An Analytic Framework to Investigate the Nexus Between Social Media and Collective Action

Elena Pavan
Department of Sociology and Social Research
University of Trento
elena.pavan@unitn.it

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Abstract
This paper proposes an analytic framework to study the nexus between social media and collective action phenomena adopting a multidimensional network perspective. This nexus is framed here in a broader context within which social processes of mobilization are, on the one hand, sustained and enriched by different types of analogical and/or digital technologies allowing the construction of online and offline relationships amongst participants; and, on the other, push technological evolution as a response to social and collective needs. In order to render the interplay between the social and the technological components of collective action phenomena, the paper proposes to adopt the concept of collective action socio-technical system (CASTS). Within CASTS, collective action structures along multidimensional networks formed by participants, the technologies they employ (whether they are analogical or digital) and by the links within and across these two groups. In this sense, social media use in collective action phenomena becomes one of the possible technological strategies adopted by activists and online activism through social media use becomes a complement to (not a substitution for) both offline activism and online activism pursued through other means, such as websites. Thus the adoption of different social media platforms fosters the creation of different multidimensional networks of people and user-generated contents that can serve different purposes, depending on the material agency exerted by the tool itself (e.g., microblog for information flows and social networking sites for the construction of communities). On this background, the paper maps the current Italian mobilization on gender issues “Se non ora, quando?” (SNOQ) as a CASTS, outlining the interplay between its online/offline dimension and investigating the actual role of different social media platforms in the very deployment of the mobilization effort.
1. Introduction

‘Is Internet democratic?’
‘It is schizodemocratic. It entails democracy and power, access to information and a commercial aim, a critical spirit and exhibitionism. It takes time to understand where this will all go...’
Stefano Benni, Italian writer, February 20, 2013

In the last three years, in connection with the revamping and the spanning of protests and uprisings from the Northern African region to the squares of Western countries, reflections on the relationship between internet and politics at large (Chadwick and Howard 2009) have been dominated by a clear focus on the nexus between collective action, i.e., those “coordinating efforts on behalf of shared interests and programs” (Tilly and Tarrow 2006), and social media, i.e., that “group of Internet-based applications that build on the ideological and technological foundations of the Web 2.0, and that allow the creation and exchange of User Generated Content (UGC)” (Kaplan and Haenlein 2010:61).

Similarly to what happened when politics and Internet began to be explored in conjunction, the contributions of social media to collective political participation are reviewed in opposite ways, some of which optimistic, some other very skeptical (Gerbaudo 2012). On the one hand, it is increasingly recognized that enhanced and ubiquitous communication possibilities nourish the exercise of “social power” that is as fundamental as the power based on physical coercion and is played out first and foremost thought the collective construction of meanings within complex social-media enabled communication networks (Castells 2012). On the other hand, few would disagree with the fact that “technologies do not make collective action. Men and women do. They do so, it goes without saying, within the context of their times. But this is not a purely – nor a mainly – technological context” (Diani 2011a: 1-2). In this sense, beside online communication networks, the complex fabric of offline social relations remains fundamental to channel, quoting Castell’s (2012), “outrage and hope” grounding mobilization efforts.

Caught in the tension between the pivotal role of online or offline activism for the pursuit of social change, studies of the nexus between social media (or the internet, more generally) and collective action have generated three main strands of reflection. In a nutshell, the first and, perhaps, the broader looks at the transformations of traditionally recognized “offline” structural processes underpinning collective action and points out how extended communication possibilities have accelerated and, at the same time, reduced the costs of protest organizations (Rucht 2004), enriched action repertoires (Costanza-Chock 2003; Rolfe 2005; Van Laer and Van Aelst 2010), fostered the contamination of organizational models (Bimber, Flangin and Stohl 2005; Chadwick 2007), and enlarged movements’ discursive opportunities (Cammaerts 2012). The second strand investigates online forms of activism for how they structure and develop in the online space and exist autonomously and independently from the offline world as true forms of contention – it is the case of e-movements (Earl and Kimport 2011) and of self-organizing networks held together by a “connective logic” (Bennett and Segerberg 2012) – or as networks to deploy and frame social
problems (Ackland and O’Neil 2011). Finally, the third strand focuses on the interplay between online and offline activism and, by investigating through different approaches online dynamics, aims at clarifying the “added value” of online participation to offline dynamics which are left “on the background” – as it is in the case of the idea of “choreography of assembly” proposed by Gerbaudo (2012), of social power though meaning construction in Castells (2012) and of “relational enrichment” (Pavan in press).

