
Social Movements and Digital Technology

A Research Agenda

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Digital technologies have entered civic engagement and political participation in ways that scholars are only beginning to analyze. From the Zapatista Army of National Liberation movement of the early 1990s to the 2011 Arab Spring, activists have found myriad ways to employ digital technologies to advance their causes. In that time, the use of digital technology has evolved from broadcasting grievances worldwide on websites to tactics such as denial of service attacks and “doxing.” As digital technologies have grown more complex, so have the ways that activists have employed them.

In this chapter we review the literatures from sociology and media studies that have attempted to understand how digital technologies have changed and continue to change civic engagement and political participation. Our review focuses on the sociology of collective behavior and social movements to work out in detail how the sunset of its theoretical era of studying “new social movements” and social movement organizations coincides with the rise of information and communication technologies (ICTs) on its horizon. The scholarly study of collective behavior and social movements has begun taking ICTs seriously, a trend that has great potential for fruitful conversation with science and technology studies (STS), especially if we renew and activate links with economic sociology and organization studies. Rather than excluding other social sciences from the conversation, this in-depth review hopes to highlight pathways of interdisciplinary pollination.

In our reviews, we find that the sociological literature tends to be movement-centric, focusing on specific social movements and highlighting how their use of digital technologies changes mobilization and tactics. Conversely, the media studies literature tends to be platform-centric, meaning that it analyzes how specific digital technologies afford new types of activism. Both approaches have provided scholars with useful ways to think about digital technologies and activism. However, their movement- or platform-centric focuses lead each to miss important elements of how activists deploy digital technologies to engage in the political process.

Based on insights from science and technology studies, we argue that digital technologies and activism are co-constituted: meaning that in the contemporary era of social movements, it is no longer possible to talk about one without the other. A discussion of social movements necessitates a focus on the new digital technolo-

gies its adherents use to communicate, mobilize, organize, and act. Further, we assert that any study of digital technology platforms necessitates a discussion of the forms of activism that it enables (or conversely, the modes of surveillance it affords to governments seeking to stem challengers). A co-constitutive approach focuses on digital technology use in situ: that is, how such technologies act as extensions of activism. We call for a co-constitutive approach to technology and social movements, one that reconciles conceptual differences and is substantiated by studies of newer social movements for which activism and digital technology use are coterminous. Such an approach begins by examining technological platforms as they are used in activist contexts, including tactics, mobilizing techniques, and organizational forms. Some of the most innovative platforms that organize for social change are not clearly part of social movements or even of civil society. We therefore also question extant theoretical categories of what constitutes a movement or legitimate cause.

The chapter is organized as follows. We begin by introducing the topic of digitally enabled activism. Next, we outline major perspectives within the sociological study of collective behavior and social movements, showing how these perspectives have changed as they incorporate analyses of digital technology use among activists. We then critique the sociological literature for its movement-centric focus. Next, we outline the major perspectives within the communications field as they relate to digital technologies and activism, showing how scholars have conceived of technology as activists in different settings have employed it. We then critique the communications literature for its platform-centric focus. Finally, we draw on science and technology studies to offer what we call a co-constitutive approach to the study of digitally enabled activism, which we believe bridges the gap between sociology and communications and advances the study of collective behavior and social movements.

The Conceptual Gap I: Collective Behavior and Social Movement Studies and ICTs

Within sociology, the study of collective behavior and social movements (CBSM) is a relatively mature subfield. Created in 1980, it has grown to be one of the largest sections of the American Sociological Association, with over 800 members in 2014. Yet, as the subfield has grown, it has become increasingly narrow in focus. Walder (2009) explains how the concerns of the subfield have shifted from social structure and political behavior to mobilization. McAdam and Boudet (2012) concur, adding that most of the research in the area “selects on the dependent variable.” In other words, the sociological study of CBSM has come to mean the study of mobilization within or across particular movements.

The focus on mobilization has curiously little to say about the role of ICTs. With few exceptions, which will be discussed below, any focus on the role of ICTs in recruiting, mobilizing, and organizing activists remains at the periphery of the subfield. For example, perusing the table of contents of the major edited volumes on CBSM yields no mention of ICTs. With the ubiquity of social media, especially among youth, we feel this is an oversight that needs remedy. We argue that the movement-centric focus of sociological studies of CBSM leads scholars to overlook the role ICTs play in various aspects of mobilization and civic engagement more broadly.

There are several theoretical perspectives within the sociological scholarship of CBSM. Among them, the dominant perspectives are resource mobilization, political opportunity theory, and new social movement theory (under which we include theories of collective identity, social psychological perspectives such as framing theory, and sociology of emotions as it relates to the topic). Each perspective focuses on different facets of social movement activity and collective behavior.

For instance, resource mobilization theory is concerned with how activists acquire and deploy various resources, such as money, volunteer time, materials, and legitimacy, toward achieving their goals (McCarthy and Zald 1977). Resource mobilization theory generally focuses on the organizational aspects of social movements, for example, how movements form organizations as a way to collect and distribute resources, such as money and activists' time (Clemens and Minkoff 2004; Fisher et al. 2005; Minkoff and Agnone 2010; Minkoff and McCarthy 2005). According to the theory, organizations play a crucial role in accumulating resources and sustaining social movements over time (Staggenborg 1991; Taylor 1989). Alternatively, political opportunity theory focuses on how social movements target and exploit vulnerabilities in state organization and continuity (Tarrow 2011; Tilly and Wood 2009). Here, the focus is on political opportunity structures, such as changes and fissures in state leadership. This literature has also contributed to understanding how social movements organize political parties to influence change within extant state governance systems (Goldstone 2003).

