2007; McChesney, 2013). One common point between all of these authors is that they offer a critical assessment of the history of the internet – for instance by seeking to explain how the counter culture's neo-communalism of the 1960s morphed into “tech libertarianism” in the 1990s, or by stressing the sustained but sometimes overlooked role of the military and of capitalism in shaping internet politics. In doing so, they help deconstruct what James Carey has called “the rhetoric of the technological sublime” prominent in the 1990s (2005), which has been extremely influential in digital rights activist and scholarly circles – at least until 2013 and the Snowden disclosures. In that sense, they allow for a healthy critical re-examination of the internet's history that makes them particularly relevant to today's debates.

## ADDRESSING LINGERING GAPS IN INTERNET HISTORIES

Taken together, these four bodies of work (including that formed by legal scholars) complement each other, but most of them remain largely focused on the US.

One can make several hypotheses to explain the prominence of US-centric narratives in internet historiography, such as the dominance of the North-American computer industry and the notion of the internet as a “great American invention” (Russel, 2012), the influence of US-based activists in the framing of the internet as a revolutionary technology at a time when many European groups were still boasting techno-skeptic attitudes towards computer networks, the institutional weight of North American academic institutions in producing and circulating knowledge on the net's history, and of course the status of the English language as a global *lingua franca*.

Other national or regional histories of political contention around past and present communications technologies would help challenge mainstream narratives, but they have traditionally been underrepresented. For instance, in the course of my ongoing doctoral research, I have been looking at France as an example of how conflicts around the political use of communication technologies as well as the dominant ideologies of time jointly shaped the laws and policies regulating the public sphere since the 16th century. To the contrary of US or even British scholars who can delve on a quite extensive historiography on media policy, censorship and surveillance, similar historical work focused on France is harder to find, and sources seem much more scattered. Though there are of course exceptions (e.g. Chartier & Martin, 1985; Reynié, 1998; Darnton, 1983; 2010), when you do find them – for instance references dealing with the repression of political uses of amateur radio in the 1920s, chances are that their authors will be US historians (Vaillant, 2010).

How can we explain such a difference? This may be due to different traditions and approaches in communications history, and the way specific national contexts have shaped communication history in these different countries (Simonson et al., 2013). On the whole, it looks like French historians of communication are often more interested in intellectual, economic or technological

histories, which are often less directly relevant to study of contention around communication rights. In the US, the fact that many critical media historians are found in transdisciplinary “communications departments” (Thibault & Trudel, 2015) as well as the centrality of the First Amendment in American political culture, may explain a greater interest in political and legal issues among scholars, even when they work on foreign countries.

When one considers more recent periods, the situation is very similar. You will have to look very hard – and often to no avail – to find scholarly sources depicting the French hacker scene of the late 1980s, or addressing the first mobilisations around digital rights in the 1990s, the way government agencies dealt with issues such as internet surveillance, or how they navigated difficult regulatory debates on, say, intermediary liability. A handful of French scholars have addressed the appropriation of early Web tools by activist groups (Blondeau, 2007; Granjon & Torres, 2012), the politicisation of the first generation of internet users (Paloque-Berges, 2015) and surveyed controversies around internet regulation (Thoumyre, 2000; Mailland, 2001; Marzouki, 2001; Auray, 2002). But important gaps remain. Though the case of France might be quite extreme, the situation looks similar in many other countries. Even if such histories exist, they seem to be hard to find, have not been translated into English and are therefore usually not part the conversation in transnational academic or activist circles.

Thankfully, things are starting to change for internet history. Social and human sciences scholars are increasingly tackling the important shortcomings of current historiography. For instance, historians influenced by STS have been rebuking teleological understanding of the internet's architecture (Russell, 2014). Other recent works offer a wider frame of analysis by contributing to a more global, inclusive and nuanced understanding of the history of either scientific or popular computer networking (Griset & Schafer, 2011; Mindell, Segal, & Gerovitch, 2013; Driscoll, 2014; Alberts & Oldenziel, 2014; Medina, 2014; Schafer & Thierry, 2015; Peters, 2016; Goggin & McLelland, 2017; Srinivasan, 2017; Wasserman, 2017). Most relevant for digital rights contention, others aim to uncover European histories of politicised engineers, hackers and digital rights groups (Bazzichelli, 2009; Lovink, 2009; Löblich & Wendelin, 2012; Burkart, 2014; Denker, 2014; Nevejan & Badenoch, 2014; Medosch, 2015; Fornés, Herran, & Duque, 2017), of alternative appropriations of hacking and digital rights in “network peripheries” (Chan, 2014; Toupin, 2016), of the emergence of large-scale surveillance and state-sponsored hacking in the digital era (e.g. Chamayou, 2015; Jones, 2017) or of privacy advocacy in “surveillance societies” (Bennett, 2008; Mattelart, 2010; Fuster, 2014; Vincent, 2016).

