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From clicktivism to hacktivism: Understanding digital activism

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ABSTRACT

Digital activism provides new opportunities for social movement participants and social movement organizations (SMOs). Recent IS research has begun to touch on digital activism, defining it, exploring it, and building new theory to help understand it. This paper seeks to unpack digital activism through an exploratory literature review that provides descriptions, definitions, and categorizations. We provide a framework for digital activism by extending Milbrath's (1965) hierarchy of political participation that divides activism into spectator, transitional, and gladiatorial activities. Using this framework, we identify ten activities of digital activism that are represented in the literature. These include digital spectator activities: clicktivism, metavoicing, assertion; digital transitional activities: e-funding, political consumerism, digital petitions, and botivism; and digital gladiatorial activities: data activism, exposure, and hacktivism. Last, we analyze the activities in terms of participants, SMOs, individuals who are targeted by the activity, and organizations that are targeted by the activity. We highlight four major implications and offer four meta-conjectures on the mechanisms of digital activism and their resulting impacts, and reveal a new construct where participants digitally organize yet lack an identifying cause, which we label connective emotion.

1. Introduction

Not long ago, activism to promote social movements was relegated to demonstrations and marches, chaining oneself to a fence, or writing to a government representative. Recruiting, organizing, and retaining participants was difficult enough to ensure that often only largest, best supported movements thrived and creating an impact often took years. Today's world of digital activism is broad reaching, impactful, and immediate compared to traditional activism. For example:

- Saudi women fight for their right to drive cars on social media (Bager, 2015)
- Black Americans make a stand against police racism with Black Lives Matter (BLM) by posting on social media with live videotapes of police brutality (Garza, 2017)
- Native American communities exert subtle political influence through cultural websites (Young & Miranda, 2014; Young, 2018)
- National Security Agency secrets are exposed through Wikileaks (Shane, Rosenberg, & Lehren, 2017)
- Presidents trade insults with other world leaders on Twitter (Nakamura & Morello, 2017)
- The hacker group Anonymous shuts down white supremacist websites (McGoogan & Molloy, 2017)

This paper unpacks the relatively new phenomenon of digital activism. It is important to understand because most people in

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countries with any sort of ICT either participate in or are impacted by digital activism in their daily lives, businesses, or governments (Rainie, Smith, Schlozman, Brady, & Verba, 2012; Wattal, Schuff, Mandviwalla, & Williams, 2010). While scholars have begun to research digital activism in recent years, there is still a dearth of empirical research available (Kane, Alavi, Labianca, & Borgatti, 2013; Majchrzak, Faraj, Kane, & Azad, 2013; Selander & Jarvenpaa, 2016). We provide an exploratory literature review to aid scholars in understanding digital activism. Webster and Watson (2002) suggest that literature reviews are not only valuable for mature topics but can aid new topics through increasing visibility and theoretical discussions. We review 84 papers that include empirical, conceptual, and representative works from a variety of fields and sources in an attempt to provide an extensive, multi-disciplinary view. As a particular aid to future research, we provide tables in the Appendix (Tables 13 and 14) that detail each paper.

From the literature we identify ten representative digital activism activities: clicktivism, metavoicing, assertion, e-funding, political consumerism, digital petitions, botivism, data activism, exposure, and hacktivism. These are not all encompassing, but do represent the breadth of digital activities seen in digital activism. We organize these activities by extending a classic framework from the political science literature, Milbrath (1965), which divides social action into spectator, transitional, and gladiatorial activities. Our analysis then moves to the activities themselves and how they change depending on context. With this in mind, we expand the activities into the functions that each activity provides within the context of the specific paper. The functions are then abstracted into mechanisms and we are able to propose relationships between mechanisms and outcomes.

Our primary findings include how varied the mechanisms and impacts of digital activities are depending on whether one looks at the participant, the SMO, an individual targeted by the action, or an organization targeted by the action. To our knowledge, we are the first to explicitly call out digital targets in terms of social participation, although the cybersecurity literature readily identifies targets as such. These differences should encourage SMOs to evaluate the consequences of their actions and the actions of their participants in greater depth so that they encourage digital activities that support the cause and avoid those that don't. We provide propositions that may be used to build SMO strategy or conversely, for targets to develop strategies to protect themselves. This paper is structured as follows. First, we present our method, then we provide background information and the theoretical underpinnings of our topic. We then delve into digital activism with categorizations and analysis, and provide propositions. Last, we present implications of this research, limitations, suggestions for future research and our conclusion.

2. Method

Templier and Paré (2015) view the quality of a literature review as a combination of rigor, relevance, and how methodologically coherent one makes the tie between the review's objectives and the elements that make up the review. In keeping with these guidelines, we offer a detailed description of our method for building the research base for this paper. Because the topic is new, we elected to conduct a theoretical literature review with a goal to provide "context for identifying, describing, and transforming into a higher order" along with a conceptual framework to help explain the phenomenon and provide propositions for future research (Paré, Trudel, Jaana, & Kitsiou, 2015). Webster and Watson (2002) suggest that literature reviews are not only valuable for mature topics but can aid new topics through increasing visibility and theoretical discussions. While this review includes literature from information systems, business journals, political science, and sociology, our focus is organizational. Therefore, we look more towards the business and organization literature, which is then enriched with social science literature and non-academic representational news, blogs, websites, and other sources. Literature reviews may be conceptualized as four quadrants divided by a vertical axis of research objective moving from synthesis to theorizing, and a horizontal axis of review focus that flows from broad description to a narrow view for trend/gap identification. Fig. 1 (from Leidner, 2018) illustrates the framework. We consider this paper to be an organizing review. The aim is to synthesize a disparate body of emerging research and provide a foundation for theorizing. This category of review is well suited to discuss new phenomenon such as digital activism and allows us to theorize through the literature (Leidner, 2018).

Acceptable Sources: Because digital activism is a new topic and few empirical papers are available, our sources included not only

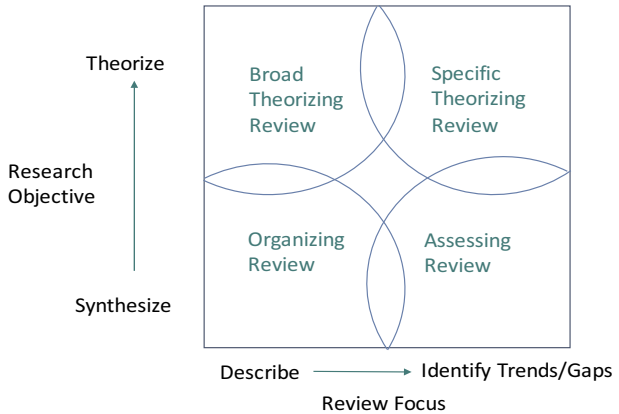

Fig. 1. A polylithic framework of RTD papers (from Leidner, 2018).

traditional academic publications such as books, journal articles, and conference proceedings, but we also included relevant material from the press, blogs, social media, and websites from organizations involved in digital activism, either as an actor or recipient of such actions. For academic publications, we began with lists from the Financial Times 50 and the University of Texas-Dallas Top 100 Business Journal List. For sociology and political science, we used rankings from the Scimago Journal and Country Rank. We also utilized the Information Systems Senior Scholars' Basket of Eight, and other respected journals that publish topics relevant to our search, including *Political Science, American Journal of Sociology, and American Political Science Review*. We were particularly interested in papers from conference proceedings, such as the Hawaii International Conference on Systems Science and various Association of Information Systems conferences, because new research topics frequently begin their journey at academic conferences. For non-academic sources, we generally limited our sources to well-known providers such as mainstream news organizations (such as the Washington Post or BBC), governments, and well-known firms and nonprofit organizations (such as the United Nations). We also visited a number of websites for political organizations and candidates, as well as government websites.

First Round Search Terms: We developed our first list of search terms based on our extant experience in the field at the time. These search terms included "collective action," "political activism," "political action," "political participation," "digital activism," "social activism," "connective action," and "digital action repertoires." As some of these terms are similar to each other, the same articles often came up.

Search: Using our list of search terms, we used Google Scholar to identify publications and Google search to note websites, social media, and blogs of interest. We compared the search results against our list of approved source categories and selected those that met the criteria. We also conducted archive searches in journals contained in the IS Basket of Eight and in journals with a particular interest in the topic of social impact, including *Information and Management, Information and Organization, The Database for Advancements in Information Systems, Government Information Quarterly, American Journal of Political Science, American Journal of Sociology, and American Political Science Review*.

Check for Comprehensiveness: At this point, we reviewed the abstracts of selected items to ensure a comprehensive and relevant list, removing those that were not relevant or of insufficient quality (such as poor quality journals or dubious organizations publishing the material) and noting any holes in our topic coverage.

