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The Handbook of Peer Production

Chapter 22 – Peer Production and Collective Action

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1. Introduction

Over the last decade, a number of progressive social movements around the world have embraced peer production principles such as collaboration, co-production, and self-organization. Think for example of Anonymous, the informal community of “hacktivists” engaging in disruptive online action in support of freedom of expression on and beyond the web (Coleman, 2014). Anonymous’ distributed denial of service attacks and its video messages filled with references to digital and alternative culture (e.g., the Guy Fawkes mask) mobilized hundreds of people who had never met each other in person. Launching unconventional actions and online campaigns that often went viral, Anonymous showcases the power of peer production mechanisms, and of Internet-mediated collaboration in particular. But the dynamics of peer production also characterize protest movements that are not obviously and/or primarily “digital” and yet employ peer production as a core practice and value system. The Spanish 15M, or “*indignados*” (the outraged), is a case in point. Emerging in Madrid on the 15th of May 2010 – hence the name – the 15M leveraged the values and repertoires of the free culture and digital commons movement. It expressed a strong preference for “open and collaborative formats of knowledge creation” and developed “an information and knowledge policy favoring public domain and access” (Fuster Morell, 2012, pp. 386–390). Similarly, the Occupy Wall Street (#Occupy) mobilization, which sprung up in New York in 2012, popularized narrative frames (e.g., the well-known slogan “We are the 99%”) later appropriated worldwide by the protest wave it inspired. “#Occupy protests saw thousands of people taking over city squares to question austerity policies and call for equality. The mobilization also resulted in numerous Internet memes, that is to say “multimodal artifacts remixed by countless participants, employing popular culture for public commentary” (Milner, 2013, p. 2357). These memes played a key role in producing a “polyvocal public discourse” (2013, p. 2357) able to

involve bystanders of various cultures and backgrounds, resulting in #Occupy protests in as many as 70 countries worldwide (*Occupy Directory*, n.d.). But peer production mechanisms are increasingly popular also amongst the so-called Alt-Right, a reactionary online political movement composed of “teenage gamers, pseudonymous swastika-posting anime lovers, ironic South Park conservatives, anti-feminist pranksters, nerdish harassers and meme-making trolls” (Nagle, 2017, p. 2). The Alt-Right “culture war,” too, feeds on the values of open culture that were once the flagship of the progressive left.

As these introductory examples illustrate, a variety of social actors across the political spectrum are now taking advantage of peer production mechanisms, creating models and symbolic references for ensuing protests to appropriate. They do so for a number of reasons, including the creation of shared normative references and the development of collective action frames able to sustain long-term mobilization. Peer production also functions as a key resource to reach out to novel audiences and inspire other like-minded individuals to mobilize. By facilitating the appropriation of effective collective action frames by third parties, peer production promotes emulation. The slogans, memes, and visuals of Anonymous, the 15M and #Occupy, among others, have rapidly become part of a “repertoire of communication” (Mattoni, 2013) shared by a number of contemporary campaigns, movements and coalitions across the globe. On the one hand, these mobilizations have in common a faith in horizontal modes of production and the power of communal cultural references. On the other, they share the rejection of formal leadership in favor of a central role attributed to the individual as the main producer and carrier of meaning. But these traits, far from merely empowering innovative forms of collective action and peer production, may also contribute to create tensions within groups and networks.

This chapter investigates the consequences of peer production for social protest, looking at how peer production reshuffles and “remediates” (cf. Bolter & Grusin, 1998) social change activism today. It explores the convergences and tensions between peer networks and contemporary social movements ranging from informal coalitions and amorphous groupings to old-school social movement organizations. Although peer production mechanisms today appear to unite the left and the right of the political spectrum, the chapter is illustrated with examples from progressive movements working for social change.

The chapter is structured as follows. First, it traces the historical trajectory of peer production as it has come to permeate the progressive social movements of the last three decades, linking distinct approaches to organizing to technological innovation. Second, it reflects on the so-called social affordances (and constraints) of digital infrastructure and their role in fostering specific modes of creativity and convergence apt to support protest actors. Third, it explores three types of consequences of peer production for social movements, namely cultural production and norm change, collective identity, and the commons. The chapter then examines three tensions that might emerge in the process of embedding peer production mechanisms and values in instances of collective action, namely: individual vs. collective engagements, peer networks vs. social movement organizations, and self-organized vs. commercial infrastructure.