Beside that between online and offline dynamics, there is a further tension which seems to have structured reflections on the nexus between internet and collective action and which has actually become harsher in the Web 2.0 era – that between a techno-centric and a human-centered perspective (Orlikowski 2007). For example, in discussing the general relationship between Internet and politics, Chadwick and Howard relate the main defining technical features of the Web 2.0 to general transformations of political dynamics but, in fact, suggest a mechanism of influence from the former to the latter (2009:5). In the same vein, although from the opposite perspective, analysis of strategic appropriation of digital media by protesters based on the concept of mediation (e.g., Lievroux 2011, Cammaerts 2012), hence on the explicit recognition of the interplay between human and social components within contentious communication practices, have investigated to a large extent the active role of users in reconfiguring technology or remediating its contents according to their needs thus leaving on the background how actual digital media setting and interfaces, for example, condition communication activities in the first place.

The difficulty to overcome these two tensions grounds its feet in the non-regular presence of media and communication technologies within collective action studies. When admitted on stage, (mass) media have mainly played a role of herald of “issue cultures” (Gamson and Modigliani 1989) which are the true benchmarks against which measuring movements’ discursive opportunities to emerge and win public attention (Koopmans and Statham 1999). Few attempts have been made to disentangle the complex relationship between media functioning logics and the actual formation of issue cultures (as exceptions, see Gamson and Modigliani 1989, Donati 1992 and Gamson 1992) or to consider media as actors playing a prominent role in the deployment of collective dynamics (as exception, see Koopmans 2004 and Koopmans and Olzak 2004). Starting from this heritage, more recent reflections on the role of digital and networked communications concentrated - as we saw above, each on its own way - on different possibilities to overcome the limits imposed by the mass media system (see e.g., Bennett 2003). Latest insights on social media refer to very specific moments within contentious dynamics (e.g., elections; demonstrations; large-scale insurgences; active deployment of a strategy or attack etc.) where online communications entwine with physical demonstration of dissents so that it becomes hard to understand their features as contentious practices, their deployment patterns and, more importantly to us, the way in which they combine.

This episodic and discontinuous inclusion of media and ICTs within contentious dynamics has hampered so far our attempts to properly conceptualize and investigate empirically the “environmental role” played by media and communication practices in the everyday life of individuals and of mobilization efforts, both in their visible and latent phases and in a constitutive relationship
with non-mediated forms of action and communication (Cammaerts et al. 2013). In this context the role of social media and of social media-enabled activism remains under the crossfire of utopians and dystopians and we still lack a systematic framework to effectively “engage with the everyday materiality of organizational life [in a way] that does not ignore it, take it for granted, or treat it as a special case, and neither does it focus solely on technology effects or primarily on technology use” (Orlikowski 2007: 1437).

Because Web 2.0 is ubiquitous (Hall 2011), not only it exerts an extended mediation so that our actions deploy recursively across the online/offline boundary (Beer 2008). Also, for their very interactive and dynamic nature, social media actually participate in the definition of the courses of action we engage in (Latour 2005). Hence, trying to establish an order of priority between online and offline forms of activism or between social and technological factors (and agencies) would not differ from a “chicken or egg” dilemma whose resolution will anyhow hardly help us to uncover the patterns and the role of social-media enabled forms of participation within complex, cross-dimensional collective action processes.

To connect, rather than to order, different dimensions and agencies, we propose to address the nexus between social media and collective participation starting from a re-conceptualization of collective action as a set of sociomaterial practices, where humans and technology are both active agents (or actants, in the words of Latour [2005]) and are “inextricably related” (Orlikowski 2007: 1437) in the sense that “technologies are as much social as they are material (in the sense that material features were chosen and retained through social interaction) and organizations are as much material as they are social (in the sense that social interactions are enabled and constrained by material properties)” (Leonardi 2009:299).

At the crossroads between technological and social determinants, the nature of collective action dynamics changes irremediably: they are neither purely social nor purely technical but, rather, multidimensional as they are shaped by the joint intervention of social actors (individuals, groups, institutions, etc.) and all sorts of technologies (software, portable devices, applications, database resources, etc.) they adopt to pursue their goals (Contractor, Monge and Leonardi 2011). While engaging in “collective activities [aimed at] demanding and/or providing collective goods” (Baldassarri, 2009: 321), social actors lean on technologies as social media to have their messages carried along a global infrastructure at a very low cost; to channel, connect and remix individual and

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1 Materiality can be generally defined as “the material forms and spaces through which humans act and interact” (Orlikowski 2007: 1435”. More precisely, materiality can be thought at “the arrangement of an artifact’s physical and/or digital materials into particular forms that endure across differences in place and time and are important to users” (Leonardi 2012:42). For example, social media “materials” are provided by their common Web 2.0 core; whereas their forms can vary, depending on the way in which UGC can be produced (for a typology of social media, see Kaplan and Haenlein 2010).