These trends partly reflect the increasing institutionalisation of internet history as a sub-discipline, with a growing number of international conferences devoted to the topic and more attention given by academic publishers to the issue – as illustrated for instance by the recent launch of the journal *Internet Histories* (Brügger et al., 2017). It is also the result of an increasing interest by Internet scholar in historicising their research topics. Over time, this will hopefully bring to the fore hitherto invisible histories by encouraging translations of existing research, spark useful debates and stimulate new research directions.

Of course, it is unlikely that we will ever reach a “gapless” history. Rather, the goal should be to fill the gaps that we think will play a key role in helping build a critical discourse based on the analysis of past events and their ramifications through time, in the vein of Michel Foucault's overtly critical genealogical project: against the history of the winners that normalises the *status quo* and reinforced their truth claims, Foucault's genealogy aims to uncover past power struggles “to separate out, from the contingency that has made us what we are, the possibility of no longer being, doing, or thinking what we are, do, or think” (Foucault, 1984).



In that way, we might also be able to reassess our own normative assumptions about the internet, but also to help engaged citizens reclaim alternative histories, get inspiration from forgotten discourses and practices, rediscover relevant action repertoires, and better inform the way we analyse and strategise to foster the emancipatory and democratic potential of communication technologies.

## CONCLUSION: ENRICHING THE POLITICAL GENEALOGY OF THE INTERNET

To conclude, I would like to point to two overarching lines of inquiry that would be useful to consider as we collectively seek to improve our grasp of the history of digital rights contention with an eye to the present and the future.

The first consists in building the “political memory” of the digital rights movement by further investigating the historical trajectories of its actors and repertoires. Beyond anecdotal evidence and a few precious pieces of scholarship highlighted above, we still lack a thorough picture of the emergence hacker scenes outside of the United States, of the way human rights groups started forming and mobilising around policy and regulatory issues surrounding the internet in the second half of the 1990s and early 2000s, or of the first efforts aimed at building alternative internet architectures, as the Web underwent its first major waves of commodification and regulation. The goal here would be to reclaim a more nuanced history than the one conveyed in mainstream narratives, to account for the diversity of the movement across historical and cultural contexts, to shed light on the formation and evolution of political identities within it, of continuities or shifts in strategies. In that regard, scholars in contentious politics can point us to many other topics that could bear useful lessons for today's digital rights activists.

At the same time, we should aim to shed light on the perspective of the many actors they contended against and interacted with, in particular state and corporate actors. As we continue to break away from the techno-utopian discourses that have too often been taken at face-value, plaguing much of internet activism and scholarship of the past two decades, we may want to ask questions such as the following: what factors enabled state and corporate actors to resist or take advantage of the challenges posed by the internet to long-established power relationships in the media and telecommunications fields? What was the significance of the late 1980s hacker crackdown or of the repression of the global justice movement that drove the first forms of transnational police cooperation against “cybercrime”? How can we historicise the growing public-private hybridisation in online surveillance and censorship and how does this trend affect traditional notions regarding the “limits of the state” (Mitchell, 1991)? Or, to take on the cue of a recent research aiming to counterbalance the international focus in internet governance studies (Mueller, 2007, 2010; Epstein, 2013), how did internet policy come to form an autonomous policy field and how did it evolve within national state bureaucracies, what are the resulting tensions, and do they affect opportunity structures for activists (Carr, 2013; Pohle, Hösl, & Kniep, 2016)?

A second overarching line of inquiry that would be useful to explore for digital rights scholars are techno-critical movements. Two decades of a neoliberal co-optation of discourses on openness and innovation has only served to reinforce the progressivism at the core of most modern ideologies and their teleological understanding of technology. This has created a “veil of illusion” that keeps most of us from asking uncomfortable questions, for instance regarding the

formidable ecological impact of computer networks, or the contradictions of a movement defending human rights through technologies built by factory workers that are trapped somewhere in the globalised chain of production of our digital world, and deprived of minimal political and social rights (Gabrys, 2011; Flipo, Dobré, & Michot, 2013; Fuchs, 2014; Taffel, 2016).

We need to remember that the internet was shaped by a widespread critique of technology and technocracies. At a time of an endless arms race of corporate and state actors towards the “next big thing” in computing technology – whether it is big data, artificial intelligence, quantum computing or the so-called “internet of things”, which all raise the “threat level” for digital rights – it might be time to open up our own discourse to the possibility of a technological de-escalation. As engineers reclaim the legacy of the “appropriate technologies” movement (Pursell, 1993) – for instance by discussing concepts such as “limit-aware” computing (Chen, 2016; Qadir, Sathiaselalan, Wang, & Crowcroft, 2016) – and as hackers experiment with low-tech communications, social science scholars could also revisit the history of “technocritics”. To give but one example, at the turn of the 1970s and 1980s, collectives critical of computer technologies and of their growing role in public and private bureaucracies were numerous, both in the US and in Europe (Izoard, 2010; Wright, 2011; Jarrige, 2016). Although many of the actors invested in these groups later embraced computing in their professional trajectories, revisiting their critique might prove useful for today's political activists keen on promoting forms of “digital disengagement” and “innovative disruptions” of the spiralling and ecocide “disruptive innovation” of the Silicon Valley.