New social movement theory is a term used to describe various perspectives that emerged to explain features of collective action that were not well explained by resource mobilization and political opportunity theories. Such features include the role of collective action frames, collective identity, networks, and emotion in mobilizing activists (Larana et al. 1994). New social movement theories focus on the micro- and meso-level facets of mobilization. Collective action frames are the cognitive schema that activists use to identify social problems and make claims about how best to solve them (Benford and Snow 2000). These frames also help activists enroll and mobilize other activists (Hunt et al. 1994; Snow and Benford 1992). New social movement theories also focus on the role of social networks in enrolling and mobilizing activists (Melucci 1989; Snow et al. 1980). Within new social movement theory, scholars have shown how networks operate to enroll and mobilize activists (Diani 2003). For example, Munson (2008) shows how activists are enrolled through the influence of friends and family members, contrary to accounts that assume activists seek out opportunities to mobilize. In contrast, Fisher (2006) and Fisher and McInerney (2008) show how the social networks responsible for recruiting young people into canvassing organizations may also pull them out of those organizations and mobilize them in other activist opportunities.

CBSM: Communications Technologies and ICTs

The importance of communications technologies has not been lost on sociologists of CBSM. On the contrary, scholars have long examined how activists interact with traditional media (Amenta et al. 2009; Andrews and Biggs 2006; Andrews and Caren 2010; Gamson 1992; Gamson and Wolfsfeld 1993; Gitlin 2003; Rucht 2004) as well as alternative media outlets (Brinson 2006). However, Myers (1994) makes one

of the earliest calls for social movement scholars to pay attention to ICTs, highlighting the speed and cost, accuracy, and interactivity of these technologies as regards collective action.

Several events in the late 1990s drew CBSM scholars' attention to activists' uses of Internet technologies. The Zapatista Movement provided a case study for scholars to examine how activists can leverage Internet technologies to broadcast their grievances globally (Castells 1997; Garrido and Halavais 2003; Martinez-Torres 2001; Schulz 1998). The protests surrounding the 1999 World Trade Organization meetings in Seattle brought to light how activists can use Internet technologies to mobilize resources and gain new adherents (Eagleton-Pierce 2001; Smith 2001). These studies demonstrated the possibilities ICTs provided to garner a larger audience and grow public support worldwide (Ayres 1999; Fisher 1998; van Aelst and Walgrave 2004). In doing so, they drew further attention to ICTs as technologies of mobilization.

Since these early studies, the literature linking CBSM and ICTs has grown theoretically sophisticated. For instance, Jennifer Earl and colleagues (Earl et al. 2013; Earl and Kimport 2009; Earl et al. 2010) build on early work outlining the different ways activists use ICTs (Earl et al. 2010) to argue that scholars of CBSM should focus not on specific ICTs, but rather on how they are used in context (Earl and Kimport 2011). The new forms of protests afforded by ICTs, especially those taking place predominantly or exclusively online, may lessen the need for formal social movement organizations (Earl 2015). With the lower cost of mobilization and participation combined with the superseding of organizations, resource mobilization theories may have become less relevant for explaining these new forms of activism. Furthermore, certain ICTs, such as social media platforms, are designed for making and maintaining connections, necessitating theorizing about the role of identity and networks. Contemporary ICTs also modify existing forms of activism, such as online petitioning, and afford entirely new forms of protest, such as denial of service attacks (Coleman 2015; Phillips 2016; Tufekci 2017). The continual emergence of new ICTs and communications platforms necessitates revisiting and updating existing theories of CBSM and may ultimately require entirely new ways of thinking about activism. We will discuss the prospects for theory in further detail below.

Collective Identity Online

These studies showed how activists were able to leverage the web as a broadcast platform. Subsequent studies built on a growing body of literature on virtual communities to show how activists communicated with one another using these new technologies. In particular, they focus on how activists use virtual environments to facilitate collective identities. As social movements scholars Polletta and Jasper articulate it, collective identity is

an individual's cognitive, moral, and emotional connections with a broader community, category, practice, or institution. It is a perception of a shared status or relation, which may be imagined rather than experienced directly, and it is distinct from personal identities, although it may form part of a personal identity. A collective identity may have been first constructed by outsiders (for example, as in the case of "Hispanics" in the U.S.), who may still enforce it, but it

depends on some acceptance by those to whom it is applied. Collective identities are expressed in cultural materials—names, narratives, symbols, verbal styles, rituals, clothing, and so on—but not all cultural materials express collective identities. (Polletta and Jasper 2001, 284)

Collective identity formation is a form of micromobilization, meaning that it occurs among activists at the level of small-scale interaction (Hunt and Benford 2004). Because they lack a face-to-face component, virtual environments may undermine what CBSM scholars traditionally consider markers of collective identity among movement members (Calhoun 1998; Diani 2000). For example, Wall (2007) argues that while ICTs are useful for activists to achieve concrete goals, certain technologies, like email, are not well suited for symbolic goals, such as collective identity formation.