Second Round of Search: Upon finding additional information from our reading and noting shortfalls in our collection, we conducted further searches using the keywords "data activism," "open data activism", "clicktivism," "hacktivist," "cyberterrorist," "anonymous," "hackathon," "metavoicing," and "botivism." We conducted searches in Google Scholar, Google Search, and journal archives, adding the new results to our list.

Additional Literature: A number of works were recommended by editorial staff and personal associates and were added to the list, along with their abstracts and highlighting notes. We also took the opportunity to add works cited in our previously selected papers, using forward/backward search. Last, recent news events were scanned for relevant and interesting additions in later versions of the paper. The final curated list of 84 articles was used in the review and synthesis.

Analysis: In preparing for the analysis we separated the literature into two tables, a list of empirical and representative work and a second list of conceptual work. The Empirical and Representative table consists of 60 entries (Table 13) and the Conceptual table consists of 24 entries (Table 14). Using the data from the Empirical and Representative table, we identified the digital activism activities then examined the functions they served. We then abstracted the functions into six mechanisms and six impacts. We examined the mechanism-impact pairings at the individual and organizational levels. In the Conceptual table, the articles were analyzed for description, key points, and impacts. The Conceptual literature table is provided in the Appendix as an aid for future research. In the next section, we provide a backdrop of social activism, of which digital activism is a modern instantiation.

3. Social movements and digital activism

The heart of modern digital activism lies in social movements and the organizations that promote the causes of social movement, often referred to as social movement organizations or SMOs (Zald & Ash, 1966). Therefore, we provide a brief overview of social movements and social activism. Social movements, an old phenomenon in human history, have produced revolutions that have built new countries and have changed social mores. But the beneficiaries and judges of social movements vary widely. Social movements have also created insurgent quasi-governments that enforce their own religious law, such as the Taliban in Afghanistan (Heery, 2017). Social movements also encompass groups that promote violence against women, recently demonstrated in a mass attack by an Incel member in 2018 (Louie, 2018). But what is a social movement? Some scholars provide broad definitions describing it as certain beliefs and thoughts held within a population regarding how their institutional structures might change (McCarthy & Zald, 1973). Many scholars agree that social movements must have an identity that makes them unique and identifiable and their goals should be explicit (McCarthy & Zald, 1973; Snow, Soule, & Kriesi, 2004; Tilly & Wood, 2015). Tilly (2006) provided guidelines for social movement success, which includes campaigns (where a cause is identified), repertoires (the methods and tools used by the SMO) and WUNC, which stands for Worthiness, Unity, Numbers and Commitment. Worthiness refers to the demeanor and presentation of SMO members, such as how professional or serious they come across to the public. Unity describes the level of members being in agreement and expressing the same message. Numbers alludes to the quantity of members, with larger numbers having more influence than smaller groups. Finally, commitment denotes the level of effort and resources that members are willing to sacrifice for the social movement (Tilly, 2006).

Social movements may be promoted by one or more SMOs made up of people that share the same cause (Zald & Ash, 1966). However, single organization movements may perform differently than multi-organization movements. The competition and differences of opinions and actions can create greater inconsistencies of message and unexpected results (Snow et al., 2004). Social

Table 1
Terminology & definitions.

Term	Definition used in this paper	References
Collective action	Intentional membership in an organization that shares interests and goals, opportunity, mobilization, and participation in the collective action itself.	Bennett & Segerberg, 2012; Melucci, 1996; Tilly, 1978
Connective action	Collective action that exploits the personalized connectivity afforded by digital social networks.	Bennett & Segerberg, 2012; Bennett & Segerberg, 2013
Digital activism	Social activism mediated through digital technologies to promote social movements.	Bennett & Segerberg, 2013; Selander & Jarvenpaa, 2016
Social action	Action taken by a group or individual to promote social change.	McCarthy & Zald, 1973; Snow et al., 2004
Social activism	Taking action to create social change. Social activism is part of the larger domain of social movements.	Baumgardner & Richards, 2000; Briscoe & Gupta, 2016; Cermak et al., 2011; Ghobadi & Clegg, 2015; Kmiec, 2004
Social change	Social change, unplanned or intentional, is the process by which social functions and structures are altered by social movement.	Rogers, 1971; Tilly, 1978
Social movement organizations	Social movement organizations, or SMOs, are groups organized around a cause. SMO structure maybe centralized or decentralized, formal or informal.	Agarwal, Lim, & Wigand, 2012; Klandermans, van der Toorn, & van Stekelenburg, 2008; Walker, 2012
Social movements	Social movements are collective action that revolves around a shared cause.	McCarthy & Zald, 1973; Snow et al., 2004; Tilly, 2006; Tilly & Wood, 2015

movements with a strong central message, such as the Tea Party in the US, may experience greater success (Bennett & Segerberg, 2012). The existence of a social movement does not guarantee organizational success or even if it will gain any attention or followers, and social movements can and do exist outside of taking any action to promote their cause. However, social movements that have achieved progress towards their goals generally rely upon some form of activism to promote change.

We define digital activism as digitally mediated social activism (Bennett & Segerberg, 2013; Selander & Jarvenpaa, 2016). A table of this and other relevant definitions is provided in Table 1. Early views suggested that digital activism was essentially no different than traditional political action (Foot & Schneider, 2002). For example, some scholars remarked that emailing political messages was the equivalent of photocopies mailed via post (Karpf, 2010). Others proposed that the wide availability of political information on the internet did not truly change politics, but only "reflects and reinforces the status quo" (Margolis & Resnick, 2000). Still others questioned the value of political websites and open information, proposing that individuals who care will look for information related to their cause (Bimber, 2000). More recent research tends to recognize that digital activism is substantially different than traditional activism (Bennett & Segerberg, 2013; Selander & Jarvenpaa, 2016; Vaast, Safadi, Lapointe, & Negoita, 2017).

For example, looking back at WUNC, we suggest that many parts of the theory are no longer mandatory for digital activism success. Worthiness can be spoofed through glossy websites and manufactured testimonials. Unity is no longer mandatory as many SMOs today have decentralized operations and participants who go off in their own direction creating content and posting opinions about the cause. Numbers are not even necessary anymore if you look at political bots or the hacker group Anonymous, both of which produce impacts with low numbers. Last, commitment is no longer tied to SMO success because low level activities such as social media can have a huge impact with little commitment. This isn't always the case and many SMOs that utilize digital activism still retain high levels of WUNC (Bennett & Segerberg, 2012). Digital activism is unique from traditional forms in that despite its many online reproductions of offline activities, it provides new opportunities for innovative action. The repertoires described by traditional scholars are now superseded by new digital tools and methods, each with specific requirements, usages, and outcomes. These tools are digital action repertoires (Selander & Jarvenpaa, 2016).

It is useful to think of digital action repertoires as part of a virtual toolkit of technology artifacts and activities to be used for social change. Social media is particularly important for digital activism, such as Facebook, YouTube, and Twitter. Although social media is a popular tool for communication and organization (Rainie et al., 2012), its ability to create change may be more limited compared to other IS tools and artifacts because social media provides new outlets for very low-level action. The new terms "slacktivism" and "clicktivism" indicate political action expressed through "liking" a candidate or political post or sharing it on social media, and the characteristics of such may have little real-world impact (Shirky, 2011; Vitak et al., 2011). However, even low-level action on social media may lead to greater involvement such as volunteering and is intensified if others in a social network are equally involved (Vitak et al., 2011). Reinforcement is a key facet of social media that provides an abundance of reminders, reiterations, and confirmations from one's social network (Nam, 2011).

Much of traditional social action is of a collective nature and that has crossed over to digital activism, as well. Collective action, a group of people coming together to act for a common interest or shared beliefs (Tilly, 1978; Melucci, 1996) has evolved through information systems (IS) into *connective action*. Connective action, as developed by Bennett and Segerberg (2012, 2013) seeks to explain "contentious political action in the digital age," and includes a new element of organization and shared content mediated through IS. Connective action is successful at promoting messages and inciting action (Anduiza, Cristancho, & Sabucedo, 2014). Connective action is similar to collective action in that it involves individuals coming together, but connective action purposefully utilizes IS to organize and communicate and often includes the use of social media (Vaast et al., 2017). Thus, connective action informs us about how social media changes the social action landscape.