These are just a few of many possible research directions that can make history relevant to contemporary debates around internet politics. What is for sure is that by bringing local or contextual histories to the fore, such investigations will open new avenues for comparative historical analysis, using “systematic and contextualized comparison” of processes through time and space to draw inspiring lessons from the past (Mahoney & Rueschemeyer, 2003). For instance, in the context of Web historiography, Brügger has called for “cross-national studies of the history of transnational events on the web” to show variations in outcomes (i.e. why similar events in different contexts lead to different results) (2013b).

For digital rights contention, one example of such comparative analysis would be to compare some of the surveillance scandals of the 1960s and 1970s, when the first wave of computerisation sparked resistance and led to the adoption of data protection frameworks (Bennett, 2012; Fuster, 2014), with post-Snowden controversies to explain why today's heated debates on surveillance are actually leading to the legalisation of large-scale and suspicionless surveillance rather than their roll-back – or what we might call the “Snowden paradox” (Tréguer, 2017). In that vein, Schulze recently compared the 1990s “Crypto War” with and the recent Apple-FBI fight over encryption (2017). And of course, all past political struggles around communications technologies will be relevant to such comparative analysis, not just the most recent ones around computer networks (e.g. Trudel & Tréguer, 2016).

As a collective endeavour, bringing forgotten or partly invisible histories to the fore will first require digging up the work of communication and media historians as well as social theorists who have so far been overlooked by digital rights scholars (whether they define themselves as legal researchers, sociologists or political scientists). As today's historians come to terms with the challenge of filling current gaps, we will also need to pay close attention to these developments to channel them into our own work, and directly participate in these efforts. Doing so will mean developing transversal approaches and overcoming pitfalls in digital

research methods (Ankerson, 2012; Brügger, 2013a; Rogers, 2013), appropriating more traditional methods like oral histories and archival work, crossing or even dissolving traditional academic disciplines, and eventually overcoming the barrier of methodological nationalism so as to engage in fruitful transnational collaborations (Scheel et al., 2016). Finally, these endeavours should remain anchored in the critical project proposed by Foucault in his famous text *What is the Enlightenment?*, and look for answers to the key question that he identified: “How can the growth of capabilities” – and more specifically those brought about by what he called “techniques of communication” – “be disconnected from the intensification of power relations?” (1984).

To be sure, advancing the political history of the internet and make it politically relevant in present times will be a challenging task. But, as George Santayana's well-known aphorism goes, “those who cannot remember the past are condemned to repeat it”. History is of course no guarantee in and of itself, but it certainly is a key resource to better engage in these debates and attempt to ward off the eternal return of a technocratic, dystopian future. As the trenches of internet politics get deeper and deeper and their stakes higher and higher, it can help us breathe new air in the internet policy debate while contributing to the still much-needed “reinvention” of media activism (Mueller, Kuerbis, & Pagé, 2004).

## REFERENCES

- Abbate, J. (2000). *Inventing the Internet*. The MIT Press.
- Alberts, G., & Oldenziel, R. (Eds.). (2014). *Hacking Europe - From Computer Cultures to Demoscenes*. Springer.
- Ankerson, M. S. (2012). Writing web histories with an eye on the analog past. *New Media & Society*, 14(3), 384–400.
- Atton, C. (2005). *An Alternative Internet: Radical Media, Politics and Creativity*. Edinburgh University Press.
- Auray, N. (2012). L'Olympe de l'internet français et sa conception de la loi civile. *Les Cahiers du numérique*, 3(2), 79–90.
- Barbrook, R., & Cameron, A. (1995). The Californian ideology. *Mute*, 1(1), 44–72.
- Barbrook, R. (2007). *Imaginary Futures: From Thinking Machines to the Global Village*. London: Pluto Press.
- Bardini, T. (2000). *Bootstrapping: Douglas Engelbart, Coevolution, and the Origins of Personal Computing*. Stanford University Press.
- Barlow, J. P. (1996, February 9). A Cyberspace Independence Declaration. Retrieved from [https://w2.eff.org/Censorship/Internet\\_censorship\\_bills/barlow\\_0296.declaration](https://w2.eff.org/Censorship/Internet_censorship_bills/barlow_0296.declaration)
- Bazzichelli, T. (2009). *Networking: The Net as Artwork*. Books on Demand.
- Benkler, Y. (2006). *The Wealth of Networks*. Yale University Press.
- Bennett, C. J. (1992). *Regulating Privacy: Data Protection and Public Policy in Europe and the United States*. Cornell University Press.
- Bennett, C. J. (2008). *The Privacy Advocates: Resisting the Spread of Surveillance*. Cambridge: MIT Press.
- Blondeau, O. (2007). *Devenir média: l'activisme sur Internet, entre défection et expérimentation*. Paris: Amsterdam.
- Bowcott, O., & Hamilton, S. (1990). *Beating the System: Hackers, Phreakers and Electronic Spies*. London: Bloomsbury Publishing PLC.
- Braman, S. (2009). *Change of State: Information, Policy, and Power*. Cambridge, Mass: MIT Press.
- Braman, S. (2012). Privacy by design: Networked computing, 1969–1979. *New Media & Society*, 14(5), 798–814.
- Breindl, Y. (2011, October 22). *Hacking the Law: An Analysis of Internet-based Campaigning on Digital Rights in the European Union*. Faculté de Philosophie et Lettres at the Université libre de Bruxelles, Brussels.
- Brügger, N. (2013a). Historical Network Analysis of the Web. *Social Science Computer Review*,

