

RESEARCH CONTRIBUTIONS TO ORGANIZATIONAL SOCIOLOGY AND
INNOVATION STUDIES / STUTTGARTER BEITRÄGE ZUR ORGANISATIONS-
UND INNOVATIONSSOZIOLOGIE

SOI Discussion Paper 2017-02

Social Movements and the Internet

**The Sociotechnical Constitution of
Collective Action**

Ulrich Dolata



University of Stuttgart
Germany

Institute for Social Sciences
Organizational Sociology and Innovation Studies

Ulrich Dolata

Social Movements and the Internet. The Sociotechnical Constitution of Collective Action.

SOI Discussion Paper 2017-02

University of Stuttgart

Institute for Social Sciences

Department of Organizational Sociology and Innovation Studies

Seidenstr. 36

D-70174 Stuttgart

Editor

Prof. Dr. Ulrich Dolata

Tel.: +49 711 / 685-81001

ulrich.dolata@sowi.uni-stuttgart.de

Managing Editor

Dr. Jan-Felix Schrape

Tel.: +49 711 / 685-81004

felix.schrape@sowi.uni-stuttgart.de

Research Contributions to Organizational Sociology and Innovation Studies

Discussion Paper 2017-02 (April 2017)

ISSN 2191-4990

© 2017 by the author(s)

Ulrich Dolata is Professor for Organizational Sociology and Innovation Studies at the University of Stuttgart (Germany).

ulrich.dolata@sowi.uni-stuttgart.de

Additional downloads from the Department of Organizational Sociology and Innovation Studies at the Institute for Social Sciences (University of Stuttgart) are filed under:

<http://www.uni-stuttgart.de/soz/oi/publikationen/>

Abstract

For some years, the field of research on social movements has undergone fundamental changes. This is due above all to the internet and social media platforms that have become an integral part of the emergence, organization and mobilization of protest. This article examines the role which these new technical infrastructures play in the development and stabilization of political protest and social movements. For this, it pursues two main objectives: One, a more precise identification of the technical foundations of collective behavior and action, which show the internet to be not only an enabling but also a regulatory and action-structuring infrastructure with a considerable degree of intervention. Two, the analysis of the new and close interplay of social and technical conditions under which collective protest and social movements take shape in the digital age, referred to as “technically advanced sociality.”

Zusammenfassung

Seit einigen Jahren wird die wissenschaftliche Beobachtung und Analyse sozialer Bewegungen neu formatiert und ausgerichtet. Das ist vor allem anderen dem Internet und Social-Media-Plattformen geschuldet, die zu einem integralen Bestandteil der Entstehung, Organisierung und Mobilisierung von Protest geworden sind. In diesem Aufsatz wird herausgearbeitet, welche Rolle diese neuen technischen Infrastrukturen für die Entfaltung und Stabilisierung von politischem Protest und sozialen Bewegungen spielen. Im Zentrum der Argumentation stehen zwei Themen: Zum einen eine präzisere Bestimmung der technischen Grundlagen kollektiven Verhaltens und Handelns, die das Internet nicht nur als ermöglichende, sondern zugleich als regelsetzende und handlungsstrukturierende Infrastruktur mit großer Eingriffstiefe ausweist. Zum anderen die Auslotung des neuartigen Verhältnisses technischer und sozialer Konstitutionsbedingungen von kollektivem Protest und sozialen Bewegungen in Zeiten digitaler Medien, das als technisch erweiterte Sozialität auf den Begriff gebracht wird.

Contents

1	Introduction	5
2	Social movements: Conventional categories, new attributes and blind spots	6
2.1	Collective action: Conventional social categories and their blank spaces	6
2.2	Connective action: New socio-technical attributes and their blind spots	9
3	Social movements and the internet: The transformative capacity of technologies and the rise of a technically advanced sociality	12
3.1	The structuring and rule-setting capacities of technology: Social media as infrastructure and institution	12
3.2	Technically advanced sociality: Social media and the movements' enhanced repertoire of action	17
4	Social movements revisited: The internet, social media and the sociotechnical constitution of collective action	22
	References	27

1 Introduction

For some years, the field of research on social movements has undergone fundamental changes with regard to its structure and orientation. More specifically, it has moved from conceptualizing and examining protest movements as purely social phenomena to taking into consideration the new technological foundations of collective action. This has been prompted above all by the internet and social media platforms that have come to play an integral role in the emergence, organization and mobilization of protest. Among the movements that were prominent examples of this trend are the Arab Spring, the Occupy protests, Movimiento 15-M in Spain, and the Gezi Park protests in Istanbul. As part of these developments, more research attention has been given to the role of internet platforms such as Facebook, YouTube and Twitter in the organization and mobilization of protest (Mason 2012).

In that context, especially the concept of “connective action,” developed by Lance W. Bennett and Andrea Segerberg, quickly gained currency as a means to interpret these and other new social movements. The argument, in nuce, posits that in this day and age protest unfolds much more individualized and personalized than before and no longer requires the formation of action-guiding collective identities, strong leadership figures and conventional organizational structures. Instead, social media platforms, as organizing agents, are seen to take on the functions of coordinating and mobilizing protest. In that context, technologies, or more precisely the technical infrastructures of the digital world, then play a central role. They allow for new forms of protest, reduce the threshold for individuals to participate in protest, and serve as the main tool for organizing the protest (Bennett & Segerberg 2012, 2013; Bimber, Flanagin & Stohl 2005).

However, the claim that social movements have undergone a full-circle transformation in the course of integrating mobilizing and organizing features of digital media has not been uncontested. There is, admittedly, consensus that social media have indeed broadened the scope of action and influence of protest. Nonetheless, so the counterargument, the new movements are still shaped to a considerable degree by offline activities, for example, by local strategy-building and organizational processes, local meetings, demonstrations in public spaces and face-to-face contacts. In addition, they too rely on identity-building processes and opinion-forming activists if they are to avoid disintegrating and having but a fleeting existence (Gerbaudo 2012; Rucht 2014; Dolata & Schrape 2016).

Regardless of the degree of influence which the internet and its media platforms is deemed to have on social movements, most research contributions to this topic have one commonality: Despite the oft-made references to the action-enabling and action-expanding character of the new technological connectivity, the technologies them-

selves with all their embedded rules and regulations remain a blind spot in much of the discussion. Essentially, most studies do no more than simply acknowledge the presence of the internet and social media as technical offerings and infrastructures, often without ascribing any special rule-setting significance to them. “Technology is a tool, and therefore it is neutral” (Carty 2015: 5) is an apt depiction of this approach. Thus, the usage and behavioral rules embedded in the technical arrangements, their structuring effects, or the contexts in which they arise and the actors who develop and control them—all of these topics are not addressed in most research. Bimber, Flanagan and Stohl (2005: 384), for example, state that “our theory is agnostic about the origins of technology and the processes of social shaping that give rise to it and that influence the uses to which it is put.”

Against the backdrop of this discussion, this paper seeks to identify the role played by the internet and in particular social media today in the development and stabilization of political protest and social movements. Following this introduction, the paper offers a concise overview of the research on social movements and of the concept, somehow questioning the social component of said research, of connective action (Section 2). Section 3 pursues two tasks: One, to arrive at a more precise definition of the technical foundations of collective behavior and action, namely one that would reveal the internet and social media not only as enabling but also as regulating and action-guiding infrastructures and institutions that have a considerable degree of impact. And two, to assess the relationships between the technical and social conditions under which collective protest and social movements take shape in the digital age, referred to as “technically advanced sociality.” Section 4 summarizes the core elements of the current-day socio-technical make-up of social movements and discusses the prerequisites for a collective becoming a consciously acting actor. In other words, it examines how and when collective protest behavior that is initially spontaneous and largely uncoordinated transforms into a consciously conducted and strategically acting collective protest movement.

2 Social movements: Conventional categories, new attributes and blind spots

2.1 Collective action: Conventional social categories and their blank spaces

In Western societies, social movements are everything but a new phenomenon. In the classic sense, they include the rather rigidly organized workers’ movements that formed around distinct social milieus and that focused on economic conflicts. However, since the 1960s and 1970s, they also include new social movements that are structured like networks and that are oriented towards post-material values, such as

the civil rights, anti-war, anti-nuclear power, ecological or women's movements. In that context, social sciences research on this topic likewise has a long tradition. In the United States, social movements began being an object of study as early as the 1960s, and in the German-speaking world since the mid-1970s (Goodwin & Jasper 2015: 3–12; McAdam & Scott 2005; Rucht 1984). By now, social movements, as a topic, has become a recognized field of research within the social sciences, with findings published in a number of reference books (e.g., Snow, Soule & Kriesi 2004; Davis et al. 2005; Della Porta & Diani 2006, 2015; Goodwin & Jasper 2015).

The consolidation of this field of research, then, engendered a widely shared notion of what constitutes a social movement. According to that understanding, a social movement is essentially (1) *collective protest* against perceived political, economic or cultural grievances. Social movements confront and challenge the ruling authorities, either demanding that a social transformation take place or seeking to prevent changes deemed unacceptable (Snow, Soule & Kriesi 2004a). Nonetheless, a social movement is not usually referred to as such until its collective activities have consolidated into (2) processes of *cross-situational stabilization*. In this way, social movements are differentiated from more spontaneous forms of collective behavior or turmoil that tend to vanish into thin air after a singular action (Tilly & Tarrow 2015: 7–12). “Social movement scholars have argued that contention that only lasts for a few hours or days is too much of a flash in the pan to be a social movement” (Earl & Kimport 2011: 183).

In the course of this stabilization, social movements also give rise to (3) specific forms of *social organization* of their activities. “There is absolutely no question about the fact that social movement activity is organized in some fashion or another” (Snow, Soule & Kriesi 2004a: 10). Social movements are described, when differentiating them from the formal organizing taking place in bureaucratic organizations, as informal networks that are not held together through formal membership, that do not have binding and enforceable rules, and that rely on continuous and ongoing coordination processes between the participants (Della Porta & Diani 2006: 25–28, 135–162; Den Hond, De Bakker & Smith 2015; Ahrne & Brunsson 2011). However, this is not to say that they do not have structure. In fact, they feature diverse patterns of “organized informality” (Dobusch & Quack 2011: 177; Dobusch & Schoeneborn 2015) that ensure the internal cohesion of the movement and that structure its external relations.