One difference between collective and connective action is in how participants align with the values of a social movement. In

traditional collective action, participants are nearly always aligned with the tenets of the MO or the social movement. However, connective action does not demonstrate this trait and participants engage with varying levels of commitment and belief (Bennett & Segerberg, 2012, 2013; Selander & Jarvenpaa, 2016; Vaast et al., 2017). Another key difference between collective and connective action is the use of IT. In addition to improved communications and content coproduction, IS mediated action lowers transaction costs. Reducing transaction costs not only lowers the entry bar for participants but also provides the ability to easily communicate a message to large numbers of people (Bimber, Flanagin, & Stohl, 2012; Bennett & Segerberg, 2013). Connective action is also realized through easily personalized communication within a political group and is particularly effective at spreading messages. Personalization is a key component of connective action with IS enabled targeting and framing techniques not seen in the past (Bennett & Segerberg, 2013; Young, 2018). The 2009 Occupy slogan of "We are the 99 percent" is an example of a message that is easily appropriated by individuals who identify with it. Connective action is a key component of understanding digital activism. In order to further this line of research, we suggest that a more granular understanding of digital activism activities, mechanism, and impacts could provide new insights. In addition to its connective properties, social media can be used as a veil to conceal more direct social action. In a humorous, but ultimately insightful observation, Zuckerman (2015) proposed his Cute Cat theory. The theory suggests that when activists spread their message via popular social media platforms (i.e. where cute cat pictures reside) they are less likely to be shut down. This is because authorities do not want to 1) let the majority regular users know they are being censored, and 2) do not want to anger regular people by shutting the service down (Zuckerman, 2015). Social media remains one of the most popular means of enabling digital activism. For example, 66% of social media users have expressed political opinions and information, responded to or shared political posts, followed politicians or parties, or joined political social media group (Rainie et al., 2012).

There are a number of differences between traditional and digital activism. Prior activism relied greatly on the number of participants (Tilly, 2006), while a smaller number of digital activists can create a substantial impact through the efficiencies afforded by technology. Participant age is another difference. Formerly, age increased as one increased their level of participation, with few young people running for office or organizing campaigns. The opposite is seen today as younger people tend to have the greater technical skills demanded at the higher levels of the digital activism (Rainie et al., 2012). Last, the opportunity for marginalized people to be heard is greatly expanded in digital activism compared to traditional activism (Schradie, 2018; Young, 2018). These differences are summarized in Table 2.

3.1. Hierarchy of political participation

Two goals of our research included categorizing digital activism and understanding the differences between digital activism and traditional social activism. We sought an existing framework to aid our understanding, and our readings in the political science literature led us to Lester Milbrath's, 1965 Hierarchy of political participation. We selected this framework for several reasons. First, we noted that earlier political and social movement theories tended to be more generalized than later theories that attempted to account for the political disruption in the latter half of the 20th century. We found that greater generalization served our topic better. Secondly, we chose to extend the hierarchy because it provided a means to classify traditional and digital activities in a graphic method that demonstrated not only the differences between the two, but also the similarities. Third, the hierarchy demonstrates the relative number of participants involved in each subsequent tier, illustrating how many people engage in lower level activities compared to top tier activities, and thus provided a framework for individual behaviors. Fourth, and perhaps most important, a main

Table 2
Traditional vs. digital activism.

	Traditional activism	Digital activism
How many participants are required?	Successful social movements were associated with large numbers of participants. Tilly, 2006	Digital resources provide efficiencies that allow fewer participants to have a greater impact. Bennett & Segerberg, 2012
How old are participants?	Greater participation was associated with an increase in age. Milbrath, 1965	Younger people with technology skills are more likely to engage. Rainie et al., 2012
What are success factors for the cause?	An identified cause or campaign, effort, worthiness, unity, number of participants, commitment, resources. McCarthy & Zald, 1973; Snow et al., 2004; Tilly, 2006; Tilly & Wood, 2015; Zald & Ash, 1966	Digital skills, access to the internet, digital technologies, large social network. Agarwal & Dhar, 2014; Bennett & Segerberg, 2012, 2013; Selander & Jarvenpaa, 2016; Rainie et al., 2012; Vaast et al., 2017; Young, 2018
How do participants connect?	Attending meetings and demonstrations, communications via post (mail), manned information tables. Bimber, 2000; Karpf, 2010; Melucci, 1996; Tilly, 1978	Via social media, websites, texting, digital platforms using a variety of ICT. Agarwal & Dhar, 2014; Bennett & Segerberg, 2013; Constantinides, Henfridsson, & Parker, 2018; Nam, 2011; Selander & Jarvenpaa, 2016; Vitak et al., 2011
How are marginalized groups affected?	Marginalized groups were often left on the sidelines because of a lack of resources. Bennett & Segerberg, 2013; Jenkins, 1983; Tilly, 1978	Marginalized groups have more options to make their voices heard. However, a gap in digital content production still exists. Agarwal & Dhar, 2014; Bennett & Segerberg, 2013; George & Leidner, 2018; Schradie, 2011; Schradie, 2018

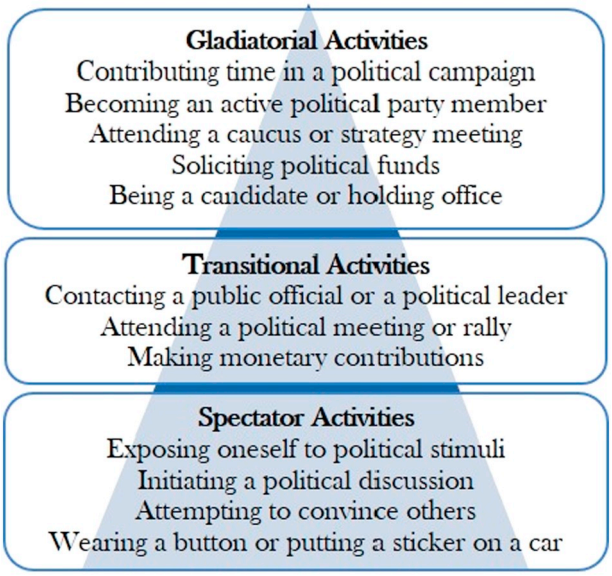

Fig. 2. Hierarchy of political participation from Milbrath, 1965.

point of Milbrath's theory is that *participants at the top tiers still engage in lower level activities*.

Past scholarly research on social movements tended to be political, first focused on why citizens did or did not vote, while later studies examined broader political actions such as funding candidates and campaign participation. The tumultuous 1960s and 70s challenged earlier views (McCarthy & Zald, 1977; Milbrath, 1981) at a time when the political climate worsened and political alienation increased (Wright, 1981). In 1965, Milbrath looked at the individual as a unit of analysis. He was the first to explain political participation in terms of activities with increasing levels of effort and commitment, and to suggest that those at higher levels still engage in lower level undertakings and that political activity is cumulative (Axford, Browning, & Huggins, 2002). Starting with apathy (no political participation), Milbrath's hierarchy mapped out thirteen political activities into three increasing levels of participation and decreasing levels of participants: spectator activities (the lowest level of commitment and effort and with the highest number of participants), transitional activities (medium level), and gladiatorial activities (highest level of effort and commitment and with the fewest participants). The hierarchy is illustrated in Fig. 2.

Low level spectator examples include wearing political buttons or placing campaign signs in one's yard. Transitional activities require more effort, for example, attending a political rally. Milbrath's framework culminates in gladiatorial activities that require significant commitment, such as organizing a political party. Thus, Milbrath describes the entire political participation journey from exposing oneself to a political idea to ultimately holding public office. In traditional activism, spectator activities require the least effort, small amounts of time, insignificant amounts of money, and little thought or planning. Transitional activities are a greater burden to participants. Donations of money and time are found in this tier along with people attending meetings and contributing to their cause intellectually, physically, and financially. Last, gladiatorial activities command the greatest commitment. Time commitments are vast for candidates or party strategists, organizational skills are mandatory, and running for office can bankrupt a contender. The original theory is still relevant, yet the landscape for social movements has been transformed with the advent of technology (Bimber, 2000). New tools offer unfamiliar and unforeseen benefits, problems, and impacts that stimulate novel behaviors and research questions.