31(3), 306–321.

Brügger, N. (2013b). Web historiography and Internet Studies: Challenges and perspectives. *New Media and Society*, 15(5), 752–764

Burkart, P. (2014). *Pirate Politics: The New Information Policy Contests*. Cambridge, Mass: The MIT Press.

Cardon, D., & Granjon, F. (2010). *Médiactivistes*. Paris: Les Presses de Sciences Po.

Carey, J. W. (2005). Historical Pragmatism and the Internet. *New Media and Society*, 7(4), 443–455.

Carr, M. (2013). The political history of the Internet: A theoretical approach to the implications for U.S. power. In *Cyberspaces and Global Affairs* (pp. 173–188).

Cerf, V. G., & Aboba, B. (1993). How the Internet Came to Be. *The Online User's Encyclopedia*. Retrieved from <http://www.virtualschool.edu/mon/Internet/CerfHowInternetCame2B.html>

Chamayou, G. (2015). Oceanic enemy: A brief philosophical history of the NSA. *Radical Philosophy*, (191). Retrieved from <https://www.radicalphilosophy.com/commentary/oceanic-enemy>

Chan, A. S. (2014). *Networking Peripheries: Technological Futures and the Myth of Digital Universalism*. Cambridge, Massachusetts: Mit Press.

Chartier, R., & Martin, H.-J. (Eds.). (1985). *Histoire de l'édition française* (Vols 1–4). Promodis.

Chen, J. (2016). A Strategy for Limits-aware Computing. Presented at the LIMITS '16, Irvine, California. Retrieved from <http://limits2016.org/papers/a9-qadir.pdf>

Chun, W. H. K. (2008). *Control and Freedom: Power and Paranoia in the Age of Fiber Optics*. Cambridge, Massachusetts: Mit Press.

Coleman, G. (2005). Indymedia's Independence: From Activist Media to Free Software. *Multitudes*, 21(2), 41–48.

Coleman, G. (2012). *Coding Freedom: The Ethics and Aesthetics of Hacking*. Princeton University Press.

Coleman, G. (2014). *Hacker, Hoaxer, Whistleblower, Spy: The Many Faces of Anonymous*. S.I.: Verso.

Coleman, G. (2017). The Public Interest Hack. *Limn*, (8). Retrieved from <http://limn.it/the-political-meaning-of-hacktivism/>

Costanza-Chock, S. (2003). Mapping the Repertoire of Electronic Contention. In A. Opel & D. Pompper (Eds.), *Representing Resistance: Media, Civil Disobedience, and the Global Justice Movement* (pp. 173–191). Westport, Conn.: Praeger.

Costanza-Chock, S. (2004). The Whole World is Watching: Online Surveillance of Social Movement Organizations. In P. N. Thomas & Z. Nain (Eds.), *Who Owns the Media?: Global Trends and Local Resistance* (pp. 271–292). London: Zed Books.