2 Here technology is used, quite reductively, as a synonym for analogic and digital media. While we do not deny that other type of non-information based technologies can intervene within collective action (e.g., transportation means), we believe that informational and communicational aspects are of primary importance in the deployment of collective action as well as of all other social and political dynamics and, therefore, we privilege mass media and ICTs over other devices.
organizational contributions and to build and maintain networked collaborations. Despite (or, better, regardless) the fact that technologies do not act with the same intentionality of social actors (Latour 2005), by executing in autonomy these actions they actually concur to the fulfillment of the collective aim. However, collective actors choose a technology rather than another or reconfigure it depending on how they perceive and interpret its “material agency” (Leaonardi 2012:37). Thus, the actual benefit that technology generates depends on how and how much actors leverage its potential, so that the same tool can play different functions and contribute differently depending on the way it is perceived and appropriated (Earl and Kimport 2011).

To crystallize the sociomateriality of collective action dynamics, we propose an analytic framework that builds on the idea of socio-technical system (STS), i.e., that overall environment “in which infrastructures composed of different technological layers are inter-operating within the social component that drives their use and development” (Vespignani 2009:425). We propose to merge the two concepts of collective action and STSs and to speak of collective action socio-technical systems (CASTS), that we define as a set of sociomaterial practices i) involving simultaneously a number of individual, groups and technologies (analogical and/or digital); ii) aimed at achieving/demanding a public good; iii) exhibiting similar morphological characteristics also in discontinuity of time and space; iv) implying a multidimensional and hybrid field of relationship.

We locate social media activism within CASTS and understand it as that specific set of sociomaterial practices [aimed at] demanding and/or providing public goods and that entail social media agency. Also, as the first product of social media agency is the creation of online relations between users and contents they produce (Hansen, Schneiderman and Smith 2011), we propose to empirically analyze social media activism from a multidimensional network perspective (Contractor, Monge and Leonardi 2011) looking at the online relational patterns resulting from the social media use. In this way, we will be able to account for the different types of interconnections enabled by different social media (Kaplan and Haenlein 2010; Hansen, Schneiderman and Smith 2011) and to better specify the types of “contribution” to collective participation resulting from the mediation of different social media tools.

We illustrate a possible application of our framework providing some insights on social media networks of activism that are concurring to define the collective effort pursued in Italy by the gender-oriented platform ‘Se non ora, quando?’ (literally, If not now, when?), which emerged with a national network of simultaneous event on February 13th 2011 and since then has been active, mostly over social media platforms, to pressure for improving the overall situation of Italian women in different domains.

2. An outline of Collective Action Socio-Technical Systems
Even when they trace a link between the social and technological elements intervening within collective dynamics today, current reflections on the nexus between social media and collective participation do not necessarily adopt a sociomaterial perspective. In fact, these technological objects are never included
in the picture explicitly as *actors* but, more often, as exogenous elements that, at best, *interact with* collective action dynamics that exist independently from them.

In addition, social media are considered only in relation to their main function, i.e., connecting people, without paying systematic attention to the different ways in which such connections can be built (Hansen, Schneiderman and Smith 2011). In this sense, they remain a sort of “black box” affecting collective action dynamics *tout court* by virtue of their connective potential. However, as already pointed out in discussing the effects of computer-mediated communications on the organization of collective action dynamics (Diani 2000), it is quite unrealistic to postulate a uniformity of effects when the objects we are considering are so heterogeneous (for example, a social networking site is different from a microblog and a wiki) and the interested social dynamics are, in fact, a complex bundle of interrelated processes (Melucci 1996).

In order to make the sociomateriality of collective action dynamics explicit and to relate the specific materialities and material agencies that are proper of different online communication tools to specific subsets of collective action structural processes, we propose to build a conceptual connection between collective action as a specific “set of social practices” (Melucci 1996) and socio-technical systems (STSs), i.e., those spaces “in which infrastructures composed of different technological layers are interoperating within the social component that drive their use and development” (Vespignani 2009: 425). The STS concept was initially formulated in the 40s to render the idea that organizational processes (in industry, as a starting point, and, later on, within society at large) entwine with technological evolution dynamics (Trist 1981). Over time, STSs have become an overarching framework applied multidisciplinary to depict the mutual dependency of society and technology.