“In this case, ‘organizing’ means establishing planning and decision-making structures, building communication channels and gathering the informal, motivational, material and cultural resources required in the confrontation with external groups.” (Rucht 1984: 87) [our translation]

In that context, it should be noted that (4) the increasing organization and stabilization of social movements is always accompanied by internal differentiation processes, which manifest in the development of *leadership figures and organizing core structures* on the one hand and an environment of sympathizers capable of mobilization on the other. Leadership in the form of opinion-making and organizing activists is

seen to have a decisive role in the development, consolidation (over the long term) and mobilization of social movements:

“It is the leadership which promotes the pursuit of goals, develops strategies and tactics for action, and formulates an ideology. The penetration of the movement in the society, the loyalty and involvement of its members, and the consensus of different social groups all depend upon the leaders’ actions.” (Melucci 1996: 332; Morris & Staggenborg 2004)

A last important feature of social movements that not only distinguishes them and stabilizes them across a wide range of contexts but that is also the object of intense debate in research on new social movements since the 1980s is the formation (5) of a *collective identity* that creates a sense of togetherness and a motive for action, and that manifests in the form of shared interpretive patterns, values, symbols, programs or guidelines. A movement’s collective identity is engendered by the interaction processes between the participants of the movement; is always, given the heterogeneous social milieus from which participants hail, fragile and in need of continual revision; constitutes conceptual boundaries to the outside; and forms an essential basis for the movement’s mobilizing capacity. In addition, the concept of collective identity explains why individuals engage in movements even if they do not stand to benefit directly from them, if the movement does not offer material incentives, or if the movement’s chances of success are slim (Melucci 1996: 68–86; McAdam, McCarthy & Zald 1996; Della Porta & Diani 2006: 89–113).

Protest, cross-situational stabilization, organized informality, leadership and collective identity—these are, in nuce, the main characteristics which the field of research has attributed to social movements since the 1980s. Until well into the 2000s, these characteristics were primarily conceived of as *social* phenomena and analyzed with regard to, for example, their role in the formation of social rules, social patterns of organization, social differentiations or social identities. By contrast, the role and importance of *technical* infrastructures for the emergence and institutionalization of social movements had received little research attention up until that time.

However, with the rapidly growing significance of the internet, this focus on social contexts and social conditions had become too narrow. After all, the processes by which collective opinions are formed or by which activities, political campaigns and mobilization are agreed on, organized and coordinated now also take place online. In that context, the challenge is to identify the extent of the impacts of these changed conditions on the emergence, development and actions of social movements. Does the extensive use of the internet and social media fundamentally change the foundations and the organizational and activity patterns of social movements? If so, does this point to the emergence, or existence, of a new type of movement that is characterized by the use of new technical arrangements and infrastructures and that can no longer be aptly described with the conventional attributes?

2.2 Connective action: New socio-technical attributes and their blind spots

A relevant part of the more recent literature would respond with a yes to the above questions. The upsurge of a wave of protests at the beginning of the 2010s prompted a partly radical revision of the various conceptions of social movements. In that context, the focus was put on the enabling features of the technical infrastructures of the internet and the social media platforms, which were deemed to have far-reaching effects on the organization, coordination and mobilization of collective protest. The new movements were considered to be capable of doing without leaders and the formation of strong collective identities, and thus to be based on non-hierarchical and egalitarian structures. The coordination of these movements, it follows, could then be accomplished to a significant degree through the internet rather than by social movement organizations (SMOs) or organizing social cores. According to Carty:

“The Indignados, the Arab Spring revolutionaries, the Occupy Wall Street participants, and the DREAMers reinforce the declining relevance of existing SMO mobilizing structures, given the recent paradigm shift toward grassroots mobilization, spontaneous operation, leaderlessness, reduced reliance on money, and less labor-intensive approaches.” (Carty 2015: 183; representative for many others, including Mason 2012)

The author continues to say that today’s campaigns “tend to rely on decentralized self-organizing and flexible networks made possible through new communication flows and web-based tools” (Carty 2015: 183). Moreover, the new, individually and flexibly manageable online technologies aligned perfectly with the current network society, which is characterized less by stable social milieus and collective identities than by fluid, fragmented and personalized interpretive patterns and structures (Castells 2015).

The influential concept of connective action, developed by W. Lance Bennett and Alexandra Segerberg (2012, 2012a, 2013; Bennett, Segerberg & Walker 2014, 2014a), is a prominent example of this reasoning.

“Connective action networks are typically far more individualized and technologically organized sets of processes that result in action without the requirement of collective identity framing or the levels of organizational resources necessary to respond effectively to opportunities.” (Bennett & Segerberg 2013: 32)

According to this concept, technology becomes the focal point in the readjustment of collective action: “At the core of this logic is the recognition of digital media as organizing agents.” (Bennett & Segerberg 2013: 35f.) This means that the (mobile) internet technologies and, in particular, social media such as Facebook, Twitter and YouTube not only have a new communicative but also a discrete and far-reaching organizational potential.

“To an important degree, information and communication technologies become agents in connective networks, automating and organizing the flow of information and providing various degrees of latitude for peer-defined relationships.” (Bennett & Segerberg 2013: 196)

From this point of view, the technical infrastructures of the web function as “*stitching mechanisms* that connect different networks into coherent organization,” whereby they contribute to the stabilization of the new online-oriented social movements (Bennett, Segerberg & Walker 2014: 234). By contrast, classic organizational patterns, leadership figures and organizing core structures, as well as the development of a collective identity, a program or other types of action guidelines fall into the background. Connective action “does not require strong organizational control or the symbolic construction of a ‘we’” (Bennett & Segerberg 2012: 748; see also Castells 2015: 246–271; Carty 2015). Instead, the initiation and dissemination of protest is increasingly done via social media platforms. The latter, then, are seen to stimulate spontaneous and non-hierarchical social protest largely without the input and structuring activities of movement organizations and without the necessity to construct collective identities. “Digital media platforms are the most visible and integrative organizational mechanisms” (Bennett & Segerberg 2013: 13; see also 10–16, 45–52; Bennett, Segerberg & Walker 2014). This could be referred to as a *technical* constitution of collectivity, whereby the crowd no longer has to organize and transform into a movement on the basis of the above-mentioned *social* attributes in order to consolidate its protest activities over time.

This proposition is, of course, quite bold and far-reaching, provoking several questions. The first concerns the *role and characteristics of technology*, seen crucial for the constitution of new forms of collectivity according to the connective action concept. What constitutes the great and independent coordinating and organizing potential that is attributed to online technologies? By and large, the bulk of the new literature on social movements remains vague and unsatisfactory in providing an answer to this key question.

Admittedly, Bennett, Segerberg and others have repeatedly pointed out that the internet expands the options of information acquisition and dissemination; facilitates the mutual observation of the behavior of individuals; increases the interactivity and speed of collective forms of communication and exchange; and increases the threshold of individual participation in political or social activities. However, this alone does not suffice to characterize online technologies as “organizing agents” that are equipped with discrete structuring effects. If anything, they would qualify as, somewhat less stately, connectivity-enhancing infrastructures, in other words, as new means for the technical mediation of collective social activities. Understanding digital media as organizing agents—for which there is something to be said—would make sense only if the distinct characteristics of the technologies and platforms in question, including their regulating, coordinating and controlling impacts, were identified. However, the concept of connective action says almost nothing to this effect. There, technology remains, apart from the emphasis on its enabling characteristics and its connectivity-enhancing character, a black box.

A second question concerns the *relationship between the technical and social conditions* under which collectivity and protest take shape in times of digital media and the internet. In this day and age, can protest activity really be sufficiently maintained over time with the connectivity-enhancing and organizational features attributed to technology? Or does protest that does not want to remain episodic rely on genuine and labor-intensive social structuring and institutionalization processes even in the internet age?

Bennett and Segerberg (2013: 1) proceed to answer these questions by significantly limiting the scope of their concept.

“Much contemporary activism still resembles the familiar protest politics of old, with people joining groups, forging collective identities, and employing a broad spectrum of political strategies from street demonstrations and civil disobedience to election campaigning, litigation, and lobbying.”

By this they are referring to social movements that are still today strongly influenced by the conventional patterns of movement organizations yet that now use the internet and social media as a complement to the mobilization and coordination of their activities. Manuel Castells (2015: 243) likewise points out that “it is essential to keep in mind that not all contemporary social protests are expressions of this new form of social movement. Indeed, most are not.” Seen from that angle, a relevant part of today’s social movements falls outside the scope of connective action and cannot be appropriately captured with the concept—something which tends to be overlooked.

Moreover, do the assumed new manifestations of connective action necessarily render obsolete the core characteristics that have traditionally been attributed to stable social protest and social movements—social organization, collective identity, leadership through opinion-forming activists and coordinating cores? Of particular interest here are the transitions from spontaneous and unorganized types of (mass) protest or upheaval, which have always been characterized by an initially diffuse and unstructured cacophony of moods, opinions and discussions, to more directed and sustained collective action. When do such transitions succeed, and when do they fail? What contributes to the stabilization of spontaneous mass activity? What role do the new technical infrastructures play, and how do they relate to genuinely social processes of structuring and institutionalization? Bennett and Segerberg (2013: 201), for their part, acknowledge that connective action networks have a “capacity, or at least a tendency, to adapt over time.” However, they do not elaborate on this important question of how initially situational and unstructured collective behavior becomes consolidated, structured and institutionalized protest over time.

3 Social movements and the internet: The transformative capacity of technologies and the rise of a technically advanced sociality

The shortcomings of the classic literature on social movements to integrate the new *technical* conditions for the formation of social movements into their conceptions of said movements are not really redressed by most of the recent literature on social media and protest. For one, although the recent literature does accord technology a central role, even deeming it capable of rendering genuinely social foundations of collectivity obsolete, it usually does not examine technology as such in more detail, whereby said technology remains a black box. Moreover, it hardly discusses the complex and dynamic interplay between new technical possibilities and *social* activities, which characterizes the emergence and stabilization, organization, structuring and mobilization of new protest movements.