2. Peer Production in Context: A Brief History

With the advent of Internet-enabled products and services, social movements have undergone major changes. The engagement with peer production has transformed, too. We can distinguish at least three stages in the evolution of organized collective action since the 1990s to the present. Each stage is characterized by a specific ideal type of organizational

form *modeled after* – that is, reflecting the features and modes of interaction typical of – the digital infrastructure available at each time, with distinct consequences on peer production (see also Milan, 2015a). It is worth noting that the boundaries between the stages and ideal types are porous and artificial, set by the researcher to capture complex socio-political and techno-cultural developments. However, thinking in stages and ideal types can help us to make sense of the role of the digital milieu in “constructing” specific modes of peer production. It illustrates how digital technology often provides not only the digital backbone for people to organize, but also specific imaginaries of empowerment able to stimulate the emergence of specific social structures at the grassroots level (Milan, 2013).

The first stage we can identify roughly covers the period between the 1990s and the mid 2000s and is characterized by the diffusion of the world wide web – the “network of networks” (Berners-Lee, 1999). Although horizontal participatory politics pre-existed the advent of the Internet as we know it (see also O’Neil & Broca, this volume), the world wide web supported the proliferation of informal groupings, networks, and global coalitions mimicking the features of their digital backbone – thus distributed, rooted in nodes which are relatively independent from each other, and borderless. It inspired progressive social movements to prefer horizontality and “leaderless” participation over the traditional hierarchical ways of organizing (Juris, 2008). The global justice movement, which thrived in Western democracies since the late-1990s, is a paradigmatic example of these informal networks (Della Porta, 2007). Nicknamed “the movement of movements” with a clear reference to the “network of networks,” it advocated for social justice and organized around a variety of local nodes that were independent yet connected to each other also across national borders (Tarrow, 2005). Composed of both traditional social movement organizations and informal groupings and networks, the movement gave rise to

a number of epic street protests. It managed to shut down the World Trade Organization (WTO) summit in Seattle (1999) and mobilized against the meetings of inter-governmental forums like the Group of Eight (G8), considered the driving force as well as the epitome of the neoliberal globalization hindering social justice globally. Interestingly, the cultural and symbolic production of the global justice movement unfolded through a plethora of news-oriented peer-production projects such as the Independent Media Center, or Indymedia. Nicknamed “the mother of all blogs” by virtue of its innovative “open publishing” software (Milan, 2010, p. 89), Indymedia allowed street protesters to partake for the first time in news production in real time, bypassing the gatekeeping role of journalists and webmasters. Thanks to ready-to-use free and open source software (F/OSS) enabling collaboration, an editorial process easy to copycat, and the attractive collective identity of the “media activist”, Indymedia nodes mushroomed rapidly since its appearance at the Seattle anti-WTO protests: three years after its foundation, the network already counted 89 nodes distributed in six continents (Kidd, 2003).

In the second stage, spanning approximately from the mid-2000s to the mid-2010s, the introduction and swift popularity of social networking services like Facebook and Twitter promoted a more central role of the individual in collective action (Juris, 2012). Non-mediated and “personalized” action was then saluted as one of the main outcomes of the diffusion of social media (Bennett & Segerberg, 2013). Social media made the involvement of individuals possible without the filter of traditional movement organizations, as showcased by, among others, #Occupy. For the first time, this concerned not only the ability to customize individual participation, but also to directly feed and shape the movement’s cultural production (e.g., collective action frames). Individuals were able to produce and share on social media meanings associated with collective action and social change, from video footage to hashtags. In this way, “the soft resources necessary

for collective action become broadly and readily available to potential and engaged participants alike, and know-how necessary for mobilization ‘travels’ across borders and protest waves” (Milan, 2015b, p. 894). In addition, activists could easily customize their involvement in collective action and the narrative associated with it (2015b). Leveraging the collaborative features of social media, novel peer production communities organized around the principle of “open collaboration” and engaged in “crowd-enabled action”, whereby participants jointly developed, reproduced and customized “action frames and participatory ethos (e.g., ‘we are the 99%’)” (Bennett et al., 2014, p. 233). The specific “structuring conditions” of digital contexts allowed for a “modular and granular” involvement of distinct individuals, resulting in self-selection and decentralization as core organizing principles (2014, 233). These forms of collective action exacerbated the centrality of the subjective and private experience of the individual, emphasizing the role of shared experience and the specific “grammars of embodiment” (McDonald, 2006, p. 37) of social media.