However, research shows how activists negotiate collective identity on a wider range of Internet platforms. Ayers (2003) shows how the National Organization for Women struggled, but succeeded in developing a collective identity for members who were not colocated through their use of websites. Further research finds that ICTs provide strong support for collective identities when movement members are spread across time and space. Haenfler (2004) studied the straight edge movement to show how ICTs provide platforms for social movement members to demonstrate their commitment to a collective identity, by sharing symbols and meanings despite never meeting other groups of members. Online platforms may be especially effective for facilitating collective identity formation when members feel their identity is stigmatized, as in the cases of White Supremacists studied by Adams and Roscigno (2005) as well as Simi and Futrell (2006).

Protest Online

Social movement organizations that deploy ICTs often embrace new tactical repertoires (Chadwick 2007). Otherwise put, ICTs change what we mean by “mobilization” in the context of social movement behavior (Shumante and Pike 2006). New interactive technologies engage users in a variety of different ways, as research shows that ICT-enabled participation takes various forms. For some activists, participation simply means communicating in chatrooms and on electronic bulletin boards (Nip 2004). For others, it means online support coupled with real-world interaction (Simi and Futrell 2006). For still others, participation means coordinating real-world activities, like protest marches, online (Bennett 2005).

Earl and Kimport (2011) provide the most extensive treatment of online protest to date. Employing Gibson’s (1979) theory of affordances, Earl and Kimport detail how activists leverage certain Internet tools in ways that offer qualitative differences to existing protest methods. Examining cases such as the growth of online petitions, the authors show how these new technologies allow smaller groups of activists to mobilize in new ways and have potentially greater impacts. According to Earl and Kimport’s approach, ICTs present activists with two main affordances: cost and copresence. The “copresence affordance” reflects the ability of activists to coordinate their activities across time and space. The “cost affordance” describes how ICTs allow activists to organize and mobilize more people with fewer resources. Some suggest that the lower costs of mobilizing will lead to the trivialization of protests and therefore lessen their impact (van de Donk et al. 2004, 18).

However, Earl and Kimport (2009) examine the case of fan activism to show how seemingly trivial forms of protest may provide testing grounds for online tactics, which can then diffuse to other movements.

Taking advantage of these affordances produces supersize effects. Low costs mean ICTs can help to mobilize more protesters or more people to sign a petition. Copresence means ICTs can allow activists to plan protest actions without having to meet. However, creatively leveraging these affordances transforms activism in fundamental ways. In the hands of technologically savvy activists, low costs allow groups to reach previously unreachable audiences or to deploy large-scale outsider tactics online, such as denial of service attacks on target servers (Coleman 2011). Similarly, copresence allows activists to leverage distributed activities for outsized impacts (Carty 2002) and even organize without organizations (Earl 2015).

Despite the potential for global impact, movements from the Global South do not engage in online forms of protest as often as their northern counterparts. In a study commissioned by the Social Science Research Council, McInerney and Berman (2003) systematically collected data from social movement organizations around the world, finding a large discrepancy in the number and level of sophistication of online protest activities between first world and third world countries, due in large part to technical capacities and access to ICTs. Furthermore, as technologies have become more complex, the abilities of states to monitor the activities of civil society organizations and activists have become more sophisticated (Wong 2001; Yang 2003). For instance, Qiang (2011) provides a compelling account of the interplay between activists and the state in contemporary China, as the former learn new ways of expressing critique and the latter develop new methods of quashing such expressions.

Gaps and Prospects

Several key exceptions notwithstanding, the CBSM literature has not accounted for ICT use among activists in its theories. This is an outcome of the movement-centric focus of the literature on social movements and collective behavior. In other words, scholars of CBSM tend to focus exclusively on specific movements, either tracing some aspect of them or studying their historical arc. Recent work by Blee (2012) and McAdam and Boudet (2012) breaks with this trend by studying the formation of movements independent of topic areas. However, neither focuses on ICT use among these activists in ways that contribute to our understanding of them. Earl and Kimport's (2011) contribution represents a generative encounter between CBSM and studies of ICTs. Their work conceptualizes ICT-borne activism in terms of a spectrum from "low-leveraging" to "high-leveraging" tactics. However, as recent studies have shown, activists use digital tools seamlessly across platforms and from online to offline activities (Carty 2011; Milan 2013).

Paying attention to ICTs presents key challenges for scholars of CBSM. ICTs change rapidly. New ICTs change the costs of mobilizing and may afford entirely new tactics. Twitter was unheard of in 2002 when many of the early studies of ICTs and activism were conducted. Activists struggled with how best to use Facebook through the early 2000s. Even Causes.com, a Facebook spinoff site dedicated to raising awareness (and money) for movements, has struggled to gain and maintain relevance. Comparing the two volumes edited by Martha McCaughey on cyberactivism is telling. The chapters in McCaughey and Ayers (2003) are generally about

how extant social movements are adopting new technologies, such as websites and message boards, and adapting to the broader new media landscape. In contrast, the chapters in McCaughey (2014) demonstrate the relatively seamless integration of movements and ICTs, drawing empirical content from various social media technologies.