3.2. Hierarchy of digital activism

We use Milbrath's hierarchy of political participation as a lens to unpack digital activism. While the original framework used an individual level of analysis, we extend it to both individuals and organizations, and discern not only actors (participants and SMOs) but also those on the receiving end of digital activism, which we describe as targeted individuals and targeted organizations. There are both similarities and differences between Milbrath's hierarchy and the hierarchy of digital participation. First, both illustrate high numbers of actions in spectator activities and subsequently lower numbers as we move through the transitional to gladiatorial tiers. Both frameworks also hold that actors at the upper levels of participation still engage in lower levels. But there are two major differences. As mentioned before, Milbrath's theory is about individuals, while the hierarchy of digital activism includes both individuals and organizations. Individual actions make up organizational practices and organizations change over time because of incremental alterations in individual behavior (Orlikowski, 1996, 2002). This holds true in SMOs as much as in business. Another difference between the two hierarchies is Milbrath's traditional political activism view, which focuses on effort and commitment as one move up the hierarchy, versus digital activism's reliance upon digital resources (Bennett & Segerberg, 2012; Milbrath, 1965). The impacts between the two frameworks vary, as well. Milbrath's hierarchy matches the impactfulness of actions with the tiers. Spectator

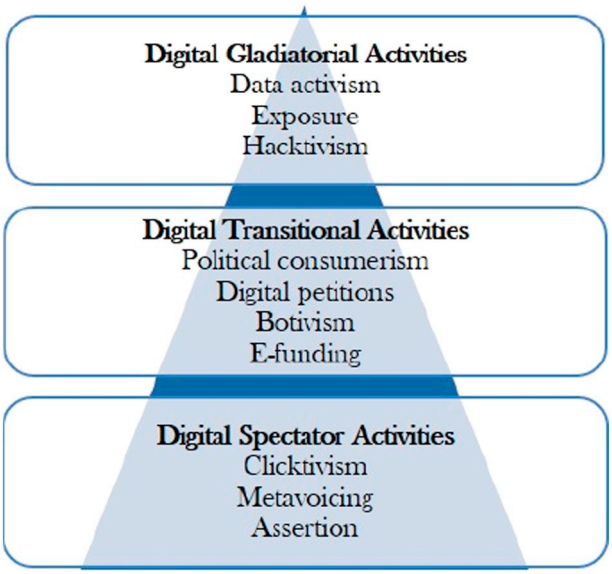

Fig. 3. Hierarchy of digital activism.

activities provide little impact while gladiatorial activities provide the most impact. This is not so for digital activism, where major impacts can be found in every tier. For example, a hacker can create chaos with surprisingly little effort, and retweeting the time and location of a demonstration can result in a million protestors. Last, Milbrath's hierarchy increases with commitment and effort while digital activism hierarchy tiers vary according to the digital resources available. Digital resources include technical skills, technology artifacts, social networks, internet and communications access (McCarthy & Zald, 1973; Selander & Jarvenpaa, 2016). The activities included in the hierarchy of digital activism are next discussed in detail and illustrated in Fig. 3. Table 12 in the Appendix further defines the constructs in the hierarchy.

We next provide ten representative examples of digital activism activities from the literature and categorize them as spectator, transitional, or gladiatorial. We further show how the function of the activity changes depending on whether we look at the participant, the SMO, the individual targeted by the activity, or the organization targeted by the activity. The list is not exhaustive but is meant to show the range of activities being currently practiced. The digital activism activities include clicktivism, metavoicing, assertion, political consumerism, digital petitions, botivism, e-funding, data activism, exposure, and hacktivism.

3.2.1. Digital spectator activities and functions

Digital spectator activities form the greatest volume of actions in digital activism. It also engages the most people. Nearly two-thirds of social media users have participated in social media politics at some point (Rainie et al., 2012; Vaast et al., 2017). We relegate most social media to the Spectator tier, and sort them into three activities: clicktivism, metavoicing, and assertion. Digital spectator activities are summarized in Table 3.

3.2.1.1. Clicktivism. Clicktivism or slacktivism is “liking,” upvoting, or “following” an activist social media post or blog. Clicktivism signals endorsement of an existing post. While clicktivism indicates advocacy, it does not provide a voice to the participant to express original views (Kavada, 2015). Clicktivism allows individuals to demonstrate which causes or SMOs they advocate in a remote, detached manner. Anyone may use this technology and they may use it anywhere, as long as they have a social media account, a computer, tablet, or smartphone, and internet access, therefore, it requires few digital resources. It is considered one of the lowest forms of engagement because it is noncommittal and impersonal (Majchrzak et al., 2013). Yet at the organizational level, large volumes of clicks and likes can lend legitimacy, validation, and authority to a cause (Baym, 2013).

3.2.1.2. Metavoicing. Metavoicing is sharing, retweeting, reposting, and commenting on a social media post created by another. First described by Majchrzak et al. (2013), metavoicing encompasses the internet's “echo chamber.” Metavoicing reinforces ideas, values,

Table 3
Digital spectator activities.

Activities	Definition	References
Clicktivism	Liking, upvoting, or following.	Baym, 2013; Kavada, 2015; Majchrzak et al., 2013
Metavoicing	Sharing, retweeting, reposting, & commenting.	Kane, Johnson, & Majchrzak, 2014; Katona, Zubcsek, & Sarvary, 2011; Majchrzak et al., 2013
Assertion	Content creation.	Lovejoy, Waters, & Saxton, 2012; Macintosh, 2004; Selander & Jarvenpaa, 2016

and information through reactions to others. Metavoicing is found in retweets, SNS sharing, and commenting on online community or SNS posts. Unlike Majchrzak et al., who include clicktivism in metavoicing (as a form of response to others), we relegate these lower level activities to clicktivism because minor technological differences, such as the difference between "liking" and retweeting, may result in different outcomes (Kane, Alavi, Labianca, & Borgatti, 2014) and demonstrate a slightly higher degree of effort and commitment. Metavoicing impact is dependent on the size of participants' social networks and who those networks are comprised of. For example, if one's social network is small or if it is comprised of clicktivists, the message will not go far. However, if social networks are large, not only will messages go farther, but there is a greater chance that an influencer may be part of the network. Influencers are individuals with particular validity or authority on social networks and they are important because if an influencer supports something, then followers are more likely to support it, as well (Katona et al., 2011). Last, commenting is a form of original content with the potential of enhancing a post through clever or engaging commentary. But commenting may also cast a post in poor light if it is poorly written, criticizes, or uses the original post to promote a cause or beliefs that are further removed from the original cause.

3.2.1.3. Assertion. This action describes social media content creation. It informs others via video, audio, image, or text media. Assertion activities range from original social media posts or tweets, sending original digital communications to representatives, and engaging in government e-participation. Nearly anyone with digital access can perform assertions, although relatively few make the effort. The resources required are relatively low, albeit higher than clicktivism or metavoicing, but it does require more skills than hitting a "like" button or retweeting a meme. The potential impact varies depending upon the context. Assertion is likely an undervalued activity because SMOs rarely utilize it to its potential. SMOs and even government e-participation programs tend to adopt a top-down message delivery strategy instead of engaging citizens in two-way communications (Lovejoy et al., 2012; Macintosh, 2004). However, when assertion is encouraged, there is always a potential for contributors to stray from the established SMO message (Selander & Jarvenpaa, 2016).

3.2.2. Digital transitional activities

Transitional activities fall between spectator and gladiatorial. They require more resources than spectator activities and typically provide a stronger impact yet fall short of gladiatorial activities. Transitional activities are exemplified by political consumerism, digital petitions, botivism, and e-funding. Digital transitional activities are summarized in Table 4.

3.2.2.1. Political consumerism. Political consumerists support their views through purchasing habits that allow them to financially support a business that agrees with their views (buycotting) while boycotting firms that promote dissenting views (Teorell et al., 2007; Newman & Bartels, 2011; Webb & Mohr, 1998). While political consumerism has a parallel offline counterpart, the digital version is enacted via social media and SMO websites or through mobile applications exemplified by 2nd Vote (Becker & Copeland, 2016). 2nd Vote is a mobile app with a self-stated conservative bent that permits users to research companies to find out where they stand on issues, as well as a feature to research causes and locate companies that support or refute them (2nd Vote, 2018). Anyone who makes purchases and uses a smartphone can use these technologies to determine if a company meets his/her personal criteria. The action is performed at a place of business or via e-commerce transaction. The effort for the individual is medium and requires remembering to use the app or research the seller prior to purchase. The impact varies depending on volume and the price of the purchases (Newman & Bartels, 2011) but the greatest value of political consumerism may be promotional when boycotts and buycotts go viral on social media. Political consumerism seeks to influence the political stance or activities of commercial organizations while reinforcing SMO values.

3.2.2.2. Digital petitions. The digital petition is an online government petition concept created by the US Obama Administration in 2011, and which spread to other democracies, such as the United Kingdom (**www.petitions.whitehouse.gov**, 2017; www.petition.parliament.uk, 2018). Digital petitions mandate a guaranteed response if a minimum number of signatures is met. Enacted via the Whitehouse website *We the People*, the Whitehouse Petition allows citizens to submit a petition. If the petition gathers 100,000 signatures within 30 days, the administration must respond to the petition. The UK petition offers a three-step process. First, a citizen

Table 4
Digital transitional activities.