The third stage identified for the purposes of our analysis began approximately in the mid-2010s and is still ongoing. Alongside with the ever-rising popularity of social media, this stage is characterized by the diffusion of instant messaging smartphone applications such as WhatsApp, FireChat, and Telegram, which became the main channel for the production and mass circulation of peer-produced protest-related content. Messaging services support microcoordination (Ling & Lai, 2016) and enable a specific form of sociality characterized by a “felt-life of being together” which results from the “togetherness and intimacy (...) enacted through small, continuous traces of narrative, of tellings and tidbits, noticings and thoughts, shared images and lingering pauses” (O’Hara et al., 2014, p. 1131). Accessible via a deeply intimate technology like the smartphone (cf. Farman, 2012), instant messaging has brought personalized action to the next level (Milan

& Barbosa, 2020). Facilitating a constant, always-on engagement and fostering novel “relationship ‘doings’” (O’Hara et al., 2014, p. 1131), it has furthered what we might call the “mundane-ization of politics.” Inaugurated by social media but exponentially bolstered by chat apps, the mundane-ization of politics stems from content of a political nature becoming immersed in and part of ordinary exchanges with peers and family, e.g., being served to users alongside with leisure-related content. In fact, private group chats have become the preferred channel for sharing peer-produced and/or alternative content of a political nature, especially in countries where social networks are used to surveil and curb activism, such as Iran (Alimardani & Milan, 2018). Videos, hashtags and memes related to collective action flow through group chats in near-real time following a live streaming logic. The *#vomitaço* protest, which targeted the interim president of Brazil Michel Temer (2016-2019), is an example of peer-produced creative protest circulating on chat apps. Portuguese for vomiting, the *#vomitaço* action consisted in multiple users simultaneously posting a “vomit” emoji to signal their disgust towards Temer’s inauguration as president and his tenure. “How to” files detailing how to start a *#vomitaço* were frequently circulated in chat channels as a call to action (Milan & Barbosa, 2020). They have an expressive and a mobilizing function, and contribute to coalesce flexible, multi-headed communities of interest based on emotion- and content sharing. They simultaneously support group-making activities and individual self-directed action, including one-to-one exchanges (by means of, e.g., the “direct reply” function allowing users in a group to engage directly with one another).

Far from arguing that “[e]very major display of social unrest these days seems to come with a game-changing technological accompaniment” (Bland, 2014), this brief historical perspective did aim to show how peer production is deeply engrained in technological innovation. Not only does it evolve at pace, but it also takes inspiration from

the very same design of its supportive technology. In the next section, we look at what it is, in digital services and their contexts, that makes peer production possible and/or prominent.

3. Enabling Infrastructure and its Social Affordances

We can understand world wide web, social media, and instant messaging applications as the enabling infrastructure supporting the diffusion of protest-oriented peer production, its mechanisms, and values. This enabling infrastructure embodies its own specific “social affordances” – in other words, the properties of the digital infrastructure are conducive to a certain range of social actions (Bucher & Helmond, 2017). If we look at social media and instant messaging applications, for example, these properties include but are not limited to: the immediacy of communications; the intimacy of a device of quotidian and personal use such as the smartphone; the effortlessness of familiar, targeted content as served to each user by personalization algorithms, and the ease of forging ties with others (e.g., “friends” and “followers”).

Interestingly for our analysis, these “mechanisms built into platforms,” including “filtering, recommendation, and reputation systems,” help users to “navigate the many challenges of concerted action in conventional peer-production contexts” (Bennett et al., 2014, p. 235). For example, technological innovation has contributed to lower the costs of participation and mobilization by empowering node-to-node exchanges and fostering connections between individuals regardless of their location (see, e.g., Shirky, 2008). But it has also consequences when it comes to the cultural and normative production of protest movements. Leveraging the affordances of the hashtag, for example, allows users to connect (and facilitate the retrieval of) discourses and repertoires of action, forging complex narratives and assembling novel, composite publics worldwide.