Furthermore, technologically enabled activism requires scholars to update existing theories of CBSM. Below, we will explain what a co-constitutive approach to the study of CBSM and ICTs might look like. For now, we point to key examples. In her groundbreaking study of open source programmers, Coleman (2013) shows how programmers are simultaneously technicians and activists. They develop new technologies that reflect a particular ethical code. Similarly, McInerney (2014) explains how the Circuit Rider movement depended on ICTs to grow while promoting certain technologies that reflected their political ideologies. In both instances, ICTs were co-constitutive of the movements and their activities and not simply a new set of tools. Furthermore, the ICTs in question were (re)constructed in use.

The Conceptual Gap II: Media Studies

It is safe to say that media and communication scholars have outpaced social movement scholars when it comes to the volume of publications on the topic of digital activism. The journal *New Media & Society* has evolved into the primary platform for US media scholars publishing on social change activity. The number of contributions concerned with “activism” in particular has increased exponentially from 1999 on, picking up speed once more with the highly visible political movements of the Arab Spring. Early contributions investigated blogging as a new form of democratic participation in the public sphere (Kahn and Kellner 2004). With the widespread use of social media, the focus has shifted toward studies of the most popular platforms. An exploding volume of studies analyzing specific instances of mobilization via the biggest social networking sites is being published in the other pertinent journals in the field, *Information, Communication & Society* and *Journal of Communication*. This section is an attempt to synthesize the most important achievements as well as blind spots of recent media and communication scholarship on social movements and activism. While media studies have been providing the most coverage on media and movements, so to speak, they still cover certain grounds in-depth and leave others uncharted.

From Mass Media to “New Media”

The most consequential conceptual move has been the paradigm shift from a “transmission model” of mass communication to more interactive and varied models of communication (Lievrouw 2009; Livingstone 2009; Mattelart and Mattelart 1998). The classic “television and . . .” format, which unilaterally emphasized media *effects* on social life, became untenable with the introduction and diffusion of digital technologies and infrastructures such as the Internet, where users seemed to be communicators themselves rather than passive audience. This shift from audience to participants constitutes the defining moment of “new” media and is generally associated with *digital* media, due to the low cost of horizontal in-

teractivity. The advent of “new media” was met with “‘improvisational’ conceptual strateg[ies]” that drew on a wide range of disciplines, resulting in subfields such as “computer-mediated communication (CMC)” (Lievrouw 2009, 310).

Yet, the traditional focus on an established medium and its “effects” is still well and alive, but with a new set of main actors: “Twitter and . . .” (Weller et al. 2013) has become a staple title format for media studies of specific (activist) practices that make use of a particular platform. Social media, in a sense, have become the new mass media for communication and media studies and dominate current research agendas: “With some recent exceptions, however, studies on media and social movements tend to focus on specific types of media outlets (e.g., mainstream media), technologies (e.g., print media) and mediation processes (e.g., journalistic reporting)” (Mattoni 2013, 42). This focus on media outlets is strong in the voluminous literature on social networking sites, which are analyzed in a fashion quite reminiscent of the mass communication paradigm, except that the focus has shifted toward user activity, networks, and interaction rather than on pure medium effects. Yet, the “effects” question remains a thread that is woven into the fabric of media studies.

Social Networking Sites and “Big Data”

Popularly associated with the coordination of a number of uprisings and revolutions, the use and impact of Twitter has received particular attention in the past couple years (Earl et al. 2013; Guo and Saxton 2014; Lindgren and Lundström 2011; Thorson et al. 2013; Wojcieszak and Smith 2014). Facebook and YouTube are the other two platforms that have taken center stage in media studies (Nitschke et al. 2014; Harlow 2012; Thorson et al. 2013; Postigo 2008; Caers et al. 2013). Scholars of these platforms tend to focus on user practice and the facilitation of mobilization and widespread discourse.

A common methodological choice is to harvest a sample of speech acts or relational data from social networking sites. While this is promising in terms of access to large amounts of data, which can be analyzed using “big data” techniques, there remain important caveats. In particular, spatial analysis and social network analysis of data such as networks of tweets or “likes” result in understanding activities taking place only online. These approaches therefore reinforce our theoretical focus on and reassert the theoretical importance of online media. “Cyberarchaeology” retrieves online artifacts, not the offline meanings that actors associate with them (Zimbra et al. 2010).

The widely debated question in Internet studies of whether we are falling into a quantitative trap through the lure of “big data” applies to the study of activism in social networking sites as well. Social media research labs have sprung up to provide the infrastructure for developing methods appropriate to research digital infrastructures. As media studies in general, social media labs combine a wide range of disciplines including geography, information sciences, and social sciences. While multidisciplinary has certainly contributed to innovation in methods and research questions, it has not helped bring forth more integrative theory (Lovink 2011, 77). Mattoni still finds “a lack of common concepts and integrative middle-range theories from which to develop comprehensive analysis of communication flows in grassroots political communication” (Mattoni 2013, 42).

Everything Is Mediated?

More often than not, media studies still take the medium as the starting point of analysis—similarly to social movement studies, where movements provide the analytic starting point and use of ICT comes as an afterthought. Both disciplines exhibit strong institutions with regard to what constitutes legitimate objects of analysis.