Activity	Definition	References
Political consumerism	Consumer purchasing that is aligned with the purchaser's politics, as executed through phone apps.	Teorell, Torcal, & Montero, 2007; Newman & Bartels, 2011; Webb & Mohr, 1998
Digital petitions	Online government petitions for citizens to request review of an issue.	Campbell, Lambright, & Wells, 2014; Carpenter, 2016; www.petitions.whitehouse.gov, 2017; www.petition.parliament.uk, 2018
Botivism	A virtual activist; a robot that operates in social media social activism environments.	Dewey, 2016; Salge & Karahanna, 2018; Savage, Monroy-Hernández, & Hollerer, 2016; Savage, 2017
E-funding	Use of technology to generate revenue for a cause.	Brenig, Accorsi, & Müller, 2015; Constantinides et al., 2018; Janze, 2017; Morisse, 2015; Pozzebon, Cunha, & Coelho, 2016; Selander & Jarvenpaa, 2016; Young, 2018

creates a petition and aligns five supporters to sign for the petition to be published online. After the petition is published, it must garner 10,000 signatures for a guaranteed response from the government. At 100,000 signatures, a petition may be tapped for debate in Parliament. Members of Parliament also have the ability to select any petition with any number of signatures if they feel it is of interest to discuss or respond to. Generally, only citizens may create petitions. In the US, non-citizens may sign but not in the UK. The effort expended on the petitions is medium because the originator must first create the petition, then gather enough signatures, and the impact is medium because it only guarantees a response, not what that response might entail. However, the resources required are higher than one would expect because of the number of signatures. Such a requirement demands social media, communications, and networking assets. The petition's impact is somewhat mitigated by uncertainty of how the government will respond (Campbell et al., 2014). The digital petition forces action and thus has a greater impact than previously discussed actions. Yet there are other intrinsic benefits to digital petitions: they can add numbers to a movement because those who sign it have been recruited to the cause with relatively little effort (Carpenter, 2016; Elnoshokaty, Deng, & Kwak, 2016).

3.2.2.3. Botivism. A botivist is a virtual activist. The term (combined from bot and activist) describes the use of bots (automated digital actions or digital robots) for SMO communications. For example, a botivist may prod participants towards political action or may respond to online trolling in social media venues (Salge & Karahanna, 2018). A botivist may issue calls to action, reinforce values, ask for funds, communicate news, or leverage a group's efforts for greater impact (Savage et al., 2016). A few examples include *101-a-tron* and *Stay Woke Bot*. *101-a-tron* provides very basic (i.e. 101 level) information about feminist issues and *Stay Woke Bot* provides automated explanations about racism on Twitter (Boingboing.net, 2015; Dewey, 2016). The US government is investigating bot use for auditing online forums and mitigating bad online manners by “fighting online trolls” (Savage, 2017). *Botivist* is also the name of a digital platform utilizing Twitter bots to boost financial contributions and recruit members for SMOs (Savage et al., 2016). One of the greatest concerns about bots is how individuals often believe that bot posts and retweets are generated by real people. In their study of the bots discovered in the 2013 Brazilian Mensalão anti-corruption protests on Twitter, Salge and Karahanna (2018) found that bots can be central actors in social network political activities with few participants comprehending that the bots were not human. One of the newest gadgets in the digital repertoire toolbox, botivism is a term coined by Saiph Savage in 2015. This digital innovation has garnered interest in both the popular press and with academics (Dewey, 2016; Emanuel, Fischer, Ju, & Savage, 2016; Salge & Karahanna, 2018) and in industry (Savage et al., 2016). Bots typically require a medium amount of resources to employ, because simple coding and/or configuration may be necessary. Beyond that, botivists are virtual and require relatively little effort compared to human counterparts. Botivism seeks to influence and increase awareness of issues. Overall, bots provide a powerful tool that offers tremendous potential in exchange for mid-level IS skills and effort.

3.2.2.4. E-funding. In traditional activism one can write a check to fund a cause, attend a fund-raising dinner, or even purchase a box of cookies. In terms of digital activism, however, we define e-funding as using technology to provide revenue for a cause. E-funding includes a wide range of revenue generating options, starting with simple donation buttons on websites that provide direct monetary contributions. But e-funding goes well beyond that to include donations of cryptocurrencies (Pozzebon et al., 2016), website retail click-throughs that give a portion of sales to the referring organization, online benefit auctions or other creative sales opportunities (Young, 2018), or even loans of personal computing power for cryptocurrency mining operations. For organizations with less concern for the law, hacking of financial institutions or personal financial accounts, ransomware, and cryptocurrency mining malware can provide funding sources. Funding actions are triggered by an event or policy requiring money and are enacted via e-commerce. There are various requirements needed for e-funding depending on the type. Donations, click-through purchases, and buying online from online fundraising auctions require the financial means to pay (having the money and an e-commerce payment option – PayPal, credit card, etc.) and a device. *E*-funding is also impersonal because an online donation does not require deep commitment (Selander & Jarvenpaa, 2016). The potential impact on an organization or cause may be low for most digital donations, because very large donations are generally managed on an individual personal basis. The resources required for e-funding are medium because donors must have the financial means to act. E-funding is not direct action, however, because funds are used to influence others. Cryptocurrencies provide new opportunities for innovative e-funding that go far beyond more traditional e-funding options. Cryptocurrencies are virtual, decentralized payment systems that utilize cryptography and peer-to-peer networks, thus enabling fast and anonymous money transfers across a range of environments, including the dark web (Brenig et al., 2015; Constantinides et al., 2018; Janze, 2017; Morisse, 2015). Funds can be created, managed, and spent via cryptocurrency through several means, including money laundering (Brenig et al., 2015), anonymous transactions and darkweb market product or service acquisitions (Janze, 2017), and intentional or unintentional cryptocurrency mining (Constantinides et al., 2018).

3.2.3. Digital gladiatorial activities

Gladiatorial activities embody direct action. Participants do not seek to influence change; they make the change. Some are part of organized groups while others serve in a loose confederation or strike out on their own. Traditional gladiatorial activities tend to focus on political parties and candidacy; however, digital gladiatorial activities are markedly *not* party-centric. Performed by loose coalitions that take matters into their own hands, these activities have the potential for major impacts on society, governments, and organizations. In digital activism, gladiatorial activities include data activism, exposure, and hacktivism. Digital gladiatorial activities are summarized in Table 5.

3.2.3.1. Data activism. The term *data activism* in general covers several streams of political activity and social activism, some more passive and some more active. One form of data activism is a general movement to promote greater individual power over data held

Table 5
Digital gladiatorial activities.

Activity	Definition	References
Data activism	Promotes greater individual power over data held by others, & includes activities in open government data, data rescue, civic data hacking, & data philanthropy.	Baack, 2015; Elmer, Langlois, & Redden, 2015; Kirkpatrick, 2011; Milan & van der Velden, 2016; Schrock, 2016
Exposure	Unauthorized dissemination of confidential information, also known as a leak.	Benkler, 2011; Coleman, 2011; Tufekci, 2014
Hacktivism	Hacking to achieve social action or political objectives.	Coleman, 2011; Dahan, 2013; Denning, 2001; Johnson & Robinson, 2014; Jordan, 2002; Sauter, 2013;

by others, notably data possessed by large organizations such as Facebook, Google, and Amazon, as well as that held by governments (Elmer et al., 2015; Milan & van der Velden, 2016; Schrock, 2016). Another branch of data activism focuses on data philanthropy, or gifts of data, data scientists and analysts, and related technologies. Data philanthropy has recently been hailed as valuable tool for improving social welfare, including balancing social inequities, improving the environment, and fighting injustice ("Data for Climate Action Challenge,", 2017; Kirkpatrick, 2011). Data philanthropy provides benefits on specific projects and also for the general improvement of nonprofit organizations when organizational staff is taught how to use data for decision making and strategic planning. A third area of data activism concerns open data, and this is where we find substantial gladiatorial activities. In open data activism, volunteers rescue, preserve, and promote open data to protect open government (Baack, 2015; Schrock, 2016). It is triggered when closed governments refuse to share data or when open government is threatened by the removal of open data. It is enacted by building repositories, sharing data, copying open datasets via scripts, screen scrapes, bots, or manually copying data. It often involves data cleaning and data wrangling into machine readable format and uploading to an open data repository (Baack, 2015). Open data activism exploded in 2017 because of unprecedented data removal, redactions, and discontinuation of support from the US federal government (Data.gov, 2018; USDA.gov; Wadman, 2017; Whitehouse.gov, 2017). The increase in open data activism has largely gone unnoticed by those outside of data science and research fields, but activist efforts have risen as numerous data rescue and civic hackathons filled the 2017 calendar (**http://datafordemocracy.org** 2017; **https://www.datarefuge.org** 2017; **http://opendataday.org** 2017).