Taking a closer look at #Occupy, we can see how social media have offered protesters not only the backbone to novel ways of social organizing that take peer production to heart, but also the “imaginaries” (Wyatt, 2004) upon which to mold collective action. Activists, in fact, have been found to “echo” and reproduce familiar modes of interaction propagated by the digital services they used most, namely social media platforms. Think of the “human microphone” pioneered on a large scale by #Occupy activists worldwide: in the eventuality of a lack of sound amplifiers, the individuals located closer to speakers addressing a large group would repeat their sentences one by one, to reach those sitting further away from the center of action (Costanza-Chock, 2012). This mechanism, widely adopted in the so-called “general assemblies” of the movement’s local chapters, allowed attendees of what was otherwise a “dispersed and individualized constituency” (Gerbaudo, 2012, p. 5) to afford visibility and have a say in group decisions. But they also reiterated the “reverberating” mechanism, emotion-laden exchange and multi-author discourse so characteristic of social media (Milan, 2015a). These imaginaries of grassroots organizing typically travel well across geographies and cultural preferences as they build on the shared experience of commercial social media services. Think of the 2014 Hong Kong protest wave that became known as the “umbrella movement,” where social media worked as a catalyzing agent (Agur & Frisch, 2019).

However, while empowering (a certain breed of) collective action, the digital infrastructure enabling protest today might also impose specific limitations on users. Personalization algorithms on social media platforms, to name just one shortcoming, present users only with select content based on their past behavior on the platform (cf. Pasquale, 2015), allegedly contributing to envelop users in a “filter bubble” (Pariser, 2011). The business model specific to social media platforms – constructed to compete for user attention, time and monetizable “clicks” on ads and “sponsored content” – influences

the design of user interactions (van Dijck et al., 2018). In other words, every such infrastructure embodies specific “politics of the platform” (Gillespie, 2010, p. 347) able to shape user possibilities by structuring modes of interaction and relationships, with both positive and negative consequences. It is in this framework – rigid and scripted yet described as empowering and liberating (Diamond, 2010) – that peer production emerges today, and is successfully appropriated for social protest. Not without tensions, as we shall see.

4. The Consequences of Peer Production for Collective Action

With its emphasis on the non-commercial and non-proprietary mechanisms supporting shared production, the notion of peer production is imbued with potentialities for social change (Benkler, 2006). We can identify three types of consequences of peer production for collective action, namely: on cultural production, on identity-making, and on protest replicability and diffusion.

4.1. Cultural production and norm change

According to Melucci (1996), collective action is rooted on the combination of shared cultural production, shared meanings and, as we will see, a shared collective identity. Shared cultural production today is primarily made visible in the array of social media platforms and group chat apps that contribute to spread and popularize digital content, allowing many to “share” and “like” the utterances of their “friends” or to express a range of emotions such as surprise, rage or distaste. On these services, content travels very rapidly, with a high potential of “going viral.” But sharing on the web is typically also a gateway to novel content, as other individuals and groups might appropriate pictures, footage and text to repurpose them at will, in an array of creative “mash-ups” (Lievrouw, 2011).

This variably selfless cultural production results in new “codes” sustaining collective action (Melucci, 1996) – that is to say, novel ways of thinking about and “feeling out” a problem. It can help to turn a concern shared by only a subset of the population into the concern of many, contributing to changing the public perception of an issue and even influencing agenda setting at the governmental level. The mobilization of hundreds of thousands of youngsters worldwide, seeking with the #Fridays4Future protests and civil disobedience actions to draw public attention to the climate emergency, is a case in point.

Social movements’ cultural production is a key ingredient of norm change (Rochon, 1998). Norm change refers to a significant shift in the way a certain problem is perceived by the population and/or policymakers. It is one of the primary long-term goals of social movements (Finnemore & Sikkink, 1998). Think of historical examples like the civil rights, anti-apartheid and “Black” movement, lately evoked by the Black Lives Matter campaign (Carney, 2016). Far from remaining confined to the online public sphere, norm change facilitated by peer production is able to fuel and sustain offline action (Freelon et al., 2016), with real-life consequences, including policy decisions.

The features of peer production that most contribute to cultural production and norm change are the cooperative discursive interventions, the low cost of participation, the emphasis on non-commercial and non-proprietary content that enable repurposing, and the appeal to participation that peer-produced mechanisms harbor. Combined with the social affordances of platforms, such as the hashtag, these features empower peer production to forge “affective publics” activated by feelings of belonging and solidarity (Papacharissi, 2015) that become the driving force behind norm change. The #metoo hashtag, for instance, sought to make visible misogyny and sexual harassment in a variety of sectors, from the movie industry onwards (Mendes et al., 2018). It was used to harness public

attention across national borders. Emotions and affect played a crucial role in this process, for two reasons: because they become constitutive of publics coalesced around values (see also Kelty, 2008), and even more so because they appeal to the personal sphere of individuals as well as highly contested issues.