Generally speaking, a STS results from the entanglement (Orlikowski 2007) of two layers (figure 1):

- a *relational infrastructure*, which we understand as comprising from the wide variety of mediated and unmediated connections established between social actor who can be individuals, formal and informal organizations, institutions, governmental and intergovernmental entities etc. Relationships can be mediated (as it is in a phone call or in a tweet) and/or immediate (as it is in the joint organization of an event) and can exist and be maintained independently from actors’ co-presence in the same space;

- a *technological infrastructure* which we understand as constituted by the plurality of physical and technical infrastructures on top of which social actors build their relations – internet *in primis*.

These two layers entangle in the process of *mediation*. As mentioned above, mediation stands in the first place for the intervention of technology within social action but should also be understood as the process of appropriation and reconfiguration of technology by social actors (Lievrouw 2012). Mediation can

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3 Infrastructures can serve the most diverse purposes: e.g., connecting points that are distant in space (e.g., through airplanes routes), assisting the creation and the exchange of information, allowing global communication and information flows. Given our focus on media and communication technologies, we understand here the internet and the mass media system as the main components of the technological infrastructure.
therefore be though as comprising two equal and opposite processes: on the one hand, the development, adoption and adaptation of a technological infrastructure, for which social needs drive technological adoption and evolution; on the other, the enrichment of the relational infrastructure, for which connections amongst social actors are increased, especially by social media and ICTs.

**Fig. 1 – Socio-technical system model**

Thus three general features characterize STSs. First, by effect of the embeddedness of internet and its mediation in our courses of action, the space for action is hybrid and social actors can interact across the online and offline boundary without any solution of continuity. Second, time within socio-technical system is diversified, as it depends on the type of physical/technical infrastructure social actors lean on to establish a relation. Finally, as STSs are the overall environment where sociomaterial practices are organized, their mian organizational model are “fully multidimensional networks” (Contractor, Monge and Leonardi 2011), which entail:

i) different sets of nodes (perfunctorily, social and technical agents) which can be differentiated using actors’ attributes (for example, distinguishing individuals and organizational members of a mobilization and social media from mass media outlets);

ii) different sets of relations (e.g., using an application, consulting a database, but also technology sending automatic notifications to users); iii) the establishment of relationships both between and within the groups (e.g., collaborating in a campaign or, on the side of technology, the process of
convergence which links together different ICTs and even ICTs and mass media).

Defined in terms of STS, collective action becomes a system of sociomaterial practices – a Collective Action Socio-Technical System (CASTS) – wherein social actors and technology are reciprocally mediating one another, as social actors adopt and react to technology which, instead, performs tasks that social actors could hardly handle on their own (for example, disseminating a message worldwide). The entanglement of social actor and technology remains oriented towards the demand or the provision of a common good, which is what distinguishes CASTS from other STS defined in relation to other social dynamics, for example, communities of practices or transnational financial markets.

However, some major transformations occur to all the defining features of collective action dynamics. In the first place, within CASTS social and technological agents are involved in the effort of demanding or pursuing a public good. Thus, agents do not need to be simultaneously present in the same place: thanks to the distributed nature and the connective potential of internet and social media, collective actors can be spatially dispersed and yet able to engage consciously and voluntarily in a common effort thus acting under the same unifying system of symbols and values. Moreover, because of the active role played by the internet, the field defined by the “multipolar system of relations” that grounds collective efforts (Melucci 1996:40) wherein collective participation deploys (understood as the ensemble of relationships established between actors involved) is hybrid and multidimensional.

Summarizing these features we can define collective action socio-technical systems (CASTSs) as a set of sociomaterial practices aimed at achieving/demanding a public good i) involving simultaneously a number of individual, groups and technologies (analogical and/or digital); ii) exhibiting similar morphological characteristics also in discontinuity of time and space; iii) implying a multidimensional and hybrid field of relationship; and iv) the capacity of people of making sense of what they are doing.

Tab. 1 - Comparison between collective action and CASTS definitions

<table>
<thead>
<tr>
<th>Collective Action</th>
<th>CASTS</th>
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<tbody>
<tr>
<td>A set of social practices</td>
<td>A set of sociomaterial practices</td>
</tr>
<tr>
<td>i) involving simultaneously a number of</td>
<td>i) involving simultaneously a number of individuals and groups</td>
</tr>
<tr>
<td>individuals and groups</td>
<td>(analogical and/or digital)</td>
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<tr>
<td>ii) exhibiting similar morphological</td>
<td>ii) exhibiting similar morphological characteristics also in</td>
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<tr>
<td>characteristics in contiguity of time and</td>
<td>discontinuity of time and space</td>
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<tr>
<td>space and</td>
<td>iii) implying a social field of relationship</td>
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<tr>
<td>iii) implying a social field of relationship</td>
<td>iv) the capacity of people of making sense of what they are doing</td>
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<tr>
<td>and</td>
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<tr>
<td>iv) the capacity of people of making sense of</td>
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<td>what they are doing</td>
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4 Here we start from Melucci’s definition of collective action as that “set of social practices i) involving simultaneously a number of individual or groups; ii) exhibiting similar morphological characteristics in contiguity of time and space; iii) implying a social field of relationship and (vi) the capacity of people involved of making sense of what they are doing” (1996:20).
Social media activism within CASTS