Livingstone's important discussion of the new paradigm of *mediation* is a case in point. The concept of mediation is the currently most powerful attempt at moving beyond "improvisational" theorizing (Lievrouw 2011). The question that many authors in the field of media studies have attempted to clarify is, what kinds of mediated relationships are there, and how do they differ? (Ruben and Lievrouw 1990). The question, though, has been heavily disciplined by the contours of the emerging discipline of media studies, where only relationships mediated by "the media" or its offspring "new media" are proper subjects of analysis. Livingstone makes this point when she argues that in a world where "everything is mediated," the core business of media studies, so to speak, must be "to understand how the media mediate" (Livingstone 2009, 4).

In response to this call, scholars have offered typologies of mediated relationships that take specific, historic media as their starting point and can usually be read on a timeline, but also as an analytic table—the prominent shift here is from the transmission model of communication to new, more diverse models of mediation (Rasmussen 2000). While Livingstone's job description for media studies implies that there are other mediating agents, such as language, money, literature, and material goods, it also once again confirms that there is such a thing as "the media." So while Livingstone's and Lievrouw's model of "media infrastructure" builds on Star and Bowker's work on infrastructure to include three elements (artifacts and devices, activities and practices, and arrangements and organizational form), it is meant to be used only in the realm of what has come to be defined as "the media" in media studies. Even Lievrouw's discussion and theorizing of "activist and alternative media" builds on the conventional definition of "new information and communication technologies" that are employed in alternative/activist ways (Lievrouw 2011, 19). This is a limitation from the perspective of STS: "the media" is a blackboxing move par excellence that clouds both technological and economic relations that make up quite divergent configurations.

Types of Media Matter

Mattoni (2013, 43) delineates "four clusters of literature dealing with media and social movements": (1) nondigital mainstream media, (2) digital mainstream media, (3) nondigital alternative media, and (4) digital alternative media. Such a categorical scheme supports our analysis that media studies remain guided by the distinction between the media (mainstream) and alternatives. While the popular social networking sites are grouped under digital mainstream, alternative media are considered as challengers to institutionalized "media power," and provide alternative channels for movements' communication with the public (Couldry and Curran 2003; Lievrouw 2011). Similarly to Earl and Kimport's resource mobilization perspective on ICT, media scholars see alternative media as means for information, communication, and mobilization that circumvent powerful mainstream

media. In *Alternative and Activist New Media*, Lievrouw (2011) takes a specific communication theoretical perspective by identifying a number of genres of alternative and activist media (and avoiding the trap of ahistorical abstraction). The impetus of listing and distinguishing types of media is widespread in media studies, but is complemented by typologies of mediated relations (Rasmussen 2000; Calhoun 1992) as well as media rituals (Couldry 2003) and media practice (Cohen 2012; Couldry 2012).

The STS Concept of Affordances

One analytical lens that has been picked up widely by media scholars is the concept of affordances. It is used to describe the structural quality of sociotechnical environments that “afford” certain possibilities for (inter)action and disallow others. Media scholars have used it extensively to describe online infrastructures and their features (Ahy 2014; boyd 2011; Earl and Kimport 2011; Graves 2007; Postigo 2014; Wellman et al. 2003). Technical and design features such as “like buttons” and “rating systems” are analyzed with a view to the actions that they facilitate (or constrain). Yet, comparative studies of disparate uses are rare, given media studies’ focus on *the* medium (see, though, a study of military versus movement use of social media by Gray and Gordo 2014). In STS, however, the concept has been critiqued for its technological-deterministic and essentialist tendencies (see Vertesi, this volume).

A Media Environment

The paradigm shift toward mediation, a more abstract relational concept, has helped media scholars see beyond individual media outlets: “A major innovation in research on social movements and the media is the conceptualization of a media environment (similar to Bourdieu’s field) in which different spokespersons intervene and different types of media interact” (della Porta 2013, 31). Beyond the focus on individual platforms or media, scholars have investigated the interaction between media in social movement activity (Wolover 2014), as well as how “new” and “old” media have been integrated by activists (Dunbar-Hester 2009) in a “convergence culture” (Jenkins 2006). Especially with the tangibly place-based revolutionary action in Egypt and Occupy Wall Street, the online-offline nexus in movement action has started receiving more attention (Fernandez-Planells et al. 2014; Harlow 2012; Rucht 2013; Thorson et al. 2013; Tufekci and Wilson 2012). In line with other media research, scholars find that certain “offline” or face-to-face activities not only remain important to movement building, but are vital to producing movement outcomes. Rucht (2013, 261) observes that “organizations such as MoveOn in the United States and Campact.de in Germany, who at first enthusiastically and almost exclusively used the Internet as a mobilizing tool, have now gradually shifted to a strategy of combining offline and online activism, especially when focusing on a campaign that they perceive as crucially important.” The media environment perspective has the potential to bridge media scholarship with (especially institutionalist) approaches from social movement and organization studies, where ecological concepts have a long-standing tradition.

A Networked Self

Media and communication scholars have been much more likely than social movement scholars to pay attention to the individual media user. While collective identity has been a theme in the study of social movements and collective behavior, changes in activist identities have received little attention beyond the “slacktivism versus high risk (read: real) activism” debate. Media scholars have investigated changes in identity and everyday practice in terms such as “subactivism”—the mediated everyday politics of somewhat activist people (Bakardjieva 2012)—or the “networked self,” which emerges as the combination of a multiplicity of identities that can be played out on various distinct platforms (Papacharissi 2011). The perspective on the individual activist can also enable a critical analysis of the conditions for participation in certain forms of activism (Svensson 2014). Bringing Foucault into the picture, Bakardjieva and Gaden (2012) discuss the “Web 2.0 Technologies of the Self” to start thinking about the empowering but also rationalizing and disciplining aspects of learning how to navigate media as the activist subject.