But what makes the #metoo mobilization so representative of the power of peer production as it encounters social media is the ability of today's digital infrastructure to knit together the personal and the collective. As Clark observed, "a hashtag's narrative logic – its ability to produce and connect individual stories – fuels its political growth. The online telling and connecting of personal stories distinguish hashtag feminism from earlier forms of feminist personal politics" (Clark, 2016, p. 789). The weaving of the personal and the collective on the one hand, and the personal and the political on the other, promotes "empowerment through empathy" (Suk et al., 2019) – that is to say, allows others, including potential victims, to recognize themselves in the situation, and in the collective actor sustaining the mobilization. The big numbers associated with social media-facilitated peer production in turn generate discursive change. "[O]rganizing movements on the basis of empathy" (Rodino-Colocino, 2018, p.) allows participants to simultaneously appeal to bystanders to turn a problem into a contentious issue that resonates with others, and to challenge the status quo.

In using hashtags strategically, activists promote their values and their vision of reality, to the extent of changing the way people perceive(d) sexual harassment and rape in society – all the way to taking down offenders and changing established social norms (e.g., racial segregation, rape culture) and even legislation. However, the short life span and the extraordinary volatility of peer-produced content as it travels on social media and messaging apps might hinder the activists' ability to sustain long-term mobilization, for which a shared collective identity is key, as we analyze next.

4.2. Collective identity

Today, peer culture constitutes one of the building blocks of collective organizing, and of collective emotional experiences and collective identity in particular. The question of collective identity is acknowledged to be at the core of organizing and of the ability of collective action to survive the test of time (Flesher Fominaya, 2010). Collective identity is the process through which distinct social actors recognize each other as part of the same struggle and develop emotional attachment to their fellows (Polletta & Jasper, 2001). Distinct individuals “dissolve” into a group and learn to identify themselves in a real or imagined “we-ness” that stands in for collective action (Snow, 2001). Identity-building occurs at the interplay of the individual and the collective dimension of action. It is an “interactive and shared” process in which “elements are constructed and negotiated through a recurrent process of activation of the relations that bind actors together” (Melucci, 1996, p. 70). While there is no agreement on the relevance of collective identity in the age of personalized activism (see, e.g., Bennett & Segerberg, 2013), collective identity is indubitably a key building block of concerted political activism (Gerbaudo & Treré, 2015).

Peer production supports the creation and sustainability over time of a movement’s shared identity. The features of peer production that most enhance the development of a successful collective identity are its horizontal relationships and social structures and the malleability of the discursive production, whereby content is easy to adapt to one’s own perspective and preferences. We can see these mechanisms at work in the adoption of protest avatars, or digital images that act as collective symbols for a movement (Gerbaudo, 2015). In the aftermath of the terrorist attack on the French satirical magazine *Charlie Hebdo* in January 2015 and of the wave of attacks in Parisian bars and concert venues in November 2015, social media users changed *en masse* their social media profile picture

adopting the colors of the French flag. Profile pictures thus work as “memetic signifiers”: vague and inclusive, they easily go viral, allowing participants to “experience a collective fusion in an online crowd” (Gerbaudo, 2015, p. 916). Furthermore, the associated hashtag #JeSuisCharlie was a three-word identity statement in its own right. It leveraged the “affective intensity of the here-and-now” which “creates dividing lines of evaluation and identification” (Giaxoglou, 2018, p. 13). By deploying #JeSuisCharlie, the user became a “teller”, as opposed to a passive spectator of events (Giaxoglou, 2018, p. 18), witnessing and taking sides, while signaling others what side to be on.

These forms of identification into a collective actor are particularly transient and might not necessarily coalesce into a social movement. But they promote collective identification by “frame alignment,” whereby a specific social change narrative put forward by a movement resonates with the lived experiences or values of bystanders (Snow & Benford, 1988). This might result in real-life actions as in the case of the #NeverAgain/#MarchForOurLives student campaign that followed the mass shooting in a high school in Parkland, Florida in 2018 (Maxwell, 2019). Giving voice to emotions and allowing recognition of like-minded individuals, social media and group chat apps signal interest in the subject matter and tell individuals that “they are not alone” in the face of a situation of distress. In a nutshell, social media allow the rapid communication and reinforcement of a sense of belonging, boosting confidence. A successful collective identity is in fact rooted in shared emotions (Goodwin et al., 2001), which speaks to the importance of “moments of digital enthusiasm” expedited by, e.g., Facebook pages during the Arab Springs protests (Gerbaudo, 2016).