The following aims to overcome these shortcomings. In a first step, the internet and social media are identified as new *technical and media infrastructures* that have not only facilitating and connectivity-enhancing properties but also rule-setting, regulating and structuring characteristics (Section 3.1). Whether, how and to what extent these new infrastructures are used is not considered to be technically determined, of course, but rather the result of genuinely social selection processes. In a second step, the distinct usage patterns of the internet and social media in the context of protest activities are described and typified as variegated *processes of the social appropriation and embeddedness* of these new technical possibilities in the action repertoire of movements (Section 3.2). In a third and summarizing step, the emergence, organization and dynamics of protest movements in the internet age is conceived as the *sociotechnical constitution of collectivity* that is characterized by novel interrelations between social and technical structuring patterns (Section 4).

3.1 The structuring and rule-setting capacities of technology: Social media as infrastructure and institution

Protest and social movements are always embedded in specific political, societal and social structures that influence their concrete possibilities, forms of organization and activities (Rucht 1984: 291–323; Della Porta & Diani 2006: 193–222). These contexts also include technical and media infrastructures that have always been adapted and used more or less independently by movements or that take shape as own contributions around collective activities.

Until the 1990s, movements had been increasingly making professional use of the telephone and conventional mail, as technical infrastructures, and of the mass media television, radio and print, as media infrastructures. At the same time, attempts were

made to eliminate, at least partly, any dependencies on the publication strategies of the mass media through the launch of alternative newspapers (e.g., *Libération*, France, 1973; *tageszeitung*, Germany, 1978) or through initial experiments with self-produced video material and alternative television formats (Armstrong 1981; Boyle 1992).

The communication and media infrastructures available to social movements were relatively consistent and stable between the 1960s and 1990s (Croteau & Hoynes 2014: 294–331). If anything, these decades saw a genuine *social* change, comprised mainly of the formation and establishment of a new type of social movement that reflected certain socio-structural shifts, cultural changes and the increasing importance of postmaterial values (e.g., the environment, civil rights, peace, gender)—all while remaining largely unconcerned and unaffected with technical innovations of any kind.

Starting with the 2000s, the protest and movement sector have been undergoing yet another set of changes. The latter are now significantly shaped by radical *technical* innovations and the accompanying new communication and media infrastructures, which challenge the classic movements and their well-established organization and mobilization structures while allowing for new forms of expression and dissemination of protest. The visible surface of this new infrastructure is composed of the internet, as an ubiquitous and interactive information, communication and media network; social media platforms, as specific commercial services that by now provide the majority of user-generated content and private or public exchange on the internet; as well as multifunctional (mobile) devices such as smartphones, tablets or laptops, which serve as technical means of communication. The vastly invisible but essentially structuring foundation of this infrastructure consists of software applications of the most varied kind, which not only determine what can (and cannot) be done on the individual platforms but that also enable their operators to manage, aggregate and evaluate large volumes of data for their own purposes.

The extent to which these new multifunctional technical and media infrastructures may affect the formation and functioning of social protest and social movements is striking. They offer (1) new opportunities for the fast and easy documentation of perceived grievances or current events as well as the mobilization and viral dissemination of protest. The omnipresence of smartphones and social media such as YouTube, Twitter and Facebook (with WhatsApp) allow to post telling images, videos, emails or documents in real time; finding a broad audience, quickly, in conjunction with the use of classic mass media; and triggering spontaneous forms of protest without any major organizational effort. They also (2) open up possibilities for new low-threshold forms of protest. Among these are e-mail campaigns, online petitions, wikis and discourses around hashtags, which like-minded people can launch or participate in without much effort as well as new means to spread political manifestos and calls to action through social media. Furthermore, the new infrastructures affect the (3) established patterns of organization of classic movements in several ways. One, they

have an impact on top-down mobilization and coordination, which can now take place online as well. Secondly, they engender expanded interaction and participation possibilities for the participants, as well as an increased transparency and control of the movement activities. Together, these impacts serve to relativize the power, or monopoly, which movement organizers have in determining the meaning, beliefs, strategies and guides for action (Earl & Kimport: 2011; Earl et al. 2015; Vasi & Suh 2016; Crossley 2015).

Moreover, the internet allows for a (4) gain in autonomy through the establishment of movement-associated, media-mediated counterpublics. As a fundamentally open, decentralized and interactive infrastructure, it essentially offers room for building independent platforms on which news, pictures and videos can be published and disseminated as well as communicated and mobilized beyond both the traditional media and the commercial social media. In the 2000s, the alternative media platform Indymedia, which had emerged from the anti-globalization movement, was an attempt (albeit failed by now) to offer an independent counterpublic to mainstream media on a larger scale on the internet (Kidd 2003; McDonald 2015; Baringhorst 2009). Today, such autonomous forms of online counterpublics exist primarily in the context of right-wing movements (e.g., the U.S. news and opinion website Breitbart News <http://www.breitbart.com/>).

The majority of the more recent literature cited in Section 2.2 focuses on the above-mentioned possibilities of the new technical and media infrastructures, yet overlooks (5) action-structuring and regulating features as easily as (6) novel control and monitoring capabilities that go hand in hand with the use of those infrastructures.

The sociological research on technology has long since established that technology invariably contains, embedded in it, rules, standards, instructions and control mechanisms, and that these have an impact on the activities of the users of that technology. As early as the 1970s, Hans Linde (1972) attributed to technology (which he termed “things”) a structuring (relationship-determining) as well as institutional (behavior-regulating) meaning, which he illustrated among others using the example of the assembly line in industrial production processes. In the beginning of the 1980s, Langdon Winner (1980: 127f.) characterized technological arrangements as structure-forming and regulating patterns of social order:

“The things we call ‘technologies’ are ways of building order in our world. [...] In that sense technological innovations are similar to legislative acts or political foundings that establish a framework for public order.”

At the end of the 1990s, Lawrence Lessig (1999) coined the famous metaphor “code is law,” whereby he equated, on the basis of their behavior-regulating effect, all the instructions and procedures that are encoded in software with the law and other social regulating systems (see also Grimmelmann 2005). Heinrich Popitz (1992: 31), for his

part, also took a closer look at the contexts in which technology is developed and manufactured and pointed out that the action-structuring and -regulating features of technology are not simply there coincidentally but are instead deliberately designed and implemented by their manufacturers, who thereby have a regulating power.

“[The power] is transferred, as it were, in materialized form to those concerned. That is to say, it is by no means a power of things over mankind—although it is suggestive of the ideology of ‘materialized’ power—but a power of the manufacturing process and the manufacturers; a [...] power inserted by the manufacturer into the thing.” (Heinrich Popitz 1992: 31) [our translation]

In essence, these notions of *technology as institution* emphasize that technology and technical arrangements are never neutral and arbitrarily usable but always have structuring and regulating features that enable, channel and co-determine individual, organizational or collective action (Dolata 2013; Dolata & Werle 2007: 17–22; Schulz-Schaeffer 2007). In contrast to social institutions, which take shape in the context of public discourse or political negotiations (where they also have to be legitimized), institutional inscriptions in technology are generally the domain of private-sector producers and are hardly *ex ante* negotiable or controllable. Of course, structures and rules embedded in technology are likewise, analogous to social laws, regulations, behavioral norms or values, subject to interpretation and are constantly adapted, modified or invalidated by their manufacturers and operators as well as in the course of social disputes or unexpected user behavior. In principle, however, this does not alter the rule-defining and behavior-influencing characteristics of technology, by way of which said technology is elevated to the ranks of an institution.

With the internet, the institutional foundations and effects of technology have acquired a new quality. In particular commercially-operated social media platforms, which now host many online protest and movement activities, do more than simply represent “technological tools that fundamentally enhance connectivity among people” (Bimber et al. 2012: 3; see also Carty 2015: 5; Bennett & Segerberg 2012). Indeed, this would be too narrow an approach. Rather, these platforms not only collect and exploit all the data that their users leave behind and ensure the seamless monitoring of their activities. In addition, their technical protocols, interface designs, default settings, features and algorithms structure and characterize the online activities of their users in a variety of ways.

Already, the predefined user interfaces and default settings of the platforms, which are not usually changed by the users, have a strong action-structuring effect in that they enable certain activities while excluding others. The embedding of features, such as the trending button on Twitter or the emoticons buttons and the trending news function on Facebook, are not just technical gadgets but regulating, action-orienting and opinion-forming elements. Indeed, they determine who or what is relevant for whom and what is not, namely on the basis of socially constructed algorithms. The latter serve to structure all information and interaction processes, antici-

pate user preferences, issue recommendations and, supplemented by the manual selections of content moderation teams, make decisions about what is obscene, objectionable, politically incorrect, erotic or pornographic—and proceed with the corresponding editing or deletion of such content. In this way, algorithms are highly political programs that construct distinct, selective and increasingly personalized social realities on the basis of social criteria that remain entirely intransparent to the individual and the public (Gillespie 2014; Just & Latzer 2017; Van Dijck 2013: 29–44; Reichert 2013: 21–78; Pariser 2011; Papsdorf 2015).

Technology thereby becomes an organizing agent—albeit in a way that veers significantly from the concept of connective action. Social media platforms are not simply open technical infrastructures that can be arbitrarily used, redesigned and redefined by their users. While they enable new forms of individual and collective action, their technical specifications, functionalities and algorithms have a structural and behavioral impact, in the sense described by Hans Linde, on their users. In essence, however, it is not the technical arrangements themselves but, following Heinrich Popitz, the internet companies developing and offering them who are the actual organizing agents of online communication. As companies that like to see themselves as having a higher societal mission, they structure and shape large parts of private and public life on the web through the technically mediated social specifications of their offers—all below the radar of public perception and control (Dolata 2017). They are not merely intermediary instances, such as telephone companies, but are, through their infrastructural and regulating power, action- and opinion-forming “curators of public discourse” (Gillespie 2010: 347).

Given the extensive reach of commercially operated social media platforms, the latter are today used not only by individual users but also by protest and social movements, who then make less use of alternative platforms developed and controlled by themselves (Haunss 2015). The repercussions of the use of these social media offers for the purpose of political protests are more complex and ambivalent than any matter-of-fact listings of their enabling features might suggest.