Participation in data activism is often limited to those with data science and analysis skills (Baack, 2015). Lending itself to virtual tasks, data activism may be performed anywhere. It may be performed by individuals but also lends itself to large groups such as organized civic hackathons with hundreds of participants. The effort is high, and resources are high because data activities require specialized technologies for working with data, including querying and semantic web tools, SPARQL, JSON, or R, as well as the considerable skills people need to use these tools. Working with data also requires storage and computing power. The potential impact is fairly high and affects citizens, governments, researchers, journalists, and academics (Milan & van der Velden, 2016). However, the impact may vary due to variances in people's skills, which technologies are accessible, and the quality and availability of the data. Data activists actually change government data, IS structures, and systems, opening data for public usage, which is direct action (Schrock, 2016). While most data activists are sanctioned by the government, a number are not (such as the data rescue organizations who scrape and copy open data that is at risk for being redacted). It is direct action because they actually do something; data activists are not trying to influence decision makers (Milan & van der Velden, 2016; Schrock, 2016). They perform data work as volunteers for the public good.

3.2.3.2. Exposure. Exposure is the unauthorized dissemination of confidential information, also described as a leak (Coleman, 2011). It is enacted via WikiLeaks, the press, or social media. Actors are limited to those with access to confidential information, and exposure is often a result of hacktivism. Information gathering is performed within the organization that owns the information although sharing that information digitally may be done anywhere due to its virtual nature. The advent of cloud computing has made remote access to unauthorized content easier through hacking, as well as stolen log-in credentials. Unauthorized usage of information by authorized individuals, such as occurred in Edward Snow's leaks of US national secrets, is also a means for exposure. The resources and effort are high because the actor must have access and must be able to get the information out. Once information is in possession of the actor, sharing it is relatively easy via social network sites (SNS), the press, or WikiLeaks. The potential impact is high and may affect governments, citizens, and industry on multiple levels. The action is taken by individuals (who may or may not be directed by political or government organizations). Exposure may be considered a dangerous action (Tufekci, 2014). It may result in severe consequences for the actor which in turn raises the required resources and effort. Exposure is direct action, both in the acquisition and release of the content. Exposures are often troubling, stressful occurrences that create conflict in people (Benkler, 2011). That conflict may be beneficial or detrimental for SMOs depending on where they sit in regard to the exposure and the part they (publicly) played in the action. Citizens want to know if their government or cherished institutions are behaving unethically yet dumps of uncurated raw material can produce scary and confusing information that may be taken out of context. One of the most impactful of digital activism tools, exposure can produce tremendous benefits or great harm and provides little in the way of control. It drags down innocents along with the guilty.

3.2.3.3. Hacktivism. Hacktivism is hacking to achieve social or political objectives (Jordan, 2002). Hacktivists target governments, organizations, and individuals. Hacking is triggered by an event or policy or when one group appears to be gaining an advantage over another. It is enacted through computer code that exposes information, destroys data, or disrupts operations. Limited to those with coding and programming skills, hacktivism often incorporates security breaches (Coleman, 2011). Resource requirements are quite

high for hacktivists because of the required skill level and computer hardware. Political hackers typically act on "a much broader set of political interventions orchestrated by geeks and hackers" (Coleman, 2011). The potential impact is very high, and it may affect governments, citizens, and industry, on individual, organizational, and national levels. Unlike most other forms of digital activism which seek to influence action, hacktivism embodies direct action. Early hacktivist efforts such as those surrounding the war in Kosovo in the 1990s, sometimes described as the first war conducted online, brought every day IT into the political realm as participants shared tragedies and news or propaganda and smears, while hackers defaced and denied service to opposing government websites (Denning, 2001).

Hacktivists fall into three categories that we refer to as cyberterrorists, civic hackers, and patriotic hackers (Dahan, 2013; Denning, 2001; Johnson & Robinson, 2014; Sauter, 2013). Cyberterrorism is action enacted through hacking and other direct IS actions (Denning, 2001; Jordan & Taylor, 2004). It includes spreading viruses and malware, vandalizing websites, and performing denial of service (DOS) or botnet attacks among other activities (Goode, 2015). The second type of hacktivist includes civic hackers, loosely organized groups that perform IS actions such as building and updating digital systems for the good of the community and in a legal manner (Hunsinger & Schrock, 2016; Schrock, 2016). Last, the patriotic hacker focuses his or her efforts towards enemy countries and their citizens (Dahan, 2013). These hackers are not state sponsored, although they may see themselves as able to act where the state cannot. They are nationalistic and view themselves in a "cyber-militia" (Green, 2016).

4. Discussion

Returning to the literature, we performed further analysis to unpack relationships between the ten digital activism activities and impacts. This part of our analysis sheds light on the forms that digital activism takes, and the resources, effort, and means needed to participate. Our goal was also to understand how the various digital activism forms create impact. First, we separated the literature into two tables: 1) Empirical and Representative work and 2) Conceptual work. The Empirical and Representative table consists of 60 entries that are either empirical academic research or representative cases from the press, websites, or other real-world entities. Each work was analyzed with the type of activity from the hierarchy, a description of the activity in the context of the paper, and the activity's place in the hierarchy of digital activism. Each entry was then assigned a function that the activity served. The complete Empirical and Representative Literature table (Table 13) is located in the Appendix. We then broke out participants, SMOs, targeted individuals, and targeted organizations separately. The analysis revealed twenty functions that the ten activities served. These included affirming, legitimizing, creating, donating, designing, protecting, destroying, disrupting, appropriating, attacking, coercing, deceiving, concealing, commending, denouncing, exposing, reinforcing, repeating, communicating, and educating.

Next, we abstracted the functions into six mechanisms and associated the mechanisms with six impacts. The mechanisms include Identification, Construction, Aggression, Deception, Visibilization, and Amplification. The impacts we describe as Cognitive, Emotional, Financial, Operational, Reputational, and Power. Table 6 summarizes the activities and mechanisms and Table 7 describes the impacts. These are discussed in detail below. The Conceptual table (Table 14 in the Appendix) is comprised of 24 conceptual works from both academics and practitioners. The articles were analyzed for description and key points.

4.1. Functions and mechanisms

Functions are expressed through the activities. We separate functions from activities because an activity may serve different

Table 6
Functions & mechanisms.

Function	Description	Mechanisms
Affirming	Affirming one's relationship to the cause	Identification
Legitimizing	Validating the cause or SMO	
Creating	Building new systems or data	Construction
Donating	Gifting funds or other assets	
Designing	Designing structure and operations	
Protecting	Defending against adverse actions	
Destroying	Destroying or removing targeted assets such as systems or data	Aggression
Disrupting	Stopping or modifying target operations	
Appropriating	Taking targeted assets such as systems or data	
Attacking	Attacking with intent to harm	
Coercing	Forcing compliance	
Deceiving	Being misled or misleading others	Deception
Concealing	Hiding information	
Commending	Communicating positively	Visibilization
Denouncing	Communicating negatively	
Exposing	Revealing information	
Reinforcing	Bolstering existing values	Amplification
Repeating	Making the cause heard through repetition	
Communicating	Informing people or groups	
Educating	Explaining to increase understanding	

Table 7
Impacts of digital activism.

Impacts	Definition	Social movement		Target	
		Participant	SMO	Individual	Organization
Cognitive	Influences perspective	Convinces an individual through logic & facts.	NA	Makes the target rethink their stance on an issue.	NA
Emotional	Elicits an emotional response	Impacts an individual's feelings	NA	Impacts an individual's feelings	NA
Financial	Changes revenues & costs	Individuals gain, lose, or give money	The SMO gains or loses money	Individuals gain or lose money	The target gains or loses money
Operational	Changes the functionality of the entity	How the participant goes about daily life	How the SMO conducts business	How the targeted individual goes about daily life	How the target org conducts business
Reputational	Influences public view & awareness	Impacts personal reputation	Impacts the reputation of the SMO & the cause	Impacts personal reputation	Impacts the reputation of the target
Power	Changes the level of control	Individuals gain or lose control over their actions	SMOs gain or lose control over participants	Targets gain or lose control over their actions	Targets gain or lose control over their domain

functions depending on the context, and this is how we extend the hierarchy from an individual unit of analysis to a multi-level framework. For example, posting negative content about a firm's political stance may affirm the participant's relationship to the cause, but may be considered attacking from the point of view of the firm under fire. The definitions of the twenty functions are included in Table 6 and are tied to their corresponding mechanisms.