4.3. Protest replicability and diffusion

One of the most recurrent features of recent social movements is the replicability of collective action to a vast array of distinct socio-cultural settings, showcased by the

#Fridays4Future protests. In an era in which co-presence is no longer a *sine-qua non* condition of joint action (Earl & Kimport, 2011), movements are known to diffuse transnationally when their instances, claims, and demands resonate with other populations in distinct localities (Bennett et al., 2014; Kramer et al., 2014; Tarrow, 2005).

The peer production mechanisms that most contribute to the replicability of social action and thus protest diffusion across national and socio-cultural boundaries are the availability of self-selecting content that exists in the realm of the commons, and the ease of retrieving and adapting this content to local contexts and preferences. When slogans and memes, but also action repertoires travel rapidly on social networking services, crossing linguistic barriers, they can be appropriated by other concerned individuals, who can easily adapt them to their local contexts. It is the case of the encampments and the slogans promoted by #Occupy, which inspired a global wave of protest, with protest sites in over 1500 locations worldwide (*Occupy Directory*, n.d.). However, typically the diffusion is not as seamless as it might appear, and cultural resonance is the result of “laborious dynamics of cultural translation and domestication” (Gerbaudo, 2013) seeking to bring a narrative closer to its audience.

The following section explores three important tensions that can originate when peer production is mobilized for social change purposes.

5. Three Unresolved Tensions

We have reviewed the contribution of peer production mechanisms and values to progressive social movements – from norm change to the replicability of collective action across distinct social-cultural geographies. But this appropriation is not without friction. We can distinguish at least three points of pressure, which are detailed next.

5.1. Individual vs. collective

The advent of social media has promoted horizontal leadership, whereby traditional social movement organizations have been supplanted by individuals acting as “soft choreographers” of collective action (Gerbaudo, 2012). Personalized communication has resulted in personalized action frames (Bennett, 2012), and flexible identities are now built around minimum common denominators which have visibility at the core (Milan, 2015b).

Marshalling the individual to the core of collective action, however, has at least two potential negative consequences on group dynamics. First, the resulting dispersed but “leaderful” (Costanza-Chock, 2012) groupings are typically characterized by influential individuals such as Facebook Page or WhatsApp group admins. These rapidly emerge as “soft leaders” (Gerbaudo, 2012) who define the boundaries of the collective experience in ways that are less than transparent and have to do with visibility and high availability on social media. These dynamics are made more complicated by the very architecture of platforms, which contribute to forge “connective leaders” (Poell et al., 2016). Second, some individuals are afforded much higher levels of visibility on social media than the majority of users, in an entanglement of fame, influence and agency which is typical of social media (Marshall, 2019). Celebrities and influencers might enjoy a disproportionate power in setting the discourse. As research on the 15M illustrated, “better connected users, that is, the broadcasters or celebrities acting as the hubs of the network, led the diffusion process, triggering a snowball effect that quickly reached global proportions thanks to their larger personal networks” (González-Bailón et al., 2013, p. 952). Finally, the over-reliance on self-standing individuals does not impose the same degree of responsibility towards fellow activists that real-life groups do, which might have “dramatic effects on [the] duration, sustainability, identity production” of social movements, and “on how robust the political trajectory can become” (Leistert, 2013).

5.2. Peer networks vs. social movement organizations

The preference for horizontality, leaderless participation and non-mediated individual action might create tensions within action networks. Historically, social movements have been characterized by the presence of social movement organizations acting as “entrepreneurs” of collective actions and identities (McCarthy & Zald, 1977). The Internet first, and social network services subsequently, have dramatically downsized the role of these traditional entrepreneurs in masterminding protest events and networks. With the complicity of social media services, peer networks have made even resourceful nongovernmental organizations lose traction and relevance. As a result, nongovernmental organizations have adapted to a role of service providers and/or evidence producers, while trying to stay afloat in the discursive flows of social media.