- Croeser, S. (2012). Contested technologies: The emergence of the digital liberties movement. *First Monday*, 17(8). Retrieved from <http://firstmonday.org/ojs/index.php/fm/article/view/4162>
- Curran, J. (2012). Rethinking internet histories. In J. Curran, N. Fenton, & D. Freedman (Eds.), *Misunderstanding the Internet* (2nd edition, pp. 34–62). London□; New York: Routledge.
- Dahlberg, L. (2007). The Internet and Discursive Exclusion: From Deliberative to Agonistic Public Sphere Theory. In L. Dahlberg & E. Siapera (Eds.), *Radical democracy and the Internet: interrogating theory and practice* (pp. 128–147). Palgrave Macmillan.
- Darnton, R. (2010). *Poetry and the Police: Communication Networks in Eighteenth-Century Paris*. Cambridge, Mass: Belknap Press.
- Darnton, R. (1983). *Bohème littéraire et Révolution□: le monde des livres au XVIIIe siècle*. Paris: Gaillmard & Le Seuil.
- Denker, K. (2014). Heroes Yet Criminals of the German Computer Revolution. In G. Alberts & R. Oldenziel (Eds.), *Hacking Europe - From Computer Cultures to Demoscenes* (pp. 167–188). Springer.
- Dreyfus, S., & Assange, J. (2012). *Underground* (Export, Airside & Ireland ed). Canongate Books Ltd.
- Driscoll, K. E. (2014, July). *Hobbyist inter-networking and the popular Internet imaginary: Forgotten histories of networked personal computing, 1978-1998*. University of Southern California. Retrieved from <http://digitallibrary.usc.edu/cdm/ref/collection/p15799coll3/id/444362>
- Edwards, P. N. (1996). *The Closed World: Computers and the Politics of Discourse in Cold War America*. Cambridge, Massachusetts: Mit Press.
- Epstein, D. (2013). The making of institutions of information governance: The case of the internet governance forum. *Journal of Information Technology*, 28(2), 137–149.
- Flipo, F., Dobré, M., & Michot, M. (2013). *La face cachée du numérique. L'impact environnemental des nouvelles technologies*. L'Échappée.
- Fornés, J., Herran, N., & Duque, L. (2017). Computing for Democracy: The Asociación de Técnicos de Informática and the Professionalization of Computing in Spain. *IEEE Annals of the History of Computing*, 39(2), 30–48.
- Foucault, M. (1984). What is Enlightenment? In P. Rabinow (Ed.), *The Foucault Reader*. New York: Pantheon Books.
- Fuchs, C. (2014). Theorising and analysing digital labour: From global value chains to modes of production. *The Political Economy of Communication*, 1(2). Retrieved from <http://www.polecom.org/index.php/polecom/article/view/19>
- Funke, P. N., & Wolfson, T. (2017). From Global Justice to Occupy and Podemos: Mapping Three Stages of Contemporary Activism. *TripleC: Communication, Capitalism & Critique*, 15(2), 393–405.

- Fuster, G. G. (2014). *The Emergence of Personal Data Protection as a Fundamental Right of the EU*. Springer Science & Business.
- Gabrys, J. (2011). *Digital Rubbish: A Natural History of Electronics*. Ann Arbor: University of Michigan.
- Galloway, A. R. (2004). *Protocol: how control exists after decentralization*. Cambridge, Massachusetts: Mit Press.
- Gerbaudo, P. (2017). From Cyber-Autonomism to Cyber-Populism: An Ideological Analysis of the Evolution of Digital Activism. *TripleC: Communication, Capitalism & Critique*, 15(2), 478–491.
- Godwin, M. (2003). *Cyber Rights: Defending Free Speech in the Digital Age*. Cambridge, Massachusetts: Mit Press.
- Goggin, G., & McLelland, M. (2017). *The Routledge Companion to Global Internet Histories*. Routledge.
- Goldsmith, J., & Wu, T. (2006). *Who Controls the Internet?: Illusions of a Borderless World*. Oxford University Press.
- Granjon, F., & Torres, A. (2012). R@S□: la naissance d'un acteur majeur de l'«□Internet militant□» français. *Le Temps Des Médias*, 18(1).
- Greenberg, A. (2012). *How Wikileaks, Hacktivists, and Cypherpunks are Freeing the World's Information*. Virgin Books.
- Griset, P., & Schafer, V. (2011). Hosting the World Wide Web Consortium for Europe: From CERN to INRIA. *History and Technology*, 27(3), 353–370.
- Hafner, K., & Lyon, M. (1998). *Where Wizards Stay Up Late: The Origins Of The Internet*. Simon & Schuster.
- Hafner, K., & Markoff, J. (1995). *Cyberpunk: Outlaws and Hackers on the Computer Frontier* (Updated). Touchstone.
- Halleck, D. (2004). Indymedia: Building an international activist internet network. Presented at the 2nd International Symposium of Interactive Media Design, Yeditepe University: Yeditepe University.
- Hands, J. (2011). *@ Is For Activism□: Dissent, resistance and rebellion in a digital culture*. New York: Pluto Press.
- Hargittai, E. (2000). Radio's Lessons for the Internet. *Communications of the Association for Computing Machinery*, 43(1), 50–56.
- Hauben, M., & Hauben, R. (1997). *Netizens: On the History and Impact of Usenet and the Internet*. Wiley.
- Izoard, C. (2010). L'informatisation, entre mises à feu et résignation. In C. Biagini & G. Carnino (Eds.), *Les Luddites en France□: résistances à l'industrialisation et à l'informatisation* (pp. 251–286). Montreuil: Editions L'échappée.

Jarrige, F. (2016). *Technocritiques: Du refus des machines à la contestation des technosciences*. La Découverte.

Jones, M. L. (2017). The spy who pwned me. *Limn*, (8). Retrieved from <http://limn.it/the-spy-who-pwned-me/>

Jordan, T. (1999). New Space, New Politics: Cyberpolitics and the Electronic Frontier Foundation. In A. Lent & T. Jordan (Eds.), *Storming the Millennium: The New Politics of Change* (First Edition, pp. 80–107). London: Lawrence & Wishart Ltd.

Jordan, T. (2016). A genealogy of hacking. *Convergence: The International Journal of Research into New Media Technologies*, 1-17.