Integrating Perspectives

The recently published edited volume *Mediation and Protest Movements* (Cammaerts et al. 2013) is a promising work that integrates media, communication, and social movement perspectives and offers new conceptual frameworks. The authors connect scholarship on democracy, social movements, and communication (della Porta 2013), bring in the notion of Internet cultures (Kavada 2013), and provide some historical context for understanding movements’ media usages (Rucht 2013). A historical perspective on technology in social movements is still largely missing—a gap that makes it harder to ground statements about the changes brought about by *digital* technology in data. One contribution presents a case study using “group history telling” as a method to establish the mix of media use and communications in organizing protests—a refreshing approach that provides rich insights about groups’ decision-making processes, timelines of media usage, and the combination of multiple media, ranging from social media outreach and coordination to printing stickers and organizing luncheon events (Ryan et al. 2013). Having organizers discuss their media repertoires is particularly enlightening when it shows how actors’ perceptions of media use and effect diverge, and how media use is grounded in local context as well as in group knowledge and deliberation. The call for “more flexibility in thinking about the scales at which we approach technological life” (Nemer and Chirumamilla, this volume) applies to the study of activism as well: the analysis of systems should not eclipse the study of actually occurring use and bricolage among actors.

Bridging the Gaps: Toward a Co-constitutive Approach

Media Studies and STS

While media scholars have outright adopted the affordances concept—which has mostly fallen out of favor with STS scholars otherwise—a gap persists between STS knowledge and media studies. The STS community has seemed to spin off the

topic of digital media, as the listing of pertinent journals on the Society for the Social Study of Science's website shows. ICT has—once more in the logic of following the medium—its own venues for publication now. Exceptions exist, such as STS scholars Ruppert et al.'s (2013) discussion of the methodological challenge in analyzing the interplay of digital *devices* and older media. They write on the impetus of unpacking the black box, offering a first outline of an approach.

Yet, digital technologies are being reintroduced to 4S through the efforts in organizing a digital STS and media studies community. Pushing in the same direction, the recent edited volume *Media Technologies* by Gillespie et al. (2014) begins to seriously engage media studies with an STS perspective on materiality. Such concerted efforts will provide one avenue for the fruitful theorizing of social movement-technology relations as well.

Some recent economic sociology has also begun to theorize the role of media in establishing and operating for example financial markets. Concepts such as “scopic media” or performativity (Knorr Cetina and Bruegger 2002; Millo and MacKenzie 2009; MacKenzie 2009) have not found their way into research on movements and activism yet, but are theoretically promising. The edited volume *Living in a Material World* (Pinch and Swedberg 2008) bridges economic sociology and STS and provides a compelling template for setting an agenda connecting social movement scholarship with materiality studies. We articulate two classic STS approaches that offer opportunities for the study of media and activism, then turn to other ways in which the co-constitutive approach may be generative for both fields.

STS Classics Waiting for a Media Sequel I: Social Construction of Technology

First and foremost, STS has the theoretical history and power to help media scholarship unpack the blackboxed media concept (Hughes et al. 1989; Kline and Pinch 1996; Pinch and Bijker 1987; Bijker 1997). Much research on activists' use of ICT focuses on technologies as *tools* rather than including broader perspectives on the social construction of media and their economic and organizational location (Lievrouw and Livingstone 2006; Postigo 2011; Tatarchevskiy 2011; Hawthorne, this volume). There is little systematic attention to the industries that develop and provide media infrastructures that movements use (Sandoval 2014; Fuchs and Sandoval 2014; Fuchs 2014). As Gillespie et al. put it in their 2014 introduction to *Media Technologies*, “There has been no STS-based analysis of the Internet or the World Wide Web on par with Latour's (1996) experimental French train systems, Winner's (1980) bridges, Vaughan's (1997) space shuttle disaster, or Pinch and Bijker's (1984) bicycles” (4).

STS Classics Waiting for a Media Sequel II: Artifacts Have Politics—So Do Networks

Social movement studies have also been largely silent on the politics and economics of access to infrastructure that affect social movements' options. In the debate around net neutrality, it is an important question how corporate and state control of large-scale telecommunications infrastructures impacts civil society actors' agency (Lovink 2011). This issue goes well beyond the digital divide: the very ownership structures of the most important social networking sites today make users highly dependent on providers' policies and potentially deliver them to various kinds of

surveillance (Albrechtslund 2018; Bauman and Lyon 2013; Graham and Wood 2003; Papacharissi 2010). This should be of the utmost relevance to scholars concerned with contentious movements that face adverse state action: corporate-owned communications infrastructures—while not necessarily “mainstream media”—are easily accessed by state agencies, as has finally become widely understood with the uncovering of NSA surveillance programs.