On the one hand, the extended possibilities for action that have arisen with the use of the social web and its services and platforms are, paradoxically, accompanied by a significant *loss of autonomy of action*. This is because the dissemination and coordination of protest through social media must likewise adhere to the technical rules and specific functionalities of the platforms and the terms and conditions of their operators. As a result, the use of social media by social movements suffers a near-complete loss of control over their own data tracks, communication processes and content, which become the property of the operating companies in the context of this private-sector type of publicness. These companies evaluate, aggregate and algorithmically operationalize all activities, following which they mirror these activities back to the users in a selected form. Moreover, and importantly, if these companies

deem the activities to be offensive or politically inopportune, they can also decide to exclude them. In this way, the selection logics of the classic mass media, traditionally deplored by the movements, are now complemented with the filtering and control mechanisms of the social media platforms, which are extremely opaque to users. By the way, this also means that the identities of many social movements—based largely on emancipation, criticism, openness, equality and self-determination—are confronted with a new media and technological infrastructure that is characterized by a near absence of transparency and a lack of public control (Leistert 2015; Hintz 2015; Poell & Van Dijck 2016).

On the other hand, social protest actions and social movements are, when using social media like Facebook, Twitter or YouTube, subjected to substantially *new means of observation and surveillance* which go far beyond the technical possibilities of the earlier days.

“When I supported the American protests against the Vietnam War,” recalls Noam Chomsky (*Die ZEIT* 26/2013), “we did everything to avoid speaking on the phone. We knew we’d be intercepted. We only spoke openly when we were together in a small circle and knew each other.”

Indeed, the possibilities for observing and surveilling social media activities today are omnipresent and seamless. This affects not only calls to action, manifestos or campaigns that are posted on these media but also all of the internal political communication and activities conducted there. The latter are systematically analyzed, condensed into people profiles and patterns of relationships, and arranged to be reconstructed and retrieved for years to come—both by the private operators of the platforms as well as, as has been known at the latest since the revelations of Edward Snowden, by state intelligence and security services (Andrejevic & Gates 2014; Lyon 2014; Baumann & Lyon 2013).

Overall, the transformative capacity of the new technical and media infrastructures on protest and movement activities is therefore considerable in various respects. Not only do the infrastructures open up new possibilities of dissemination, mobilization and organization but, given their regulating and behavior structuring characteristics, they also intervene significantly in the concrete manifestations and possibilities of protest and render collective action observable and evaluable in a fundamentally new way.

3.2 Technically advanced sociality: Social media and the movements’ enhanced repertoire of action

The ways in which protesters and social movements deal with the internet and social media, the concrete usage patterns they form, how they integrate the new technical possibilities into their action repertoire, and the extent to which this impacts their activity and organizational patterns—all this is, of course, not technically determined

but the result of genuinely social processes which cannot be eliminated with references to the organizing character of technology.

The sociology of technology has, as we have demonstrated, made the point that sociality in modern societies is a technically advanced sociality that takes shape not merely through social structuring and the interrelations of social actors but also through the action-orienting and regulating characteristics of their technical foundations. Indeed, contrary to the widespread notion that internet technologies and social media today play a central role in structuring new protest activities and movements, we want to argue that online-based forms of expression and organization are an important but not necessarily central component of movements' extended range of social activities. This becomes obvious when taking the broader social context as well as the variety of recent protest activity into consideration.

At one end of a wide spectrum of collective patterns of protest are numerous new forms of *volatile online-mediated protest*, which are spontaneous, short-term and low-threshold and in which the use of social media plays a key mobilizing and coordinating role. The structure of this field is as heterogeneous as the organizing forms found there. The latter include purely online-based activities such as electronic petitions, email campaigns, online boycotts or political hashtag campaigns (e.g., #aufschrei), which are characterized by low participation thresholds and the online-mediated gathering of participants. They also include events receiving broad exposure and visibility (such as police attacks on blacks in the United States) that, disseminated via smartphones and social media, lead to spontaneous street protests; as well as calls to action and manifestos, issued by individuals or small groups, which can comprise the initial force behind the occupation of public spaces and demonstrations (as in Spain 2011).

Some researchers claim that these new forms of protest which are made possible by social media could be launched independently of movement organizations by so-called solo organizers or small teams without any organizational background (Earl & Kimport 2011: 147–173). This is, however, only partly correct. Many e-mail campaigns, electronic petitions or online boycotts, for example, no longer take shape spontaneously but are instead initiated and curated by professional campaign organizations such as Moveon.org, Campact, Avaaz and Change.org, who act as the selecting and coordinating cores of such activities (Karpf 2012; Dauvergne & LeBaron 2014).

These new online-mediated means of expressing protest do indeed allow achieving significant effects. They can trigger social debates, communicate displeasure, provoke social unrest and even spur far-reaching political activities. On their own, however, they cannot not be characterized as social movements with a sufficiently stable degree of collective capacity for action. Instead, they might qualify as offering new means of expression and behaviors for a non-organized mass or crowd that is tempo-

rarily focusing its attention on a particular political or social theme or event. Such forms of initially volatile online-mediated protests often remain episodic, insofar as they usually disappear just as fast as it took them to emerge once the event is over (Dolata & Schrape 2016). However, they may insert themselves into the action repertoire of social movements, or set off an event that triggers far-reaching protest action of a newly forming movement (e.g., the Black Lives Matter movement targeting police brutality against blacks in the United States, Dohrn & Ayers 2016).

At the other end of the spectrum, there are *strategically oriented and well-organized social movements* that do not differ fundamentally from their offline counterparts in their modes of action and coordination. What is characteristic for mass protests, such as those against the Anti-Counterfeiting Trade Agreement or the transatlantic free trade agreements TTIP and CETA, is that they forge broad social alliances with non-governmental organizations (e.g., Greenpeace or attac), clubs (e.g., Chaos Computer Club), professional campaign organizations (e.g., Campact or Avaaz), established left and green parties as well as individual activists, who plan and carry out thematically focused protests. As part of that process, a few of the involved actors, offices or campaign organizations usually assume leadership for the coordination of activities. The latter include, beyond the organization of street demonstrations and working with mass media, seizing and exploiting internet-based opportunities for expression and mobilization through their own websites, through social media platforms such as Facebook and Twitter, or through the launch of electronic petitions. Essentially, this constitutes collective action in the classic sense, insofar as it is considerably coordinated by movement organizations which have expanded their repertoire of contention by ways of including the not unimportant and systematic use of the internet and social media for exposure, mobilization and organization purposes (Losey 2014; Finkbeiner et al. 2016; <https://stop-ttip.org/de/unterstutzerorganisationen>, retrieved 3/10/2017).

Different from these well-organized movements and fluid forms of online-based protest behavior, there are *more openly structured and web-based new social movements* who rely significantly on social media platforms when planning and conducting their protest activities. The following movements can be classified as this type, which is often seen as a new form of connective action due to its focus on the internet: the protests against the dictatorship in Egypt (2011), the Spanish 15-M Movement (2011), the Occupy movement (2011), the confrontations around the Gezi Park protests in Istanbul (2013), the Umbrella Movement in Hong Kong (2014) or the Nuit Debout movement in France (2016). As a rule, the activists and participants of this type of movement are recruited from the pool of well-educated, dissatisfied and online-savvy young people of the urban middle class. Their self-understanding is characterized by a deep skepticism of the classic forms of organizing and the propagation of informal, non-hierarchical and non-ideological structures. Initially, these more openly structured and web-based new social movements were held together by

a very general identity frame (e.g., “We are the 99%” or “Democracia Real Ya”) without any further conceptual or programmatic specifications (Gerbaudo 2012; Yörük & Yüksel 2014; Veg 2015; Vogel 2016; Chwala 2016).

Although these movements make systematic use of above all commercial social media platforms, in particular Facebook, Twitter and YouTube, they too are far more than connective action networks that organize themselves primarily over the internet. This becomes clear when the role of social media is exemplarily observed and reinterpreted in the now well documented movements to overthrow the dictatorship in Egypt, the protest of the Spanish Indignados and the Occupy movement in the United States.

In the weeks of the *overthrow of the Egyptian government* in early 2011, social media platforms, in this case especially Facebook groups, played an important initial role in the communication, mobilization and international visibility of the protest—albeit only for a short time. For example, the classic mass media, especially the television stations Al-Jazeera and Al-Arabiya, reporting continually and on site, soon became more important for the spread of the uprising within the country itself. Then, after the fall of the Mubarak regime, the urban online activists were stripped yet again of their influence, this time by classic actors, especially the Muslim Brotherhood, anchored deeply within the society, and the military. Thus, in the political power struggle around the constitution of a new political order, the connective action networks no longer played a significant role—mainly because of their weak and fragile organizational structures, the political naiveté and inexperience of their activists, as well as the lack of programming and competence, especially with regard to economic and socio-political issues. In addition, this example, like the Gezi protests in Istanbul and the Occupy Central movement in Hong Kong, shows how easy and effective it is for the state security and police forces to monitor all online activities and to identify and pursue opinion-forming activists (Howard & Hussain 2013; Gerbaudo 2012a; Lim 2012; Aouragh & Alexander 2011; Alexander & Aouragh 2014; Gerlach 2016).

Social media activities also gave the impetus for *mass protests in Spain* in May 2011, namely against austerity, unemployment and corruption, which were not triggered by the established movement organizations. For example, the manifesto “Democracia Real Ya,” which was the driving force behind the ensuing street protests and occupations, was written by individuals with no organizational background and was spread and discussed through a Facebook page. The latter subsequently became the main platform of the new movement and was shared by and connected to several hundred participating organizations, groups and blogs. However, while the start of the protests was almost exclusively carried by web-based discussions and activities, the role of social media decreased following the major demonstrations of May 15, 2011 and the ensuing occupations of public places. Although Facebook and Twitter were still used extensively, the essential communication and organization then moved from the

internet to the meetings (*asambleas*) of the active participants on site and on the ground. In addition, television and newspapers became increasingly important media for the spread of protests. The successful consolidation of the movement over time was based on two major social institutionalization processes that had little to do with social media. One, loose yet stable social networks of neighborhood meetings and local initiatives emerged, for example against foreclosures across the country. Secondly, the movement emboldened citizens to put themselves up for election and gave rise to the new party Podemos, which gave the movement a political program and direction as well as, through Pablo Iglesias, a charismatic leader (Gerbaudo 2012: 76–101; Castaneda 2012; Anduiza et al. 2014; Monterde et al. 2015; Iglesias 2015, 2015a; Simsa et al. 2015).