Jordan, T., & Taylor, P. (2004). *Hactivism and Cyberwars: Rebels with a Cause?* Routledge.

Kelty, C. M. (2008). *Two Bits: The Cultural Significance of Free Software*. Duke University Press.

Kirk, A. (2002). 'Machines of Loving Grace': Alternative Technology, Environment and the Counterculture. In P. Braunstein & M. W. Doyle (Eds.), *Imagine Nation□: The American Counterculture of the 1960s and '70s* (pp. 353–378). New York: Routledge.

Lessig, L. (2004). *Free Culture*. The Penguin Press.

Lessig, L. (2006). *Code: version 2.0*. Basic Books.

Levy, S. (1984). *Hackers: Heroes of the Computer Revolution* (Anv Upd). O'Reilly Media.

Levy, S. (2001). *Crypto: How the Code Rebels Beat the Government Saving Privacy in the Digital Age* (1st edition). London: Penguin Books.

Löblich, M., & Wendelin, M. (2012). ICT policy activism on a national level: Ideas, resources and strategies of German civil society in governance processes. *New Media & Society*, 14(6), 899–915.

Loveluck, B. (2015). *Réseaux, libertés et contrôle□: Une généalogie politique d'internet*. Armand Colin.

Lovink, G. (2009). *Dynamics of Critical Internet Culture* (2nd ed.). Institute of Network Cultures.

Ludlow, P. (Ed.). (1996). *High Noon on the Electronic Frontier: Conceptual Issues in Cyberspace*. Cambridge, Massachusetts: Mit Press.

Mailland, J. (2001). Freedom of Speech, the Internet, and the Costs of Control: The French Example. *New York University Journal of International Law & Politics*, 33, 1179.

MacKinnon, R. (2012). *Consent of the Networked: The Worldwide Struggle for Internet Freedom*. Basic Books.

Mahoney, J., & Rueschemeyer, D. (2003). *Comparative Historical Analysis in the Social Sciences*. Cambridge University Press.



- Markovic, S. (2000, December). Radio B92 and OpenNet - Internet Censorship Case Study. Retrieved 20 January 2015, from <http://europe.rights.apc.org/cases/b92.html>
- Marzouki, M. (2003). Nouvelles modalités de la censure□: le cas d'Internet en France. *Le Temps Des Médias*, 1(1), 148.
- Mattelart, A. (2000). *Networking the World, 1794-2000*. Minneapolis: University Of Minnesota Press.
- Mattelart, A. (2010). *The globalization of surveillance*. Polity.
- McChesney, R. W. (2013). *Digital Disconnect: How Capitalism is Turning the Internet Against Democracy*. The New Press.
- Medina, E. (2014). *Cybernetic Revolutionaries: Technology and Politics in Allende's Chile* (Reprint edition). The MIT Press.
- Medosch, A. (2015). *The Rise of the Network Commons*. Retrieved from <http://www.thenextlayer.org/NetworkCommons>
- Milan, S. (2010). Toward an epistemology of engaged research. *International Journal of Communication*, 4, 856–858.
- Mindell, D. A., Segal, J., & Gerovitch, S. (2013). From communications engineering to communications science: Cybernetics and information theory in the United States, France, and the Soviet Union. In M. Walker (Ed.), *Science and Ideology: A Comparative History*. Routledge.
- Mirowski, P. (2002). *Machine Dreams: Economics Becomes a Cyborg Science*. Cambridge University Press.
- Mirowski, P. (2015). What is Science Critique? Part 1: Lessig, Latour. In Keynote address to Workshop on the Changing Political Economy of Research and Innovation. UCSD. Retrieved from [https://www.academia.edu/11571148/What\\_is\\_Science\\_Critique\\_Part\\_1\\_Lessig\\_Latour](https://www.academia.edu/11571148/What_is_Science_Critique_Part_1_Lessig_Latour)
- Mitchell, T. (1991). The Limits of the State: Beyond Statist Approaches and Their Critics. *The American Political Science Review*, 85(1), 77. doi:10.2307/1962879
- Morozov, E. (2013). *To Save Everything, Click Here: The Folly of Technological Solutionism*. New York: PublicAffairs
- Mueller, M., Kuerbis, B., & Pagé, C. (2004). Reinventing Media Activism: Public Interest Advocacy in the Making of U.S. Communication-Information Policy, 1960-2002. *Information Society*, 20(3), 169–187.
- Mueller, M. L., Kuerbis, B. N., & Pagé, C. (2007). Democratizing Global Communication? Global Civil Society and the Campaign for Communication Rights in the Information Society. *International Journal of Communication*, 1(1), 30.
- Mueller, M. L. (2004). *Ruling the Root – Internet Governance and the Taming of Cyberspace* (New Ed). Cambridge, Mass.: MIT Press.
- Mueller, M. L. (2010). *Networks and States: The Global Politics of Internet Governance*. Cambridge, Massachusetts: Mit Press.