The first mechanism is *Identification*, which includes the functions of affirming and legitimizing. The second mechanism is *Construction* and is about developing. It consists of creating, donating, designing, and protecting. The third mechanism is *Aggression* and covers functions that use force against opponents such as destroying, disrupting, appropriating, attacking, and coercing. The fourth mechanism is *Deception* which includes deceiving and concealing. *Visibilization* is the fifth mechanism, which means to make visible. It refers to bringing visibility to people, organizations, actions, and causes. It covers commending, denouncing, and exposing. The final mechanism is *Amplification,* which increases the volume of the collective voice of the cause. It encompasses the functions of reinforcing, repeating, communicating, and educating.

4.2. Impacts

The six impacts we identified from the literature include *Cognitive, Emotional, Financial, Operational, Reputational,* and *Control* as shown in Table 7. A cognitive impact is an individual level impact and influences one's perspective, causing the individual to be convinced or rethink their stance. Emotional impacts are also at the individual level and elicit emotional responses. Financial impacts occur to both individuals and organizations and result in monetary gain or loss. Operational impacts change the functionality or efficiency of the organization or how they do business, but also impact individuals' daily lives. Reputational impacts affect both individuals and organizations. They result in fame or ignominy and bring the subject before public judgement. The last impact is Power. It refers to the level of authority and control exerted or experienced by the individual or organization.

In the next step of our analysis, we examined the functions, mechanisms, and impacts in each of the 60 empirical/representative papers to identify relationships. The following example illustrates how we assessed the activities, functions, mechanisms, and impacts. Looking at Denning, 2001 (Paper #16 in the Empirical and Representative Table 13 in the Appendix), we examined the Kosovo war on the internet (1998–99), which was one of the first to use online propaganda, shared personal horror stories, and spreading information about the war to a wider, international audience. We categorized the activity as metavoicing and assertion because the paper is primarily focused on content creation and the dissemination of that content. We placed the paper's activities in the Spectator tier of the hierarchy. For individual participants, the activities served to communicate and they elicited an emotional response. For the SMO, the activities served to legitimize the people's cause and impacted the SMO reputation. The targeted individual in this case was Milosevic, whose personal atrocities were exposed to the world. The function of the digital activities was exposing his actions and it impacted his personal reputation. Last, regime atrocities were also exposed, which is the targeted organization aspect of this article. The function against the targeted organization was also exposing and the impact was reputational. This case is unique in that it possessed all four types; social movement individuals and organizations and targeted individuals and organizations. Most of the papers in our list of sixty focused on participants and SMOs. Half of the papers identified targeted organizations and a quarter identified targeted individuals. In the next section, we aggregate papers in each of the digital activism hierarchy tiers (spectator, transitional, and gladiatorial) and describe the mechanisms linking activities to outcomes.

4.2.1. Spectator mechanisms and impacts

As shown in Table 8, the most common mechanism linking spectator activities to outcomes experienced by participants is amplification. Amplification creates primarily emotional impacts for participants, with some cognitive impacts to a lesser degree. The most viral posts and tweets are those that arouse emotion, such as the plight of sea animals after an oil spill (Bennett & Segerberg, 2012; Vaast et al., 2017). For SMOs, however, the major outcomes of spectator activities are operational, occurring via the mechanism of construction. SMOs benefit from the efficiencies arising from digital technologies enabling the rapid assembly of people joined by conviction to a social cause. Examples include the fast organization and large turnouts seen in such varied movements as 15 M, Occupy Wall Street, and Arab Spring (Agarwal & Dhar, 2014; Bennett & Segerberg, 2012; Anduiza et al., 2014). In the case of SMOs, amplification mechanisms largely affect reputational impacts, and in a positive direction. As seen in Table 8, targeted organizations experience a variety of impacts from a variety of mechanisms. Reputation is the most common outcome followed by

Table 8
Spectator mechanisms & impacts with paper count.

Participant mechanism impact	#	SMO mechanism impact	#	Target individual mechanism impact	#	Target org mechanism impact	#
Amplification cognitive	4	Amplification operational	6	Aggression emotional	1	Aggression operational	2
Amplification emotional	20	Amplification power	1	Aggression financial	1	Aggression power	1
Construction cognitive	2	Amplification reputational	1	Aggression operational	1	Amplification operational	1
Construction emotional	1	Construction operational	17	Amplification cognitive	1	Amplification reputational	1
Deception cognitive	1	Construction power	1	Amplification operational	1	Construction reputational	2
Deception emotional	1	Construction reputational	1	Visibilization cognitive	1	Identification operational	1
Visibilization cognitive	1	Identification operational	2	Visibilization reputational	2	Visibilization operational	1
Visibilization emotional	1	Identification reputational	5	Identification cognitive	1	Visibilization reputational	3
Total	31		34		9		12

Table 9
Transitional mechanisms & impacts with paper count.

Participant mechanism impact	#	SMO mechanism impact	#	Target individual mechanism impact	#	Target org mechanism impact	#
Amplification cognitive	2	Construction operational	2	Amplification financial	1	Amplification financial	1
Amplification emotional	2	Construction financial	4			Amplification financial	1
Construction financial	2	Amplification operational	1				
Identification financial	2	Amplification reputational	1				
Total	8		8		1		2

operational. In contrast to SMOs, these effects are mostly negative with reputations suffering and operations being disrupted. Visibilization, amplification, and aggression are the most widely observed mechanisms linking digital activism to organizational impacts. In general, visibilization appears to be the strongest mechanism and the greatest impacts appear to be reputational. This is exemplified in viral social media posts about target organization actions and events. An example is the case of innocent black men arrested at a Philadelphia Starbucks, the hundreds of negative Yelp reviews given to Starbucks following the event, the subsequent firing of the Starbucks manager, and the nationwide store closure for racial sensitivity training (Disis, 2018; Hauser, 2018; Yelp, 2018a, 2018b). It is important to note that reputational consequences may work both ways – certain segments of the population that identify with the cause may view the organization negatively as a result of the information revealed through visibilization whereas other segments of the population might side with the organization.

Lastly, as seen in Table 8, individuals may also be the targets of spectator activities. There is no clear pattern of outcomes or mechanisms in the case of individuals as targets. We see evidence of aggression, visibilization, amplification and identification as mechanisms creating outcomes a variety of outcomes – emotional, financial, operational, reputational, and cognitive. We posit that because targeting individuals is not a common practice in social activism, there are few precedents to follow, thus a variety of methods are attempted with varying results. An example of individuals targeted by spectator activities is botivism, where bots search out racism on social media and respond to it (Boingboing.net, 2015). However, actions targeting individuals is neither always benign nor objective, and it is troubling that individuals are being targeted at all. We wonder at what point digital activism against individuals become cyberbullying.

4.2.2. Transitional mechanisms and impacts

Table 9 depicts the mechanisms linking transitional activities to outcomes. Transitional activities were less commonly reported than spectator or gladiator activities. We observe no strong pattern regarding outcomes across the major stakeholders (e.g., the participants, SMOs, and organizations). Participants experienced financial, emotional, and cognitive outcomes through the mechanisms of amplification, constructions, and identification. This is a manifestation of the "hearts and minds" concept of earlier social movement literature where a social movement wins over both logic and feelings for the participant (McCarthy & Zald, 1973; Snow et al., 2004). The mechanism of construction appears dominant in linking transitional activities to operational and financial outcomes for SMOs. Organizations and individuals are rarely the target of transitional digital activism.

4.2.3. Gladiatorial mechanisms and impacts

We find considerable variability across stakeholders when it comes to gladiatorial activities. As seen in Table 10, Participants experience mostly emotional and cognitive outcomes but unlike with the spectator and transitional activities, these outcomes are generated mostly through aggression and construction mechanisms rather than through amplification. This is not surprising in the sense that gladiatorial activities are more active than spectator activities. These same mechanisms are shown to generate operational

Table 10
Gladiatorial mechanisms & impacts with paper count.

Participant mechanism/impact	#	SMO mechanism/impact	#	Target individual mechanism/impact	#	Target org mechanism/impact	#
Aggression cognitive	1	Aggression operational	3	Aggression emotional	1	Aggression financial	1
Deception cognitive	1	Aggression power	1	Amplification cognitive	1	Aggression operational	1
Construction cognitive	1	Amplification power	1	Deception reputational	1	Aggression power	5
Construction emotional	6	Amplification reputational	6	Visibilization reputational	1	Aggression reputational	1
Construction reputational	1	Construction operational	3			Amplification operational	1
Aggression emotional	4	Construction power	1			Construction operational	5
Aggression power	1	Construction reputational	1			Deception reputational	1
Visibilization emotional	1	Deception operational	1			Visibilization reputational	2
Construction cognitive	1	Identification reputational	1				
Amplification emotional	1	Visibilization reputational	1				
Total	18		19		4		17

and power outcomes for SMOs. We observed 4 cases where individuals were the targets of gladiatorial activities, suffering emotional and reputational damage as a result. Mostly, gladiatorial activities target organizations, with 17 such instances observed in the sample of readings. Disruptions to operations, loss of power (in the form of control over information about the organization and the consequent loss of control over the storyline), and reputational damage were the prevalent outcomes and these were tied to the mechanisms of aggression, construction, visibilization, and amplification, in that order.