With the 2011 *Occupy Wall Street protests in the United States*, triggered by the banking and financial crisis, people vented their anger at the political system and their indignation at the blatant social inequality in society. The protests were kicked off by a professionally organized campaign of the consumer-critical journal *Adbusters*, which also published the movement's initial call to action, which was then disseminated across various media channels. The movement's social media activities, in particular the use of Twitter and Tumblr, only became relevant during the course of the occupations—mainly for the mobilization, strategic coordination and dissemination of protests on the ground. Thus, in this case social media were of secondary importance for the initial organization of the movement, including the development of its cause and mission. Moreover, in spite of the movement's penchant for grassroots democracy, a small group of prominent opinion-making activists soon emerged; these not only organized the occupations, wrote the manifestos and served as the preferred media contact but also took command of the strategic use of Twitter, surrounded by a far greater number of more passive followers. The rapid decline of the Occupy movement and its low impact on politics can be largely attributed to its failure to become socially institutionalized. For example, the movement exhibited: a rather vague and broad orientation and a lack of programming, which benefited it only at the beginning of the protests; a refusal to cooperate with potential allies (e.g., trade unions or globalization-critical organizations), which cultivated a certain navel-gazing of the protests on the ground; as well as a tenacious adherence of the participants to grassroots democracy, which impeded a more effective organization and more long-term stabilization of the movement (Gerbaudo 2012: 102–133; Milkman et al. 2012; Rucht 2013; Karpf 2014; Kavada 2015; Kneuer & Richter 2015: 141–155). However, the Occupy movements' central demand for more social equality and justice in U.S.-American society did regain some of its former status in 2015/16 in the context of the pre-election campaign of the Democrat Bernie Sanders for the US-American presidential election, a campaign that was tightly organized and characterized by a strong online presence (Watkins 2016).

The examples show that the leading commercial social media platforms, especially, have become main hubs of protest initiation, mobilization and coordination at the latest with the social movements of the 2010s. However, even these new protest movements could not be characterized as connective action networks whose activities are predominantly online—at least not when considering that their undoubtedly strong online presences are, in turn, embedded within their numerous other activities, and when looking at not just their initial phases but also their development and their possibilities for consolidation over the long term.

What is typical of these movements, rather, is what I refer to as a *technically advanced sociality*, which is characterized by a novel and close interplay between socially based events, relationships, communication processes and activities and new forms of their technically mediated facilitation, dissemination and structuration. The use of the internet and social media is, as shown by the foregoing examples, a new and important but certainly not the only or most influential component of the activity profile and action and organizing repertoire of these movements. Thus, demonstrations, occupations, face-to-face communication and on-site strategy-building processes as well as the use of the traditional mass media do not become obsolete due to the use of social media.

Moreover, in the course of the cross-situational stabilization of initially spontaneous collective protests, genuine social institutionalization processes have a particular importance. These institutionalization processes include the refinement of political demands and programs that have mobilizing and identity-building effects that reach beyond a given moment or situation; the capacity of the participants to form coalitions and networks of activities that stabilize and broaden the basis of the protest; as well as the formation of organizing core structures and opinion-forming activists that structure and choreograph the activities. It is only through such social institutionalization processes that initially spontaneous collective protest behavior can transform into a social movement capable of sustained, reflexive and lasting acting. Technology, by contrast, cannot deliver that.

4 Social movements revisited: The internet, social media and the sociotechnical constitution of collective action

It would make little sense, however, to play out the (supposedly) new phenomenon of the internet and social media as organizing agents against the (supposedly) old social constitution of social movements. Instead, it is far more interesting and productive to explore the relationship and interplay of social and technical conditions of collectivity and protest in times of the internet, and to explore the concept of a tech-

nically advanced sociality of social movements. Overall, this concept can be summarized as follows.

The internet and social media have (1) sustainably expanded the *possibilities of expression of protest as well as the repertoire of action and organizational skills of social movements*. They have contributed to a remarkable pluralization of protest opportunities and activities; offer new actors such as individuals or small groups the opportunity to initiate protest; and create low-threshold access to protest activities, which allows to attract sympathizers and participants who are otherwise apolitical or not part of the more classic social movement environment. In addition, social media activities today play an important role especially at the beginning of protest waves, which are often triggered by attention-drawing and mobilizing online activities that can spread virally and in part independently of the traditional mass media (Bimber 2017).

However, despite all of these functions, social media are not removing the (2) *classic forms of social protest* from the playing field. Indeed, it is often through traditional activities such as street demonstrations or occupations that the whole thrust of a protest can unfold and become a substantial challenge for the established political practice in the first place. As a result, these activities will remain key components of the repertoire of online-oriented social movements as well (Gerbaudo 2012; Della Porta 2014; Poell & Van Dijck 2016).

As soon as protest moves into these classic public spaces, (3) *face-to-face communication and on-site opinion- and strategy-building processes* become more important. Social media platforms such as Facebook or Twitter are used more to organize, to point to debates and discourses and to stir up emotionally than to develop, discuss and comment on content. Strategic decision-making processes, the planning of further activities or the writing of texts and calls to action still take place primarily in the protest environments on the ground, following which they are then communicated and disseminated via supporting social media activities, and via the traditional mass media (Kavada 2015: 880f.; Haunss 2015: 26f., Kneuer & Richter 2015: 170–184).

Especially television is still important for the continuous reporting of protest events and movements and has not yet been replaced by social media. What is typical, rather, is the (4) *increasing degree of differentiation within media infrastructures and the interdependencies between different media*, in which the internet and social media play an important but not exclusive role (Schrape 2016; Van Dijck & Poell 2013). Moreover, the use of social media by no means removes the, formerly often deplored, dependency of social movements on the media. The journalistic selection logics of the mass media are now supplemented by the algorithmic filtering, regulation and control logics of the commercial social media platforms. This not only influences the dynamics of collective perception and attention but also allows for the seamless and permanent monitoring and evaluation of these dynamics.

Thus, the internet and social media do not replace conventional forms of protest but are embedded in a considerably wider range of movement activities and repertoires. However, they are not merely any additional component in that repertoire. The real novelty is the omnipresent recursiveness generated by them: They enable, as technical and media infrastructures extending far beyond the scope of social movements, (5) *multiple networking and feedback processes in real time*. They provide new opportunities for networking within and between movements and contribute to the consolidation and to the permanent feedback not only between activists and participants and between online and offline activities but also between different media, through which every social event and every social activity can be directly exchanged, communicated and re-inserted into the movements' activities or the mediated public. With all this, the internet and social media form a new and distinct technically mediated structure and level of social protest action and have become an integral part of the technically advanced sociality of social movements.

Whereas social media can play a central role in exposing issues and as mobilization platforms in both spontaneous protest activities and in the early stages of emerging social movements, they are only partially suitable for the transformation of spontaneous collective protest behavior into strategically-oriented and persistent protest action of some political relevance. However, whether such transitions succeed primarily depends on genuinely social institutionalization processes. In other words, identity-building and organizing processes, which inevitably include accompanying social differentiation processes, remain constitutive of the collective becoming an actor capable of strategic and coordinated acting even in times of the internet and social media.

The focus on the consolidating force of technically-mediated connectivity underestimates the still existing (6) *necessity of substantial identity-building*, without which emerging social movements can neither be stabilized nor gain political influence over time as an extra-parliamentary voice. Very broadly kept umbrella identities such as “We Are the 99%,” “Democracia Real Ya” or “Black Lives Matter” can trigger spontaneous protest but do not suffice to keep a protest going over time. The latter requires, to begin, the social competence for political coalition building and networking, without which protest remains isolated and self-referential. In addition, it requires the development of concretizing demands and a political program, which, as elements of a dynamic, meaningful identity, remain key prerequisites for the overall cohesion, the continuing mobilizing capacity and the relevance of a social movement within the political debate (Gerbaudo & Treré 2015). Maria Bakardjieva (2015: 986) expressed this aptly as follows: “A depolitized movement driven by connectivity [...] may be good enough to help retrieve someone’s lost mobile phone [...], but not to challenge a government or a hegemonic cultural code.”

Social media are, of course, not simply new media channels for the dissemination of manifestos, calls to action, demands and programs. Rather, they are also platforms

where the exchange of individual perceptions and experiences is predominant and where political identity-building processes are much more visible, yet also less coherent, today than before, whereby they need to be continually re-communicated, re-negotiated and legitimized (Milan 2015). The new and difficult challenge for social movements today consists of picking up on the highly individualized protest behaviors and the elaborate cacophony of voices and moods, and to steer this towards a common political goal that goes beyond the moment.

This is not possible without (7) *social organizing structures and accompanying internal stratification processes*. Without the formation of organizing core structures and actors in whose surroundings activities are planned and coordinated, texts written, strategies developed, alliances made, and media attention generated, no spontaneous protest can be transformed into a long-term movement that is capable of action and strategy (Piven 2013; Den Hond & De Bakker & Smith 2015). This is, in fact, empirically observable and is typical not only of social movements in the more classic sense, where movement organizations still play an important role and where the organization of mass protest actions is done by specially set-up campaign offices. The new online-oriented movements and more volatile forms of collective protests too by no means function without organization and leadership. In fact, the initiation of electronic petitions, online boycotts or email protests is now often done by professional campaign organizations. Moreover, during protests on the ground, the more permanent among the new movements usually give rise to a certain division of labor and small informal groups of opinion-leading, media-savvy and well-connected activists who set the political course. This also affects the movement's social media activities, which are usually determined by a few key Twitterers with a large following and by the administrators of, say, Facebook pages, who play a key role as curators and choreographers of online communication. Paolo Gerbaudo (2014: 267) has referred to this as “digital communication teams, often bound together by links of friendship and comradeship who take the lead in initiating and steering relevant internet communications.”

Such stratification processes, which can be evidenced everywhere, contrast strikingly with the non-hierarchical and grassroots self-understanding of many new movements. This is no new phenomenon (Morris & Staggenborg 2004). As early as the beginning of the 1970s, Jo Freeman (1972) pointed out that even in such movements, whose participants deliberately want to do without explicit leadership, organization and decision-making structures, informal decision-making elites develop who manage to remain unaccountable to anyone. Today, in times of a continuously mutual and media-based observation of activists and participants, such elites opt to function as soft and reluctant leaders who often want to remain anonymous and whose style of leadership is less commandeering and preaching than inviting and stimulating—yet whose subtle influence on the nature of the mobilization, coordination and communi-

cation of protest activities is nevertheless (or precisely for this reason) high (Gerbaudo 2012; Poell et al. 2015; Kavada 2015; Karpf 2014; Treré 2012).