- Murphy, B. (2005). Interdoc: The first international non-governmental computer network. *First Monday*, 10(5). Retrieved from <http://firstmonday.org/ojs/index.php/fm/article/view/1239>
- Neumayer, C., & Rossi, L. (2016). 15 Years of Protest and Media Technologies Scholarship: A Sociotechnical Timeline. *Social Media + Society*, 2(3). doi:10.1177/2056305116662180
- Nevejan, C., & Badenoch, A. (2014). How Amsterdam Invented the Internet: European Networks of Significance, 1980-1995. In G. Alberts & R. Oldenziel (Eds.), *Hacking Europe - From Computer Cultures to Demoscenes* (pp. 189–218). Springer.
- Paloque-Berges, C. (2015). When institutions meet the Web: advocating for a ‘critical Internet user’ figure in the 1990s. Retrieved from <https://halshs.archives-ouvertes.fr/halshs-01245511/document>
- Peters, B. (2016). *How Not to Network a Nation: The Uneasy History of the Soviet Internet*. Cambridge, Massachusetts: MIT Press.
- Pickard, V. W. (2006). United yet autonomous: Indymedia and the struggle to sustain a radical democratic network. *Media, Culture & Society*, 28(3), 315–336. doi:10.1177/0163443706061685
- Pickard, V. W. (2007). Neoliberal visions and revisions in global communications policy from NWICO to WSIS. *Journal of Communication Inquiry*, 31(2), 118–139. doi:10.1177/0196859906298162
- Pike, J. R. (2005). A Gang of Leftists with a Website: The Indymedia Movement. *Transformations*, (10). Retrieved from [http://www.transformationsjournal.org/journal/issue\\_10/article\\_02.shtml](http://www.transformationsjournal.org/journal/issue_10/article_02.shtml)
- Pohle, J., Hösl, M., & Knip, R. (2016). Analysing internet policy as a field of struggle. *Internet Policy Review*, 5(3), 426–445.
- Pool, I. de S. (1983). *Technologies of Freedom*. Belknap Press.
- Postigo, H. (2012). *The Digital Rights Movement: The Role of Technology in Subverting Digital Copyright*. Cambridge, Massachusetts: MIT Press.
- Pursell, C. (1993). The Rise and Fall of the Appropriate Technology Movement in the United States, 1965-1985. *Technology and Culture*, 34(3), 629.
- Proulx, S., & Breton, P. (2012). *L'explosion de la communication*. La Découverte.
- Qadir, J., Arjuna Sathiaselan, A., Wang, L., & Crowcroft, J. (2016). Taming Limits with Approximate Networking. Presented at the LIMITS '16, Irvine, California. Retrieved from <http://limits2016.org/papers/a9-qadir.pdf>
- Reynié, D. (1998). *Le Triomphe de l'opinion publique: l'espace public français du XVIe au XXe siècle*. Odile Jacob.
- Rheingold, H. (2000). *The Virtual Community: Homesteading on the Electronic Frontier*. Cambridge, Massachusetts: MIT Press.
- Rogers, R. (2013). *Digital Methods* (Reprint edition). Cambridge, Massachusetts: MIT Press.

Rosenzweig, R. (1998). Wizards, Bureaucrats, Warriors, and Hackers: Writing the History of the Internet. *The American Historical Review*, 103(5), 1530–1552.

Russell, A. L. (2014). *Open Standards and the Digital Age: History, ideology, and networks*. Cambridge University Press.

Sauter, M. (2014). *The Coming Swarm: DDOS Actions, Hacktivism, and Civil Disobedience on the Internet*. New York: Bloomsbury Academic.

Schafer, V., & Thierry, B. G. (Eds.). (2015). *Connecting Women*. Cham: Springer International Publishing.

Scheel, S., Cakici, B., Grommé, F., Ruppert, E., Takala, V., & Ustek-Spilda, F. (2016). *Transcending Methodological Nationalism through Transversal Methods? On the Stakes and Challenges of Collaboration* (ARITHMUS Working Paper Series No. 1). Goldsmith, University of London. Retrieved from [http://arithmus.eu/wp-content/uploads/2015/02/Scheel-et-al-2016-Transcending-method-nationalism\\_ARITHMUS-Working-paper-1.pdf](http://arithmus.eu/wp-content/uploads/2015/02/Scheel-et-al-2016-Transcending-method-nationalism_ARITHMUS-Working-paper-1.pdf)

Schiller, D. (2000). *Digital Capitalism: Networking the Global Market System* Cambridge, Massachusetts: Mit Press.

Schulte, S. R. (2013). *Cached: Decoding the Internet in Global Popular Culture*. New York: New York Univ Press.

Schulze, M. (2017). Clipper Meets Apple vs. FBI—A Comparison of the Cryptography Discourses from 1993 and 2016. *Media and Communication*, 5(1), 54–62.

Serres, A. (2000, October 20). *Aux sources d'Internet□: l'émergence d'ARPANET* (PhD thesis). Université Rennes 2. Retrieved from <https://tel.archives-ouvertes.fr/tel-00312005/document>

Shacklock, G., & Smyth, J. (2002). *Being Reflexive in Critical and Social Educational Research*. Routledge.