Some of the sociomaterial practices structuring collective action socio-technical systems will entail social media, some others will involve (also) other technologies (e.g., traditional mass media, the megaphone, the press) and some others will instead exist without the mediation of any technology at all (typically, pure face-to-face interactions). However, for their unprecedented diffusion and level of embeddedness, social media play a major role within CASTSs. However, their very contribution does not reside exclusively in the mere enlargement of the relational structure supporting collective efforts. In fact, “collective action cannot occur in absence of a ‘we’ characterized by common traits and specific solidarity” (Della Porta and Diani 2006:94) nor in absence of a motivation to action deriving from a certain interpretation of the world and the attribution of meaning to individuals, groups and events (Snow et al. 1986).

It is precisely from the perspective of the definition of an overall shared symbolic system as well as in the creation of a collective identity that we can appreciate at best the entanglement of social media and collective action dynamics. Rather than “erasing” with their default connective potential the need for a collective identity or for interpretative frames, social media act simultaneously on these two fronts. In terms of collective identity formation (Della Porta and Diani 2006:92-98), social media participate in:

a. setting the “boundaries between actors engaged in a conflict” – those who actively participate to the production/exchange of contents associated with the collective aim;

b. establishing “trust relationships amongst them” – thanks to the rapidity and the relative ease in contacting others and exchanging (valuable) information and contents;

c. “connecting events” within a consistent narratives that provide the background storyline for mobilization (Della Porta and Diani 2006:92-98) – thanks to their function as archives (Pietrobruno 2013).

From the point of view of framing processes, the multiplicity of ways in which contents and users can be connected (tags, mentions, replies, hashtags, links etc.) enriches frame activities through which values and symbols are connected within narratives that ground mobilization efforts (Della Porta and Diani 2006: 67).

Moreover, social media operate so to overcome the distinction between visibility and latency in mobilization phases (Melucci 1996): they make collective efforts always “visible” within the online public space independently from their actual physical expression within offline spaces. Consequently, rather than being a prerogative of only few well-embedded activists that remain involved even when the mobilization is “invisible”, the construction of frames and identity generalized, because (potentially) participated by the entire collectivity. Also, in enabling the widespread and fast circulation of particular points of view and experiences, they accelerate framing and identity formation processes because they compress the time required to collect and process diversified cognitive stimuli thus lightening the constraints that rule the inclusion/exclusion of elements from them (Bennett and Segerberg 2012).

However, if this holds true for all social media, specific materialities characterizing different platforms will contribute differently to shape symbolic
systems and collective identities (table 2). Microblogs, which are specifically design to transmit timely and updated information, participate actively in the construction of collective narratives within which events, information and occurrences are linked together and “circulate amongst members (…), reflecting their vision of the world and reinforcing solidarity” (Della Porta and Diani 2006: 109). Social networking sites, which instead privilege the direct connection of individuals via contents, contribute more remarkably to the construction of that “we” mentioned above to which supporters belong and that is also recognized from external observers (Della Porta and Diani 2006:91). Video and picture sharing services, instead, work as repositories of memories and narratives and contribute to the formation of stories and narratives that ground the continuity of the effort over time and can be accessed and appropriated also by those who did not participate in an event when it actually occurred. While pictures crystallize memories of events or situations that are relevant to the mobilization (e.g., pictures from a demonstration or illustrating a “critical” or “problematic” convergence), videos benefit from multimediality and allow the reproduction of an event thus extending participation beyond the limits of “time and space contiguity” (Melucci 1996:20).