An important field of research, therefore, not only for activists themselves but also for movement scholars, is the alternative technology infrastructure and associated movements that advocate for public noncommercial infrastructures (Guagnin and Ilten 2011; Youmans and York 2012). Platform cooperatives have emerged in several domains to challenge the for-profit drive of the so-called “sharing economy.” For example, FairBNB is a platform designed to create more equitable opportunities for home sharing. Recent theorizing on “platforms” and their politics points the direction that this research can take (Gillespie 2010; Gillespie et al. 2014). From a different theoretical angle, Fuchs has been the most vocal developer of a critical theory of media, analyzing media and information economies from a Marxist perspective (Fuchs 2011).

Technology-Oriented Movements

Technology-oriented movements have received surprisingly little attention, even within STS (with the notable exception of Hess 2005, 2007; Hess et al. 2008; Postigo 2008; McInerney 2009, 2014). The net neutrality movement, community wireless and radio movements, digital rights movements, and of course the free software movement are important fields of study for both social movement scholars and media scholars (Atton 2002; Benkler 2001; Couldry and Curran 2003; Dickson 1974; Dunbar-Hester 2014; Flickenger 2003; Forlano et al. 2011; Lievrouw 2011). In media studies, movements targeting “the media” and power structures of mediation have been analyzed as “media activism” (Jansen et al. 2011).

While movement scholars agree that technologies play a tremendous role in social and political processes today, the politics that target those technologies and technology policies remain somewhat opaque. If power is increasingly leveraged through online and mobile infrastructures—both on the part of movements and on the part of states—then some of the most important (and radical) movements will emerge around the use of those powerful technologies in societies. While hacking and hacktivism have become topics in media studies (Coleman 2014; Jordan and Taylor 2004; Taylor 2005), social movement scholars have tended to ignore technology movements. Notable exceptions are David Hess’s (2007) systematic work on science- and technology-oriented movements with a focus on environmental movements that intervene in industrial structures. McInerney’s (2014) study of the Circuit Rider movement captures both moments of the social movement-ICT nexus: this technology-oriented movement promoted IT products for nonprofits that were in line with their political economic values, and the movement used ICTs to mobilize Circuit Riders and reach out. Beyer’s (2014) study of four important online communities also provides some compelling insight into how technology-oriented political organization can originate in nonpolitical spaces, especially in architectures built around anonymity. Related to technology-oriented activism, the politics of nonuse and resistance to media

imperatives constitute another uncharted field for studies of (anti-?) digital activism (Portwood-Stacer 2013).

Finally, scholars are also themselves involved in technology-oriented movements and sometimes act as their intellectual vanguard, as the high profile of Lawrence Lessig, a proponent of “free culture” and founder of Creative Commons, illustrates. Technology-oriented movements create not only alternative infrastructures, but also legal objects, as in the case of the Free Software GNU Public License and the Creative Commons license system. “Commonism” enabled by digital technologies is a theme that both US and European scholars discuss, albeit with somewhat different political emphases (Hands 2011; Dyer-Witthof 2013).

A Tentative Map

The scholarly communities currently invested in studying a combination of social movements and media are not only theoretically divided, there are also real boundaries that limit intellectual exchange. Much of the literature reviewed here can be subsumed under “US media and communication community,” and very little European (let alone non-Western) research is on the radar of this academic field (China is an exception and receives much attention in US research on media—this seems largely accounted for by expatriates [Yang 2009]). The same can be said for social movement studies, which revolve around a strong US scholarly community and a somewhat separate European community. Movements on other continents have made it onto the map as a result of media use, not because social movement studies routinely turn to non-Western sites for analysis (Tufekci and Wilson 2012).

Within sociology, disciplinary fragmentation seemed to intensify when a Media Sociology section was proposed in the American Sociological Association. Potential competition between communities that research “media” with those that research “communication and information technologies” has been averted by adding “media” to the existing Communication and Information Technologies section (CITASA is now CITAMS).

A Moving, but Consolidating, Target

Part of the challenge of understanding the conceptual gaps between social movement studies and STS/media studies is that the latter are in the process of combining forces as we write. The edited volume *Media Technologies* (Gillespie et al. 2014) addresses many of the conceptual gaps identified in this review. Another attempt to bridge “communication studies and science and technology studies” is forthcoming in the next International encyclopedia *Encyclopedia of Communication Theory and Philosophy*.

Much responsibility falls upon social movement scholars to engage with this fast-moving conceptual field and community. If scholars remain stuck in disciplinary patterns of claiming authority over specific social phenomena due to a priori definitions we have employed for decades, we will lose theoretical ground. While the variety of literature and contributions around “media” can be dizzying, to say the least, sociologists cannot ignore the perspectives of media and technology scholars. The growing body of literature on movements that does not build on

social movement theory whatsoever (or is largely nontheoretical to begin with [Lovink 2011, chap. 8]) should be a wake-up call to social movement scholars.

While some core theoretical tools of the traditional CBSM are losing purchase in changing conditions, others remain valuable to an integrated co-constitutive perspective on mobilization and technology: sociological perspectives on institutions, institutionalization, organizations, and power relations are building blocks that can situate both movements and new technologies within larger societal structures and processes. An initial contribution by CBSM to understanding movements in an era of digital technology is to reassess how social movement organizations are evolving empirically. Next, its institutional perspective on mobilization can help embed the study of digital activism in relevant contexts beyond the medium. What is at stake is the development of balanced theoretical perspectives that account both for social and institutional dimensions of mobilization and for the effects and uses of technologies, digital and otherwise.