Simonson, P., Peck, J., Craig, R. T., & Jackson, J. (2013). The History of Communication History. In *The Handbook of Communication History* (pp. 13–58). New York: Routledge.

Spar, D. L. (2003). *Ruling the Waves: From the Compass to the Internet, a History of Business and Politics along the Technological Frontier*. New York: Harvest Books.

Srinivasan, R. (2017). *Whose Global Village?: Rethinking How Technology Shapes Our World*. NYU Press.

Sterling, B. (1993). *The Hacker Crackdown: Law And Disorder On The Electronic Frontier*. Bantam.

Streeter, T. (2010). *The Net Effect: Romanticism, Capitalism, and the Internet*. NYU Press.

Taffel, S. (2016). Invisible Bodies and Forgotten Spaces: Materiality, Toxicity, and Labour in Digital Ecologies. In H. Randell-Moon & R. Tippet (Eds.), *Security, Race, Biopower* (pp. 121–141). Palgrave Macmillan UK. doi:10.1057/978-1-137-55408-6\_7

Thibault, G., & Trudel, D. (2015). Excaver, tracer, réécrire□: sur les nouveaux historiques en

communication. Communiquer. *Revue de communication sociale et publique*, (15), 5–23.

Thoumyre, L. (2000). Responsabilités sur le Web□: une histoire de la réglementation des réseaux numériques. *Lex Electronica*, 6(1). Retrieved from <http://www.lex-electronica.org/articles/v6-1/thoumyre.htm>

Tilly, C., & Tarrow, S. (2015). *Contentious Politics* (2nd edition). New York: Oxford University Press.

Tréguer, F. (2017). Intelligence Reform and the Snowden Paradox: The Case of France. *Media and Communication*, 5(1). Retrieved from <https://hal.archives-ouvertes.fr/hal-01481648/>

Trudel, D., & Tréguer, F. (2016). *Alternative Communications Networks Throughout History* (report). ISCC-CNRS. Retrieved from <https://halshs.archives-ouvertes.fr/halshs-01418826/document>

Toupin, S. (2016). Gesturing Towards “Anti-Colonial Hacking” and its Infrastructure. *Journal of Peer Production*, (9). Retrieved from <http://peerproduction.net/editsuite/issues/issue-9-alternative-internets/peer-reviewed-papers/anti-colonial-hacking/>

Turner, F. (2006). *From Counterculture to Cyberculture: Stewart Brand, the Whole Earth Network, and the Rise of Digital Utopianism*. University of Chicago Press.

Turner, F. (2013). *The Democratic Surround: Multimedia & American Liberalism From World War II to the Psychedelic Sixties*. Chicago: The University of Chicago Press.

Vaillant, D. W. (2010). La Police de l’Air: Amateur Radio and the Politics of Aural Surveillance in France, 1921–1940. *French Politics, Culture & Society*, 28(1), 1–24. doi:10.3167/fpcs.2010.280101

Vincent, D. (2016). *Privacy: A Short History*. John Wiley & Sons.

Vlavo, F. (2017). *The Performativity of Digital Activism*. Routledge.

Wasserman, H. (2017). African histories of the Internet. *Internet Histories*, 0(0), 1–9.

Wieckmann, J. (1989). *Das Chaos-Computer-Buch: Hacking made in Germany*. Wunderlich.

Willetts, P. (2010). NGOs networking and the creation of the Internet. In *Non-Governmental Organizations in World Politics: The Construction of Global Governance* (pp. 114–143). Taylor & Francis US.

Wolfson, T. (2014). *Digital Rebellion: The Birth of the Cyber Left* (1st Edition edition). Urbana: University of Illinois Press.

Wright, S. (2011). Beyond a Bad Attitude? Information Workers and Their Prospects Through the Pages of Processed World. *Journal of Information Ethics*, 20(2).

Wu, T. (2010). *The Master Switch: The Rise and Fall of Information Empires*. Knopf

Zittrain, J. (2008). *The Future of the Internet — And How to Stop It*. Yale University Press. Available at [futureoftheinternet.org/](http://futureoftheinternet.org/)

Züger, T., Milan, S., & Tanczer, L. M. (2015). Sand in the Information Society Machine: How Digital Technologies Change and Challenge the Paradigms of Civil Disobedience. *The Fibreculture Journal*, (26), 109–136.

#### FOOTNOTES

1. This scientometric analysis was conducted with the tool **ScienceScape**, developed by Sciences Po's Medialab. It is based on a corpus of 2,951 references queried in the SCOPUS database (the search query looked for the use of words associated with contentious politics (Tilly & Tarrow, 2015) – such as “citizenship”, “civil rights”, “repression”, “mobilization” – along with references to the internet or online environment in the titles, abstract or keywords of references, in the literature categorised either as “social sciences” or “arts & humanities”).