*Tab. 2 – Social media types and their contributions to CASTSs*

<table>
<thead>
<tr>
<th>Social Media Type</th>
<th>Contribution to CASTSs</th>
<th>Peculiarity</th>
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<tbody>
<tr>
<td>Microblog</td>
<td>Issue construction/development</td>
<td>Generalized and participated framing</td>
</tr>
<tr>
<td>Social Networking Sites</td>
<td>Community building</td>
<td>Group converge around themes</td>
</tr>
<tr>
<td>Video-sharing</td>
<td>Collective memory formation</td>
<td>Reproduction of events and motivations</td>
</tr>
<tr>
<td>Picture-sharing</td>
<td></td>
<td>Crystallization of memories and motivations</td>
</tr>
</tbody>
</table>

A multidimensional perspective that stresses the links existing within and between social actors and technology proves useful not only to contextualize and characterize social media activism within CASTSs but also to ground its empirical investigation. Tracing the links between and amongst social media and social actors allows us to make visible and investigate the multidimensional relational infrastructure resulting from social media use within collective efforts and upon which contents produced by users circulate imbuing framing and collective identity formation processes.

Figure 2 shows a simplified example of how multidimensional social media networks can be traced. Within CASTSs (figure 2a) social actors (individual and collective) are joined together by offline (red bold line) and online ties (purple and orange dashed lines) and technologies can be linked one another through technological convergence dynamics or indirectly, because adopted by the same actor. Moreover, reciprocal ties (double black arrow) are established between social actors and technology (although in this case we only displayed
social media) thus actually enabling online ties amongst the former. The patterns of relations amongst social actors made possible by social media agency and mediated by the content they author provide the overall relational infrastructure for social media activism (figure 2b). Depending on the type of social media entering in relation with social actors, the online ties will different both in terms of contents and in terms of their contribution to the overall collective efforts, thus diversifying internally the macro category of social media activism.

Figure 2 – CASTSs multidimensional networks and social media activism multidimensional networks

From an empirical point of view, we can then isolate the different systems of relations enabled by different tools and study how content flows along different platforms thus identifying what actors are involved, what type of content they exchange, who is more active in the production/transmission of information, what communities converge around different contents etc. Actual network analysis can be operationalized in different ways, identifying nodes and ties consistently with research questions and the case study under examination. In the next section, we
provide a general example on how to trace and interpret different social media networks and connect insights emerging from each of them in relation to the ongoing Italian mobilization effort on women’s issues “Se non ora, quando?”.

**Social media activism networks – a case from Italy**

On Sunday February 13th 2011, almost a million of Italians gathered in their cities’ squares under the slogan “Se non ora, quando?” (SNOQ, If not now, when?). The demonstration targeted the situation of Italian women, deemed as seriously jeopardized by the economic crisis as well as by the consolidation of degrading stereotypes, diffused by media contents and strengthened by controversial behaviours of public and political personalities. Originally, the mobilization was meant to take place only in Rome but the call for action drafted by the organizing committee (“Comitato Promotore”, CP) circulated via Internet and in few days reached thousands endorsements all over the country. In the impossibility to make all supporters converge in Rome, simultaneous events were rapidly set up locally, and *Se non ora, quando?* became a networked national protest event. In the aftermath of February 13th demonstrations, in order to sustain public attention and collective efforts on the wide range of issues raised collectively, local SNOQ committees were established in almost all cities which hosted a demonstration: the SNOQ movement was then born as a network of autonomous committees connected amongst them and with the Rome organizing committee, which still works as a *primus inter pares*. Despite no national-scale demonstrations have been organized after December 2011, SNOQ remains active as a watchdog for Italian women’s situation especially through its blog and the main social media platforms.

At the time of writing, SNOQ has more than 11000 followers on Twitter while it follows ‘only’ 361 accounts. Tracing networks based on following relationships can prove useful to uncover the relational structure underlying to content circulation and to compare two different mechanisms (Barash and Golder 2011): on the one hand, *information flows* from the movement to its followers (figure 3a and 3b); on the other, *attention flows* from the movement to those it takes information from (figure 3c).

Figure 3a shows a snapshot of the egonetwork of the movement SNOQ: nodes are represented by the movement account on Twitter and by its followers; whereas ties indicate following relationships – yellow ties indicate that a user follows SNOQ and green ties indicate SNOQ’s followers that also follow amongst themselves. By removing the movement node from the network (figure 3b) we witness a fragmentation in the overall flow of information: many nodes (2819 in this example) remain isolated, one big component where nodes are connected either directly or indirectly forms and a set of smaller components emerge. The degree of fragmentation of the information network can be read in terms of aggregative potential of the movement: the more fragmented the network in absence of the movement, the more important its brokerage role in fostering the convergence of interested individuals. Also, analyzing centrality patterns amongst

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5 This network was mapped in July 2012 during some exploratory mapping experiments. The overall number of nodes and ties is significantly lower than that at the time of writing but the illustrative aim of the example remain valid.
Figure 3 – Information and attention network of the SNOQ movement on Twitter
followers we can identify hubs that sustain the informational community created around SNOQ and we can explore if the movement consider them as source of information to follow and to be retweeted.