A Co-constitutive Approach: Neither Movement nor Technology Takes Precedence

The current urgency of analyzing new media and mobilization only emphasizes long-standing gaps in social movement studies, where technology has not figured prior to widespread web use. We call for a co-constitutive approach to technology and social movements, one that reconciles conceptual differences and is substantiated by studies of newer social movements for which activism and digital technology use are coterminous. A co-constitutive approach to technology and social movements begins by examining new technological platforms for activism and their associated tactics, mobilizing techniques, and organizational forms—but it needs to move beyond the *movement-tool-outcomes* causality employed in movement-centric scholarship.

Rethinking Social Movement Theory's Movement Focus . . .

The imperative to incorporate a whole new set of questions into social movement scholarship should be stimulating in a number of ways. The first obvious limitation to especially US social movement scholarship is the traditional focus on *a movement* as the unit of analysis, an intellectual legacy from the widely recognized “new social movements” of the 20th century, which is strongly oriented toward movements represented by social movement organizations. As media studies have picked up on, new decentralized forms of organizing do not fit this hierarchical and historical model of movement emergence, growth, and maturation. We perceive a need to broaden movement scholarship's scope beyond well-defined social movements as they have been identified by “new social movements” scholarship.

Causes and *tactics* must be analytically distinguished in order to understand how they interact. Social media scholarship still exhibits a tendency to select for “appropriate” causes (read: social justice) rather than agnostically distinguishing movement causes from the tactics employed. While “rich people's movements” (Martin 2013) and right-wing activism have made their way into movement scholarship, less evidently political movements are largely excluded. This is problematic not only since the tactics of fan activism might be quite similar to social justice

activism but also because there may be a good deal of tactic learning across spheres that we need to understand. This is a central element of a co-constitutive approach: to make room for discovering movement activity where we were not looking, and to use an analytical lens to see tactics where they emerge, rather than searching for them in established movements.

... *While Not Falling into the Medium Focus Trap*

Digital activism scholarship needs to move away from an overly instrumental perspective on technology (the “tool” mediating variable), yet it must also avoid media studies’ problem with granting *the medium* precedence. It is clear that both limitations arise from disciplinary intellectual boundaries. The medium focus in media studies can be critiqued fruitfully with a rich body of STS knowledge—so there is no need to reinvent the wheel. Yet, the tendency to fall into technologically deterministic (now: platform deterministic) accounts is widespread. Bringing the different uses, users, and nonusers back in seems one helpful way of avoiding determinism—also a tried and tested theoretical move in STS. Some of the research discussed above successfully demonstrates this approach, for example by investigating activists’ deliberation about media uses rather than observing uses only.

Again, no a priori seems the best strategy for overcoming this limitation: much research is already moving from single-medium units of analysis to understanding media ecologies, or repertoires that actors draw on. This implies combining online and “new” media with all other technologies that become mobilized for movements. It also begs the question of more spatial, relational, and temporal analyses of when which media and technologies are used for what. For example, we have reviewed evidence that online mobilizing frequently leads to offline place-based protest with continued online reporting. A map or typology of combinations of media use and nonuse is conceivable.

A Renewed Perspective on Organizations

At the level of organizations, we are also facing challenges of (disciplinary) definition: some of the most innovative platforms that organize for social change are not clearly part of social movements or even of civil society—this supports the case to question extant theoretical categories of what constitutes a movement or legitimate cause. The corporate actors that provide platforms used for activism are part of the “assemblage” and cannot be bracketed out of the equation. What is the relationship between social movement organizations, activists, media, and their designers and owners? What is the state’s role in this field?

Social movement scholarship could benefit tremendously from a new round of cross-pollination with current organization theory (Davis 2005) and its relational cousins in economic sociology. After the hype around “organizing without organizations,” we need to turn our attention to the new forms of organizations that facilitate campaigns, network membership, and participation (Karpf 2012). Much activism takes place in social spaces that have characteristics of markets or become marketized (McInerney 2014). One does not need to side with actor-network theory in order to use more *flattening* conceptual tools that can help scholars unlearn the convention of starting their research with individual movements. Again,

it is clear that certain tactics are shared with many other “mobilizers” in non-movement spheres, for example in marketing. Movement theory can draw on the dynamic literatures on these phenomena to take a step back and see a bigger picture including digital technology producers and regulators.

Methodological Variety

All of the above theoretical goals of a co-constitutive approach imply that we diversify our methodological toolbox. While current movement scholarship on technology is building the first large datasets on movements and online mobilization, media studies continue to favor case studies. A third fast-growing approach is social network analysis, where large collections of ties or speech acts are measured quantitatively and spatially. We can develop a most useful variety of methodologies when we reconsider our research questions and theorizing goals as suggested above. The current division of labor can turn into fruitful collaboration with an overarching goal of integrating theoretical frameworks as well. Practice-oriented methodologies can complement the quantitative character of social movement studies. While we need to work on creating large datasets that can represent technologically mediated activism online, the tasks ahead in developing theoretical tools require different methodologies.

Recent attempts to integrate media scholarship with STS provide a fortunate starting point for social movement scholars to become involved in integrating the rich literatures of STS, and now media studies, with the sociological body of knowledge on social movements. The title could read: “Mobilizing in a Digital/Material World.”

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