Moreover, charismatic leaders in the classic sense, who mobilize masses and who hold movements together and shape their identity, have by no means disappeared from the movement scene but have been, on the contrary, experiencing a remarkable renaissance for several years now. Among these are: Pablo Iglesias, the leader of Podemos in Spain; Beppe Grillo, the face of the Five-Stars movement in Italy; Alexis Tsipras, a temporary personification of the protest against European austerity politics in Greece; Anthony Corbyn, the bearer of hope for a socialist renewal of the British Labour Party, backed by youthful sympathizers far beyond the party; and Bernie Sanders, who, in the run-up to the U.S. presidential election, knew how to revive and consolidate the potential of the Occupy movement (Watkins 2016). Thus, the new movements are a long way from being free of hierarchies and leaders.

In order for the collective to become an actor, in other words, for the formation of a social movement that is capable of strategizing and taking action and that has a political impact that goes beyond the moment, far more is needed than technically-enabled connectivity. As a result, to become actors, collectives need to, still today, engage in genuine social institutionalization processes—something which technology cannot provide. Among these are the establishment of organizing structures, the formation of politically experienced activists, and the development of programmatic achievements and identity-building processes. Without such patterns of institutionalization, any protest or movement threatens to be just a flash in the pan and to remain politically irrelevant.

References

- Ahrne, Göran; Brunsson, Nils, 2011: Organization outside organizations: The significance of partial organization. In: *Organization* 18(1), 83–104.
- Andrejevic, Mark; Gates, Kelly, 2014: Big Data Surveillance: Introduction. In: *Surveillance & Society* 12(2), 185–196.
- Alexander, Anne; Aouragh, Miriyam, 2014: Egypt's Unfinished Revolution: The Role of the Media Revisited. In: *International Journal of Communication* 8, 890–915.
- Anduiza, Eva; Cristancho, Camilo; Sabucedo, José, 2014: Mobilization through online social networks: the political protest of the Indignados in Spain. In: *Information, Communication & Society* 17(6), 750–767.
- Aouragh, Miriyam; Alexander, Anne, 2011: The Egyptian Experience: Sense and Nonsense of the Internet Revolution. In: *International Journal of Communication* 5, 1344–1358.
- Armstrong, David, 1981: *A Trumpet to Arms. Alternative Media in America*. Boston: South End Press.
- Bakardjieva, Maria, 2015. Do clouds have politics? Collective actors in social media land. In: *Information, Communication & Society* 18(8), 983–990.
- Baringhorst, Sigrid, 2009: Politischer Protest im Netz – Möglichkeiten und Grenzen der Mobilisierung transnationaler Öffentlichkeit im Zeichen digitaler Kommunikation. In: Marcinkowski, Frank; Pfetsch, Barbara (Ed.), *Politik in der Mediendemokratie*. Politische Vierteljahresschrift. Sonderheft 42. Wiesbaden: VS, 609–634.
- Bauman, Zygmunt; Lyon, David, 2013: *Liquid Surveillance. A Conversation*. Cambridge: Polity Press.
- Bennett, W. Lance; Segerberg, Alexandra, 2012: The Logic of Connective Action. Digital media and the personalization of contentious politics. In: *Information, Communication & Society* 15(5), 739–768.
- Bennett, W. Lance; Segerberg, Alexandra, 2012a: Digital media and the personalization of collective action. Social technology and the organization of protests against the global economic crisis. In: Loader, Brian D.; Mercea, Dan (Eds.), 2012: *Social Media and Democracy. Innovations in participatory politics*. London/New York: Routledge, 13–38.
- Bennett, W. Lance; Segerberg, Alexandra, 2013: *The Logic of Connective Action. Digital Media and the Personalization of Contentious Politics*. New York: Cambridge University Press.
- Bennett, W. Lance; Segerberg, Alexandra; Walker, Shawn, 2014: Organization in the crowd: Peer production in large-scale networked protests. In: *Information, Communication & Society* 17(2), 232–260.
- Bennett, W. Lance; Segerberg, Alexandra; Walker, Shawn, 2014a: Organizing in the crowd – looking ahead. In: *Information, Communication & Society* 17(2), 272–275.
- Bimber, Bruce, 2017: Three Prompts for Collective Action in the Context of Digital Media. In: *Political Communication* 34(1), 6–20.
- Bimber, Bruce; Flanagin, Andrew J.; Stohl, Cynthia, 2005: Reconceptualizing Collective Action in the Contemporary Media Environment. In: *Communication Theory* 15(4), 365–388.
- Bimber, Bruce; Flanagin, Andrew J.; Stohl, Cynthia, 2012: *Collective Action in Organizations. Interaction and Engagement in an Era of Technological Change*. Cambridge: Cambridge University Press.
- Boyle, Deirdre, 1992: From Portapak to Camcorder: A brief History of Guerilla Television. In: *Journal of Film and Video* 44(1/2), 67–79.
- Carty, Victoria, 2015: *Social Movements and New Technology*. Boulder: Westview Press.
- Castaneda, Ernesto, 2012: The Indignados of Spain: A Precedent to Occupy Wall Street. In: *Social Movement Studies* 11(3/4), 309–319.
- Castells, Manuel, 2015: *Networks of Outrage and Hope. Social Movements in the Digital Age* (2nd Ed.). Cambridge/Malden: Polity.
- Chwala, Sebastian, 2016: Frankreich in der politischen Krise. Nuit Debout – Aufschwung der Linken trotz Krise der Parti socialiste? In: *Z – Zeitschrift Marxistische Erneuerung* 27, 43–47.
- Crossley, Alison Dahl, 2015: Facebook Feminism: Social Media, Blogs, and New Technologies of Contemporary U.S. Feminism. In: *Mobilization* 20(2), 253–268.
- Croteau, David; Hoynes, William, 2014: *Media/Society. Industries, Images, and Audiences. Fifth Edition*. Los Angeles/London: Sage.

- Dauvergne, Peter; LeBaron, Genevieve, 2014: *Protest Inc. The Corporatization of Activism*. Cambridge/Malden: Polity Press.
- Davis, Gerald F.; McAdam, Doug; Scott, W. Richard; Zald, Mayer N. (Eds.), 2005: *Social Movements and Organization Theory*. Cambridge: Cambridge University Press.
- Della Porta, Donatella, 2014: Comment on organizing in the crowd. In: *Information, Communication & Society* 17(2), 269–271.
- Della Porta, Donatella; Diani, Mario, 2006: *Social Movements. An Introduction* (2nd Ed.). Malden/Oxford/Carlton: Blackwell.
- Della Porta, Donatella; Diani, Mario, 2015 (Eds.): *The Oxford Handbook of Social Movements*. Oxford: Oxford University Press.
- Den Hond, Frank; De Bakker, Frank G.A.; Smith, Nikolai, 2015: Social Movements and Organizational Analysis. In: Della Porta, Donatella; Diani, Mario (Eds.): *The Oxford Handbook of Social Movements*. Oxford: Oxford University Press, 291–305.
- Dobusch, Leonhard; Quack, Sigrid, 2011: Interorganisationale Netzwerke und digitale Gemeinschaften. Von Beiträgen zu Beteiligung? In: Conrad, Peter; Sydow, Jörg (Hrsg.): *Organisation und Umwelt. Managementforschung* 21, 171–213.
- Dobusch, Leonhard; Schoeneborn, Dennis, 2015: Fluidity, Identity, and Organizationality: The Communicative Constitution of Anonymous. In: *Journal of Management Studies* 52(8), 1005–1035.
- Dohrn, Bernadine; Ayers, William, 2016: Young, Gifted, and Black: Black Lives Matter! In: Conner, Jerusha / Rosen, Sonia M. (Eds.), *Contemporary Youth Activism. Advancing Social Justice in the United States*. Santa Barbara: Praeger, 79–92.
- Dolata, Ulrich, 2013: *The Transformative Capacity of New Technologies*. London: Routledge.
- Dolata, Ulrich, 2017: *Apple, Amazon, Google, Facebook, Microsoft. Market Concentration – Competition – Innovation Strategies*. SOI Discussion Paper 2017-01. Stuttgart: Institute for Social Sciences.
- Dolata, Ulrich; Schrape, Jan-Felix, 2016: Masses, Crowds, Communities, Movements. Collective Action in the Internet Age. In: *Social Movement Studies* 15(1), 1–18.
- Dolata, Ulrich; Werle, Raymund, 2007: Bringing technology back in. Technik als Einflussfaktor sozioökonomischen und institutionellen Wandels. In: Dolata, Ulrich; Werle, Raymund (Hrsg.): *Gesellschaft und die Macht der Technik. Sozioökonomischer und institutioneller Wandel durch Technisierung*. Frankfurt/New York: Campus, 15–43.
- Earl, Jennifer; Hunt, Jason; Garrett, R. Kelly; Dal, Aysenur, 2015: New Technologies and Social Movements. In: Della Porta, Donatella; Diani, Mario (Eds.): *The Oxford Handbook of Social Movements*. Oxford: Oxford University Press, 355–366.
- Earl, Jennifer; Kimport, Katrina, 2011: *Digitally Enabled Social Change. Activism in the Internet Age*. Cambridge/London: The MIT Press.
- Finkbeiner, Florian; Keune, Hannes; Schenke, Julian; Geiges, Lars; Marg, Stine, 2016: *Stop-TTIP-Protteste in Deutschland. Wer sind, was wollen und was motiviert die Freihandelsgegner?* Forschungsbericht Göttinger Institut für Demokratieforschung 2016-01. Göttingen: Göttinger Institut für Demokratieforschung.
- Freeman, Jo, 1972: The Tyranny of Structurelessness. In: *Berkeley Journal of Sociology* 17, 151–164.
- Gerbaudo, Paolo, 2012: *Tweets and the Streets. Social Media and Contemporary Activism*. London: Pluto.
- Gerbaudo, Paolo, 2012a: The Impermanent Revolution: The Organizational Fragility of the Egyptian Prodemocracy Movement in the Troubled Transition. In: *Social Justice* 39(1), 7–19.
- Gerbaudo, Paolo, 2014: The persistence of collectivity in digital protest. In: *Information, Communication & Society* 17(2), 264–268.
- Gerbaudo, Paolo; Treré, Emiliano, 2015: In search of the ‘we’ of social media activism: Introduction to the special issue on social media and protest identities. In: *Information, Communication & Society* 18(8), 865–871.
- Gerlach, Julia, 2016: Fünf Jahre Arabellion: Das Ende eines Traums? In: *Blätter für deutsche und internationale Politik* 61(2), 47–56.
- Gillespie, Tarleton, 2010: The politics of ‘platforms.’ In: *New Media & Society* 12(3), 347–364.
- Gillespie, Tarleton, 2014: The Relevance of Algorithms. In: Gillespie, Tarleton; Boczkowski, Pablo; Foot, Kirsten (Eds.): *Media Technologies. Essays on Communication, Materiality, and Society*. Cambridge: MIT Press, 167–194.