Within the network in figure 3b there are two main hubs: one is a popular Italian journalist very active on Twitter and with thousands followers; and the other is a gender-oriented organization with ‘only’ few hundreds of followers. Amongst the two, SNOQ only follows this latter, while does not ‘pay attention’ to information flowing from the journalist. If, on the one hand, this suggests that the movement has penetrated public discourse beyond its thematic domain, on the other it indicates a domain-specific strategy in the construction of the attention network thus raising questions on the extent to which the movement is ‘bridging’ or ‘expanding’ its frame beyond the gender domain (Snow et al. 1986).

The attention network in figure 3c further strengthens this overall impression. More than half of ties from SNOQ to other nodes it follows go towards women and gender-oriented groups or single activists. Whenever the movement follows other types of accounts, for example of politicians, these latter do not follow back SNOQ. While this preliminary analysis shows a certain level of density of relationships between actors involved in the gender domain, it also raises a question of how far the movement has managed to make gender issue travel outside the gender field.

Since January 2011 SNOQ has an official page on Facebook, which serves as a point of convergence between thematic inputs and movement supporters. One of the possible networks that can be traced starting from Facebook data is a multimodal combination of users and posts, which can give us an idea of what posts from the movement (i.e., thematic inputs) are more extensively agreed upon. Figure 4 shows a snapshot of posts published by SNOQ in January 2011, approximately a couple of weeks before the national demonstration. The nodes in this network are users that ‘liked’ (yellow tie) or commented (red tie) a post published in that month. A centrality study performed on posts reveals us what are the most popular contents around which public support is expressed. In this network, the post that receives the largest attention (i.e., has the higher degree score) is the call for action drafted by SNOQ organizers. However, if we calculate different centralities based on the number of likes and comments, we find that the call for action is the most ‘liked’ post but the one stimulating the larger amount of comments is the link to a national newspaper article explaining the reasons underlying to the mobilizations. Comments published by supporters were mostly about some aspects illustrated in the article, further articulating the reasons for mobilizing. This very initial exploration suggests the importance of enriching user-oriented analyses, like the one we carried on for Twitter, with content-oriented insights of this type and to keep in due account the different participatory modes that are made available by the platform we are considering.

SNOQ has also a Youtube channel where several videos produced since January 2011 are uploaded. In fact, videos have always been an integral part of SNOQ communicative strategies since its very beginning as the call for action circulated together with an auto-produced video which circulated widely between January and February 2011.

6 http://www.youtube.com/watch?v=zma-HI-yFzw
Figure 4 – User-posts network on SNOQ Facebook page, January 2011

The number of subscribers to the ‘snoqtube’ channel is rather low (171 at the time of writing) but this is due to the fact that registration is not mandatory on Youtube (in fact, at the time of writing, videos in the channel have been watched more than 140,000 times). The importance of contents over that of users that characterizes Youtube in comparison with other social media platforms invites us to explore content networks in search for patterns through which collective memories are formed. Figure 5 shows a networks of video uploaded on Youtube by SNOQ up to July 2012. Videos are linked together if they share at least one tag. As users tag videos in ways that should make that specific piece of experience retrievable by others, the more video share tags, the more we can think them as part of a collective memory. Conversely, the less videos are integrated in the network, the more we can think they are expressions of personal experiences.

As the network depicted below shows, the majority of videos belong to the main component regardless the fact that their thematic focus might differ (some video shot during the national demonstrations, some other explaining the reasons of the mobilizations, some others on the issues of domestic violence which is an important theme upon which SNOQ campaigns a lot). However, an evaluation of ties strength (i.e., the number of ties they share) reveals that their association is rather weak (average tie strength is 2) and mainly ensured by tagging a video with the acronym or the name of the movement. Also, it is interesting to notice that isolated videos grouped in the bottom left corner of the picture (i.e., videos that do not share any tag with others) are individual stories recorded during the second national meeting of the movement in Siena (July 2011) that are tagged describing the specific contents narrated by their protagonists.

Such insights suggests that an overarching memory, that fully integrates personal experiences within a broader frame for the mobilization, is still in fieri: whereas a core of memories is built with regard to the big demonstrations occurred in 2011 and to the motivations that underpinned them, personal stories still remain
personal and exclusive contributions to the overall image of the movement proposed to the public.