These tensions are often unspoken, but they bear consequences for the social movement ecology. First, the notion that movements today are (allegedly) leaderless does not sit well with news media, which seeks representatives to operate as heroes or villains – think of Greta Thunberg, the Swedish youngster named *Time*’s 2019 Person of the Year for her vocal role in the climate change debate. The hyper-identification of a discourse with one individual may contribute to over-simplify complex issues and homogenize the discourse. It may also expose the (unwilling) spokesperson to mockery and attacks aimed at downplaying the goals of the movement as a whole. Second, though the lack of formal structure facilitates “connective action” whereby the network becomes the organization, it may also cause burnout, and hinder the movement in the long run (Cox, 2010). Third, the amorphous shape of today’s movement networks may facilitate infiltration by informants and saboteurs, with potentially high costs to movement viability.

5.3. Self-organized vs. commercial infrastructure

One last friction that emerges in the appropriation of peer production for protest and collective action concerns the key supporting role of digital infrastructure. Curiously, while recent history is awash with examples of small-scale to mid-range infrastructure such as wireless community networks translating into practice the ideals of peer production (see, e.g., Crabu et al. 2015; Csikszentmihalyi et al. 2018; De Filippi & Treguer 2014; Maxigas 2012; Musiani 2016; Shaffer, this volume; Trudel & Tréguer 2016), the question of *self-organized* infrastructure appears to be consistently overlooked by contemporary progressive activists, whose critical attitude is not applied to commercial digital infrastructure of the likes of Facebook and Google.

While digital infrastructure is indeed a resource of outmost value and running independent infrastructures is costly and requires a certain degree of technical expertise, relying exclusively on commercial platforms is known to have chilling effects on free speech (Penney, 2017) and to expose activists to surveillance and repression (Duffy & Chan, 2018). In addition, the operating values of commercial platforms – centralized and profit-driven – have little to do with “the direct, participatory, collective and autonomous nature of the emerging social movement(s)” (Milan, 2010, pp. 88–89) and even less with peer production principles. Although a number of scandals have recently brought under the spotlight the role of social media and messaging app services and service providers in facilitating large-scale surveillance (Andrejevic, 2012; Nadir, 2012, p. 201; Trottier & Lyon, 2012) as well as behavioral change through microtargeting (Borgesius et al., 2018), many progressive activists, including those sensitive to the commons and/or autonomous action, appear to ignore this tension. Others are acutely aware of it but are unable to act upon these concerns; others again prefer to mobilize where their potential audiences are, hence on commercial platforms. All in all, the drive to self-determination that

characterized, among others, Indymedia, seems to have lost traction, with potentially negative consequences for peer production communities.

6. Conclusions

Technological innovation has radically altered the dynamics of organized collective action, promoting novel ways to engage in peer production and to mobilize peer production for social change. And we cannot imagine social change today without evoking the collaboration of many distinct, self-directed individuals contributing to the collective production and dissemination of digital artifacts of various kinds – from symbols to slogans, from policy documents to video footage of protest events. This chapter has analyzed the consequences of peer production for contemporary progressive activists and networks. It distinguished three stages in the evolution of organized collective action over the last three decades, each characterized by specific organizational modes modeled after the available digital infrastructure. It posited digital infrastructure as, on the one hand, the enabling infrastructure of collective action, with its specific social affordances and constraints, and on the other hand, as a “metaphor” or the organizing model inspiring specific forms of coming together around agendas of a political nature. It identified three realms in which peer production exerts its influence, namely: cultural production and norm change, collective identity, and protest replicability and diffusion. Finally, it reflected on three lingering, unresolved tensions: individual vs. collective, peer networks vs. social movement organizations, and self-organized vs. commercial infrastructure. These tensions, often unspoken, are likely to linger on for the years to come, but they also offer possibilities for activists to creatively navigate them and strategically leverage some of these points of pressure in support of their causes.

In conclusion, what does the future yield for peer production and progressive collective action? As we have seen in the cases of the world wide web, social media and messaging apps, technological innovation is likely to be appropriated by grassroots movements to further their agenda, organize and pursue new audiences. It will certainly harbor new possibilities for innovative protests: it is worth asking, for instance, how the Internet of Things might change street protests as well as the associated cultural and normative production (see, e.g., Puri, 2017). But technological innovation might also turn out to harbor novel Achille's heels for social movements – see, for example, the surveillance potential of Artificial Intelligence applications like facial recognition, as feared by Hong Kong protesters who in summer 2019 took down the “smart lampposts” allegedly spying on them (Binder, 2019). What we know for now is that the creative possibilities unleashed by peer production are here to stay. They are likely to contribute to foster global action networks able to alter the way we think of the complex issues of our time and might even empower protesters to reach the control rooms of decision-makers.

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