- Goodwin, Jeff; Jasper, James M. (Eds.), 2015: *The Social Movements Reader. Cases and Concepts* (3rd Edition). Chichester: Wiley Blackwell.
- Grimmelmann, James, 2005: Regulation by Software. In: *The Yale Law Journal* 114, 1721–1758.
- Haunss, Sebastian, 2015: Promise and Practice in Studies of Social Media and Movements. In: Dencik, Lina; Leistert, Oliver (Eds.): *Critical Perspectives on Social Media and Protest. Between Control and Emancipation*. London/New York. Rowman & Littlefield, 13–31.
- Hintz, Arne, 2015: Social Media, Censorship, Privatized Regulation and New Restrictions to Protest and Dissent. In: Dencik, Lina; Leistert, Oliver (Eds.): *Critical Perspectives on Social Media and Protest. Between Control and Emancipation*. London/New York: Rowman & Littlefield, 109–126.
- Howard, Philip N.; Hussain, Muzammil, 2013: *Democracy's Fourth Wave? Digital Media and the Arab Spring*. Oxford: Oxford University Press.
- Iglesias, Pablo, 2015: Explaining Podemos. In: *New Left Review* 93, 7–22.
- Iglesias, Pablo, 2015a: Spain on Edge. In: *New Left Review* 93, 23–42.
- Just, Natascha; Latzer, Michael, 2017: Governance by algorithms: Reality construction by algorithmic selection on the internet. In: *Media, Culture & Society* 39(2), 238–258.
- Karpf, David, 2012: *The MoveOn Effect. Transformation of American Political Advocacy*. Oxford. Oxford University Press.
- Karpf, David, 2014: Comment on 'Organization in the crowd: Peer production in large-scale networked protests.' In: *Information, Communication & Society* 17(2), 261–263.
- Kavada, Anastasia, 2015: Creating the collective: social media, the Occupy Movement and its constitution as a collective actor. In: *Information, Communication & Society* 18(8), 872–886.
- Kidd, Dorothy, 2003: Indymedia.org. A new communications commons. In: McCaughey, Martha; Dyers, Michael (Eds.): *Cyberactivism: Online Activism in Theory and Practice*. New York: Routledge, 47–69.
- Kneuer, Marianne; Richter, Saskia, 2015: *Soziale Medien in Protestbewegungen. Neue Wege für Diskurs, Organisation und Empörung?* Frankfurt/New York: Campus.
- Leistert, Oliver, 2015: The Revolution Will Not Be Liked. In: Dencik, Lina; Leistert, Oliver (Eds.): *Critical Perspectives on Social Media and Protest. Between Control and Emancipation*. London/New York: Rowman & Littlefield, 35–51.
- Lessig, Lawrence, 1999: *CODE and Other Laws of Cyberspace*. New York: Basic Books.
- Lim, Merlyna, 2012: Clicks, Cabs, and Coffee Houses: Social Media and Oppositional Movements in Egypt, 2004–2011. In: *Journal of Communication* 62, 231–248.
- Linde, Hans, 1972: *Sachdominanz in Sozialstrukturen*. Tübingen: Mohr.
- Losey, James, 2014: The Anti-Counterfeiting Trade Agreement and European Civil Society: A Case Study on Networked Advocacy. In: *Journal of Information Policy* 4, 205–227.
- Lyon, David, 2014: Surveillance, Snowden, and Big Data: Capacities, consequences, critique. In: *Big Data & Society* July/December 2014, 1–13.
- Mason, Paul, 2012: *Why it's Kicking Off Everywhere: The New Global Revolutions*. London: Verso.
- McAdam, Doug; Mc Carthy, John D.; Zald, Mayer N. (Eds.), 1996: *Comparative Perspectives on Social Movements: Political Opportunities, Mobilizing Structures and Cultural Framings*. Cambridge: Cambridge University Press.
- McAdam, Doug; Scott, Richard. W., 2005: Organizations and Movements. In: Davis, Gerald F.; McAdam, Doug; Scott, W. Richard; Zald, Mayer N. (Eds.): *Social Movements and Organization Theory*. Cambridge: Cambridge University Press, 4–40.
- McDonald, Kevin, 2015: From Indymedia to Anonymous: Rethinking action and identity in digital cultures. In: *Information, Communication & Society* 18(8), 968–982.
- Melucci, Alberto, 1996: *Challenging Codes. Collective action in the information age*. Cambridge: Cambridge University Press.
- Milan, Stefania, 2015: From social movements to cloud protesting: The evolution of collective identity. In: *Information, Communication & Society* 18(8), 887–900.
- Milkman, Ruth; Luce, Stephanie; Lewis, Penny, 2012: *Changing the Subject: A Bottom-Up Account of Occupy Wall Street in New York City*. New York: The Murphy Institute, City University of New York.
- Monterde, Arnau et al., 2015: Multitudinous identities: A qualitative and network analysis of the 15M collective identity. In: *Information, Communication & Society* 18(8), 930–950.

- Morris, Aldon D.; Staggenborg, Suzanne, 2004: Leadership in Social Movements. In: Snow, David A.; Soule, Sarah A.; Kriesi, Hanspeter (Eds.): *The Blackwell Companion to Social Movements*. Oxford: Blackwell, 171–196.
- Papsdorf, Christian, 2015: How the internet automates communication. In: *Information, Communication & Society* 18(9), 991–1005.
- Pariser, Eli, 2011: *The Filter Bubble. What the Internet is Hiding from You*. New York: Penguin Press.
- Piven, Frances F, 2013: On the Organizational Question. In: *Sociological Quarterly* 54(2), 191–193.
- Poell, Thomas; Abdulla, Rasha; Rieder, Bernhard; Woldering, Robbert; Zack, Liesbeth, 2015: Protest leadership in the age of social media. In: *Information, Communication & Society* 19(7), 994–1014.
- Poell, Thomas; Van Dijck, José, 2016: Constructing Public Space: Global Perspectives on Social Media and Popular Contestation. In: *International Journal of Communication* 10, 226–234.
- Popitz, Heinrich, 1992: *Phänomene der Macht*. Tübingen: Mohr Siebeck.
- Reichert, Ramón, 2013: *Die Macht der Vielen. Über den neuen Kult der digitalen Vernetzung*. Bielefeld: Transcript.
- Rucht, Dieter, 1984: *Modernisierung und neue soziale Bewegungen*. Frankfurt/New York: Campus.
- Rucht, Dieter, 2013: Aufstieg und Fall der Occupy-Bewegung. In: Sonntag, Karlheinz (Hrsg.): *E-Protest: Neue soziale Bewegungen und Revolutionen*. Heidelberg: Universitätsverlag Winter, 111–136.
- Rucht, Dieter, 2014: Die Bedeutung von Online-Mobilisierung für Offline-Protest. In: Voss, Kathrin (Ed.): *Internet und Partizipation. Bottom-up oder Top down? Politische Beteiligungsmöglichkeiten im Internet*. Wiesbaden: Springer VS, 115–128.
- Schrage, Jan-Felix, 2016: *Social Media, Mass Media and the ‚Public Sphere‘. Differentiation, Complementarity and Co-existence*. SOI Discussion Paper 2016-01. Stuttgart: Institute for Social Sciences.
- Schulz-Schaeffer, Ingo, 2007: *Technik als sozialer Akteur und als soziale Institution. Sozialität von Technik statt Postsozialität*. TUTS-WP-3-2007. Berlin: Technische Universität Berlin.
- Simsa, Ruth; Heinrich, Marlene; Totter, Marion, 2015: Von der Puerta del Sol ins Europaparlament. Organisationale Ausdifferenzierungen der spanischen Protestbewegung. In: *Forschungsjournal Soziale Bewegungen* 28(3), 8–16.
- Snow, David A.; Soule, Sarah A.; Kriesi, Hanspeter (Eds.), 2004: *The Blackwell Companion to Social Movements*. Oxford: Blackwell.
- Snow, David A.; Soule, Sarah A.; Kriesi, Hanspeter, 2004a: Mapping the Terrain. In: Snow, David A.; Soule, Sarah A.; Kriesi, Hanspeter (Eds.): *The Blackwell Companion to Social Movements*. Oxford: Blackwell, 3–16.
- Tilly, Charles; Tarrow, Sidney, 2015: *Contentious Politics* (2nd Ed.). Oxford: Oxford University Press.
- Treré, Emiliano, 2012: Social Movements as Information Ecologies: Exploring the Coevolution of Multiple Internet Technologies for Activism. In: *International Journal of Communication* 6, 2359–2377.
- Van Dijck, José, 2013: *The Culture of Connectivity. A Critical History of Social Media*. Oxford: Oxford University Press.
- Van Dijck, José; Poell, Thomas, 2013: Understanding social media logic. In: *Media and Communication* 1(1), 2–14.
- Vasi, Ion Bogdan; Suh, Chan S., 2016: Online Activities, Spatial Proximity, and the Diffusion of the Occupy Wall Street Movement in the United States. In: *Mobilization* 21(2) 139–154.
- Veg, Sebastian, 2015: Legalistic and Utopian. Hong Kong’s Umbrella Movement. In: *New Left Review* 92, 55–73.
- Vogel, Steffen, 2016: Nuit debout: Die Renaissance der französischen Linken? In: *Blätter für deutsche und internationale Politik* 61(6), 25–28.
- Yörük, Erdem; Yüksel, Murat, 2014: Class and Politics in Turkey’s Gezi Protests. In: *New Left Review* 89, 103–123.
- Watkins, Susan, 2016: Oppositions. In: *New Left Review* 98, 5–30.
- Winner, Langdon, 1980: Do Artifacts Have Politics? In: *Daedalus* 109(1), 121–136.