*Figure 5 – Network of Youtube video in the snoqtube channel (July 2012)*

Conclusions

In this paper we proposed to approach the study of the nexus between social media and collective action starting from a re-conceptualization of collective participatory practices in a multidimensional fashion, considering both social actors and technologies as agents codetermining the actual deployment of collective efforts. We proposed to locate the study of social media activism within CASTS, i.e., collective action socio-technical systems, thus understanding it as that specific subsets of sociomaterial practices aimed at the fulfillment of collective goods that entail the mediation of social media tools. In this way, we have put social media activism in perspective noticing that it does not affect collective action *tout court* but, rather, that different platform entailing different materialities can nurture different aspects of framing and collective identity building. Thus we have proposed to translate this overall theoretical approach in practice tracing ties established between social actors and technologies within CASTSs.

With an illustrative purpose, we applied this multidimensional network approach empirically to explore social media activism networks developing around the Italian gender-oriented collective initiative “Se non ora, quando?” tracing and deriving some very general insights from Twitter, Facebook and Youtube collaborations. The networks we illustrated in this paper are not the sole we could trace starting from social media data but they were helpful in showing us the type of considerations we can infer from networks established between individuals and groups; between social actors and contents or between social media contents comparing network features with different aspects of collective action dynamics.
In conclusion, we would like to summarize the advantages of our proposed approach. In the first place, through CASTS we resolve the dichotomy between online and offline activism. Indeed, as collective action is seen here as resulting from the entanglement of social and technological elements, the focus is set not so much on where it deploys (i.e., if it is online or offline) but on how (i.e., in relation to what material agency). Multidimensional collective action dynamics are then imbued equally and in a non-hierarchical way by demonstrations in the squares and by information exchanges via Twitter; by calls for action screamed through a megaphone and by Facebook events. In this sense, the distinction between online and offline activism becomes almost obsolete: the ‘multipolar system of action (Melucci 1996:40) underpinning collective participation dynamics becomes hybrid, as it results from the merging of relations established amongst social actors online and offline (Castells 2012); and augmented, as social actors’ possibilities are enhanced by the full integration of virtual relations, objects and potentialities within their offline space (Azuma 1997).\(^7\)

Second, the inherent sociomateriality characterizing CASTS prevents us from approaching the study of the nexus between social media and collective action with unjustified sensationalism or any sort of determinism (whether it is social or technological). As authors concerned with the interplay between online and offline protest dynamics point out (see for example Castells 2012 and Girbaudo 2012), Egyptians did not rise against because they had social media. In fact, just because there are no social projects that can transcend from technological mediation (Leonardi 2012:xx), it does not mean that all dynamics entailed by these project will be mediated by technology or that social media will be the sole tool that will be exploited. However, without social media Egyptians would have not been able to mobilize that massively, rapidly and with that level of mutual solidarity. Despite they did not create the protest, social media played a fundamental role in the longer term process of creation of that collective identity unifying Egyptians beside and beyond pre-existing social ties and the intermediation of formal organizations such as political parties.

Third, within CASTS we can identify what is constitutive of social media activism in the broader context of online activism thus guiding its empirical research. Social media exaggerate the connective potential of the Internet of websites because their function is not “linking documents (…) [but] connecting people” (Hall 2011: 658). In this sense, they enable the formation of online communities as true space for people-to-people interaction (Christensen and Levinson 2003) via content production and sharing mechanisms. When this potential meets social conflict, it works as a catalyst for collective resistance as it provides an immediate “public space” (Castells 2012) where participant strengthen reciprocally by finding ‘social proof’ (Cialdini 2009:99) that their concerns and their will to react is diffused, shared, agreed upon by others. Enabled to become part of a collectivity and reassured that they are part of “something

\(^7\) What distinguishes the Augmented Reality (AR) approach in computer science from the Virtual Reality (VR) approach is that it foresees and amplification of the real world through an actual integration of virtual object and potentialities (e.g., the immediacy of interaction and the overcoming of distances). While in the substitution of the real world with a virtual world a subject has no real control on the objects around her, in an augmented reality her capacities are simply enhanced as she can enjoy the great help coming form computers in the actual realization of her courses of action.
bigger”, social actors dynamically move contention from the online to the offline, occupying physical spaces characterized by an inherently high symbolic value, and back to the online, to share their experiences with others, recruit new supporters, contrast their opponents and building new symbols.

Finally, we believe that making social media activism networks visible and analyzable can provide useful and systematic insights to understand the potentialities of social media for intervening and transforming collective political participation. A network approach indeed tunes empirical investigation with the technological features we are discussing and provides flexible tools to uncover patterns of relations that are developed online and yet entwine in complex ways with offline ones. Approaching collective action multidimensionality stands then as a powerful perspective from which starting to address how technology empowers people once people appropriate it as well as to investigate, along network ties, in what this enrichment actually consists.
References (incomplete)


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