Further Publications

Research Contributions to Organizational Sociology and Innovation Studies

Dolata, Ulrich, 2017: *Apple, Amazon, Google, Facebook, Microsoft. Market Concentration – Competition – Innovation Strategies*. SOI Discussion Paper 2017-01.

Kungl, Gregor/Geels, Frank W., 2016: *The Destabilisation of the German Electricity Industry (1998-2015). Application and Extension of a Multi-dimensional Framework*. SOI Discussion Paper 2016-02.

Schrabe, Jan-Felix, 2016: *Social Media, Mass Media and the 'Public Sphere'. Differentiation, Complementarity and Co-existence*. SOI Discussion Paper 2016-01.

Schrabe, Jan-Felix, 2015: *Open Source Softwareprojekte zwischen Passion und Kalkül*. SOI Discussion Paper 2015-02.

Radig, Ann-Kathrin, 2015: *Der Wandel des deutschen Videoverleihmarktes durch Digitalisierung und Internet*. SOI Discussion Paper 2015-01.

Dolata, Ulrich, 2014: *Märkte und Macht der Internetkonzerne. Konzentration – Konkurrenz – Innovationsstrategien*. SOI Discussion Paper 2014-04.

Kungl, Gregor, 2014: *The Incumbent German Power Companies in a Changing Environment. A Comparison of E.ON, RWE, EnBW and Vattenfall from 1998 to 2013*. SOI Discussion Paper 2014-03.

Dolata, Ulrich/Schrabe, Jan-Felix, 2014: *Masses, Crowds, Communities, Movements. Collective Formations in the Digital Age*. SOI Discussion Paper 2014-02.

Neukirch, Mario, 2014: *Konflikte um den Ausbau der Stromnetze. Status und Entwicklung heterogener Protestkonstellationen*. SOI Discussion Paper 2014-01.

Dolata, Ulrich/Schrabe, Jan-Felix, 2013: *Zwischen Individuum und Organisation. Neue kollektive Akteure und Handlungskonstellationen im Internet*. SOI Discussion Paper 2013-02.

Kosche, Robert, 2013: *Kollektive Identitäten in Industrial Cultural Districts*. SOI Discussion Paper 2013-01.

Fuchs, Gerhard/Hinderer, Nele/Kungl, Gregor/Neukirch, Mario, 2012: *Adaptive Capacities, Path Creation and Variants of Sectoral Change*. SOI Discussion Paper 2012-02.

Fuchs, Gerhard/Wassermann, Sandra, 2012: *Organising a Market. Photovoltaics in Germany*. SOI Discussion Paper 2012-01.

Werle, Raymund, 2011: *Institutional Analysis of Technical Innovation. A Review*. SOI Discussion Paper 2011-04.

Dolata, Ulrich, 2011: *Radical Change as Gradual Transformation. Characteristics and Variants of Socio-technical Transitions*. SOI Discussion Paper 2011-03.

Dolata, Ulrich, 2011: *The Music Industry and the Internet*. SOI Discussion Paper 2011-02.

Schrabe, Jan-Felix, 2011: *Der Wandel des Buchhandels durch Digitalisierung und Internet*. SOI Discussion Paper 2011-01.

Books

Dolata, Ulrich, 2013: *The Transformative Capacity of New Technologies. A Theory of Sociotechnical Change*. London: Routledge.

Dolata, Ulrich, 2011: *Wandel durch Technik. Eine Theorie soziotechnischer Transformation*. Frankfurt/New York: Campus.

Dolata, Ulrich/Schrabe, Jan-Felix (Hg.), 2013: *Internet, Mobile Devices und die Transformation der Medien. Radikaler Wandel als schrittweise Rekonfiguration*. Berlin: Edition Sigma.

Fuchs, Gerhard (Hg.), 2017: *Lokale Impulse für Energieinnovationen*. Heidelberg: Springer.

Fuchs, Gerhard/Shapira, Philip (Eds.), 2014: *Rethinking Regional Innovation. Path Dependency or Regional Breakthrough?* Springer: Shanghai (chinese edition).

Schrabe, Jan-Felix, 2016: *Open-Source-Projekte als Utopie, Methode und Innovationsstrategie*. Glückstadt: Hülsbusch.

Schrabe, Jan-Felix, 2015: *Kommunikation und Partizipation im Social Web. Eine Übersicht*. Studienbrief der FernUniversität in Hagen.

Schrabe, Jan-Felix, 2012: *Wiederkehrende Erwartungen. Prognosen, Visionen und Mythen um neue Medien seit 1970*. Boizenburg: VWH.

Schrabe, Jan-Felix, 2011: *Gutenberg-Galaxis Reloaded? Der Wandel des deutschen Buchhandels durch Internet, E-Books und Mobile Devices*. Boizenburg: VWH.

Schrabe, Jan-Felix, 2010: *Neue Demokratie im Netz?* Bielefeld: Transcript.

Recent Journal Articles and Contributions in Edited Volumes

Dolata, Ulrich, 2016: Forschung und Entwicklung in der Wirtschaft. In: Simon, Dagmar et al. (Hg.): *Handbuch Wissenschaftspolitik*. Heidelberg: Springer, 609–626.

Dolata, Ulrich, 2016: Apple, Amazon, Google, Facebook. Konzentration, Konkurrenz und Macht im Internet. In: *Z – Zeitschrift Marxistische Erneuerung* 108, 55–68.

Dolata, Ulrich, 2016: Internetökonomie und Internetkonzerne. Märkte – Expansion – Macht. In: Schröder, Lothar/Urban, Hans-Jürgen (Hg.): *Gute Arbeit. Digitale Arbeitswelt. Ausgabe 2016*. Frankfurt (Main): Bund, 148–155.

Dolata, Ulrich, 2015: Volatile Monopole. Konzentration, Konkurrenz und Innovationsstrategien der Internetkonzerne. In: *Berliner Journal für Soziologie* 24(4), 505–529.

Dolata, Ulrich/Schrape, Jan-Felix, 2016: Masses, Crowds, Communities, Movements: Collective Action in the Internet Age. In: *Social Movement Studies* 18(1), 1–18.

Dolata, Ulrich/Schrape, Jan-Felix, 2015: Zwischen Ermöglichung und Kontrolle. Kollektive Formationen im Web. In: *Forschungsjournal Soziale Bewegungen* 28(3), 17–25.

Dolata, Ulrich/Schrape, Jan-Felix, 2014: Kollektives Handeln im Internet. Eine akteurtheoretische Fundierung. In: *Berliner Journal für Soziologie* 24(1), 5–30.

Fuchs, Gerhard, 2015: Building the Agenda for Carbon Dioxide Capture and Storage: Limits of EU-Activism. In: Tosun, Jale et al. (Eds.): *Energy Policy Making in the EU*. London: Springer, 205–223.

Fuchs, Gerhard, 2014: The Governance of Innovations in the Energy Sector: Between Adaptation and Exploration. In: *Science & Technology Studies* 27(1), 34–53.

Fuchs, Gerhard/Fettke, Ulrike, 2017: Incumbent-Challenger-Interaktionen und die Veränderungen im Markt für Stromerzeugung in Deutschland. In: Giacobelli, Sebastian (Hg.): *Die Energiewende aus wirtschaftssoziologischer Sicht*. Wiesbaden: Springer VS, 15–43.

Fuchs, Gerhard/Hinderer, Nele, 2016: One or many Transitions: Local Electricity Experiments in Germany. In: *Innovation: European Journal of Social Science Research* 29(3), 320–336.

Fuchs, Gerhard/Hinderer, Nele, 2014: Situative Governance and Energy Transitions in a Spatial Context: Case Studies from Germany. In: *Energy, Sustainability and Society* 4:16.

Geels, Frank W./Kern, Florian/Fuchs, Gerhard/Hinderer, Nele/Kungl, Gregor/Mylan, Josephine/Neukirch, Mario/Wassermann, Sandra, 2016: The Enactment of Socio-technical Transition Pathways. In: *Research Policy* 45(4), 896–913.

Kungl, Gregor, 2015: Stewards or Sticklers for Change? Incumbent Energy Providers and the Politics of the German Energy Transition. In: *Energy Research & Social Science* 8, 13–23.

Neukirch, Mario, 2016: Protests against German electricity grid extension as a new social movement? A journey into the areas of conflict. In: *Energy, Sustainability and Society* 6:4.

Neukirch, Mario, 2015: Mehr Netz mit weniger Kohle? Zwei ökologische Perspektiven auf ‚Korridor D‘. In: *politische ökologie* 141, 132–135.

Schrape, Jan-Felix, 2017: Reciprocal Irritations: Social Media, Mass Media and the Public Sphere. In: Paul, Regine/Mölders, Marc/Bora, Alfons/Huber, Michael/Münste, Peter (Hg.): *Society, Regulation and Governance*. Cheltenham: Edward Elgar Publishing.

Schrape, Jan-Felix, 2016: Big Data: Informatisierung der Gesellschaft 4.0. In: *Berliner Debatte Initial* 27(4), 12–21.

Schrape, Jan-Felix, 2016: Open-Source-Projekte: Vom Nischenphänomen zum integralen Bestandteil der Softwareindustrie. In: *WSI Mitteilungen* 8/2016, 603–612.

Schrape, Jan-Felix, 2016: Soziologie als ‚Marke‘. In: *Soziologie* 45(3), 279–293.

Schrape, Jan-Felix, 2016: ‚Big Data‘ als Erwartungsraum. In: *Soziopolis* vom 20.10.2016.

Schrape, Jan-Felix, 2015: Social Media, Massenmedien und Öffentlichkeit. In: Imhof, Kurt et al. (Hg.): *Demokratisierung durch Social Media? Wiesbaden: Springer VS, 199–212*.

Schrape, Jan-Felix/Dickel, Sascha, 2017: The Logic of Digital Utopianism. In: *Nano Ethics*, DOI: 10.1007/s11569-017-0285-6.

Schrape, Jan-Felix/Dickel, Sascha, 2015: Dezentralisierung, Demokratisierung, Emanzipation. Zur Architektur des digitalen Technikutopismus. In: *Leviathan* 43(3), 442–463.

<http://www.uni-stuttgart.de/soz/oi/publikationen/>