4.3. Implications

Taking the above findings together, we now highlight four major implications and offer four meta-conjectures that we believe are ripe areas for further research and theorization.

Across the three digital activism levels, emotional outcomes for participants emerged as the single biggest impact of participation in digital activism. This was fueled largely by the amplification mechanism at the spectator level – the entry level of digital activism – and reinforced by the construction and aggression mechanisms at the gladiatorial level. Whereas prior research has shown that positive and negative emotions can influence IS use (Beaudry & Pinsonneault, 2010; Koch, Gonzalez, & Leidner, 2012), our review indicates that emotion goes beyond influencing use to connecting individuals via their use of technology, in this case, digital activism technologies. The social movement literature commonly states that social movements must have a shared purpose or cause (McCarthy & Zald, 1973; Tilly & Wood, 2015). Based on our review of the literature, we suggest that digital activism, particularly spectator activity, provides a means for participants to organize around emotion. There is likely a virtuous, or vicious as the case may be, cycle at play wherein emotional connection to an event or issue draws individuals to become spectator activists and their participation then reinforces or strengthens their emotions through the mechanism of amplification as they connect to others who share the emotions. Over time and as the emotions are further amplified across time and place, it is plausible that participants lose sight of the original issue that brought them together and yet continue as activists with a shared emotion but without a shared common goal. We see evidence of this in such recent movements as the 2018 French yellow vest movement that started out as a protest against a controversial fuel tax. However, after the fuel tax was repealed, yellow vest protesters continued and expanded into a general movement containing elements of both the left and right side of the political fence. The movement centered on anger fueled by high costs of living and heavy taxation on middle and lower classes. The yellow vest movement has no clear stated identity or cause but is focused on dissatisfaction and anger which are expressed through demonstrations, violence, and destruction of property (BBC, 2018; Donadio, 2019). When digital activism bonds individuals based on shared emotion without necessarily a shared common goal, we refer to it as connective emotion. In Fig. 4, we show how connective emotion relates to the other forms of social activism that were presented in Table 1. Based on the above discussion, we offer the following meta-conjecture:

Meta-Conjecture 1. The greater the sense of shared emotion generated through the mechanism of amplification, the greater the potential for the movement to continue as one of connective emotion without a shared purpose.

For SMOs, across the three digital activism levels, we found improved operations followed by positive reputation to be the most

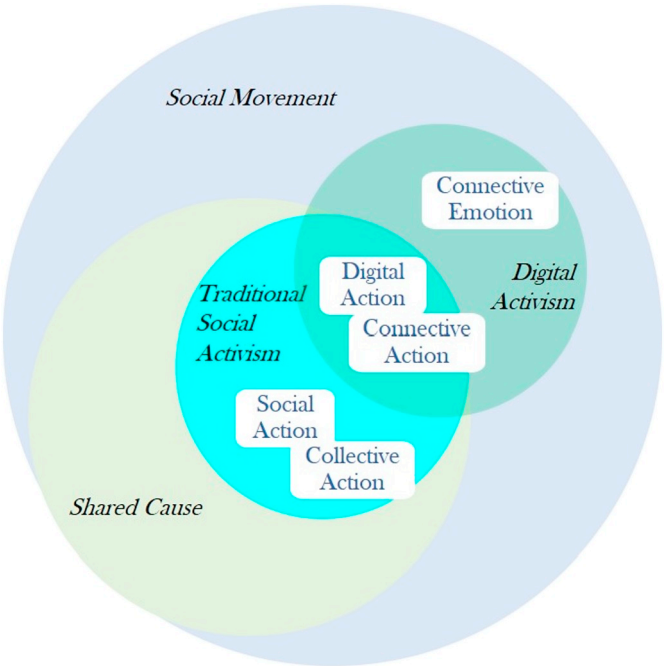

Fig. 4. Social movements & actions.

common outcomes. SMOs reap the benefits of fast and widespread organization of events such as the Women's March or recruiting new members such as #MeToo (https://metoomvmt.org, 2019; #MeToo, 2019; womensmarch.com, 2019). Transitional activities, in particular, favored SMOs. The mechanism of amplification brought positive benefits to SMOs in the form of highlighting the organization and the cause. We see this demonstrated with open data hackathons and with Wikileaks exposures of confidential information. We caution that even as the organizations that activists target are vulnerable to reputational damage from exposure of organizational practices, so too might powerful SMOs themselves become targets of activists should their practices or leaders engage in controversial behaviors. Absent in the literature is a discussion of how SMO activity affects bystanders. Bystanders are neither participants nor targets, but they too might experience emotional and other outcomes from digital activism. Also absent is a consideration of the possibility that not all SMOs are built around well-grounded causes. In creating an "us versus them" mentality, SMOs risk creating counter social movements. Given the low effort and resources required to participate in spectator activities, it is plausible that more social movements will arise, linking individuals not so much to a cause as against a cause. This might be termed digital anti-activism, binding individuals via a shared negative emotion towards a cause being pushed by other activists. We offer our second meta-conjecture for future research and theorizing:

Meta-Conjecture 2. As the resources and effort required for digital activism decrease, cycles of digital activism and digital anti-activism will arise.

For organizations targeted by social activism, the most severe outcomes – major operational disruptions and financial losses – are rare and only likely to result from gladiatorial activities, such as Anonymous DDOS attacks or hackathons, those requiring the most skill and effort to effectuate. Reputational impacts are more likely as activists decry organizations for perceived injustices, such as the Starbucks incident in Philadelphia we referenced earlier. The challenge for organizations is to be prepared to respond quickly if they do become the target of digital activists. Most organizations have plans in place to respond to cybersecurity threats (Coleman, 2011; Denning, 2001), but few organizations may have strategized around responses to digital activism. Given the unpredictability of when, how, and why an organization might become a target of digital activism, as well as the speed with which amplification arouses the emotion of activists, organizations must learn to respond to digital activism as early in the stage of a movement as possible in order to limit damages. In line with this discussion, we offer our third meta-conjecture:

Meta-Conjecture 3. Organizations that are quickly able to improvise in response to digital activism, particularly those using aggression, amplification, and visibilization as mechanisms, will experience less damage to operations and reputation than those who are slow to improvise.

Our fourth and final major implication concerns individuals targeted by social activism. As noted earlier, we find it troubling that participants and SMOs target individuals in the name of a social movement. We noted 14 incidents where individuals were the targets. We refer to individual on individual activism under the backdrop of a social movement as micro-activism (see also Bedeley et al., forthcoming). In cases where individuals are supporting other individuals whom they believe have been poorly treated – such as many of the #MeToo women's cases - such micro-activism may have positive outcomes. Yet there is a very fine line between targeting individuals and such nefarious behaviors as cyberbullying. An example of micro-activism is the case of Dr. Tigges of Plano, Texas, who posted online comments about women working in the medical field. The posts were quickly pounced on by women's rights proponents and resulted in a flurry of social media posts and negative reviews about the doctor. Dr. Tigges was forced to resign his post on the executive committee of Texas Health Plano's medical board and as chair of the hospital's credentialing committee as a result of the personal attacks. Those posting against the doctor justified their behavior as supporting women's rights (Ramirez, 2018). This raises two concerns. First, such behaviors which began as an expression of support for women's rights quickly escalated into cyberbullying against an individual, both damaging the individual and potentially damaging the reputation of the cause. Second, we wonder where the line is drawn between personal animosity and true political action. We believe that micro-activism, expressed through digital activism, is an area ripe for additional research (Bedeley et al., forthcoming). Individuals targeted by digital activism are the most vulnerable. They may lose jobs, lose social standing, and find themselves ostracized from society. Because of the sensationalization of stories in the news, often missing important points of context, individuals might find themselves unwitting targets of individual activists who read a news story in the traditional media and then ignite, intentionally or unintentionally, a campaign against an individual. As with criminal and civil justice, taking social justice into one's own hands may be ill-advised and bordering on vigilantism. We suggest our fourth and final meta-conjecture for future research and theorizing:

Meta-Conjecture 4. Through the mechanism of amplification, individuals targeted by micro-activists will suffer significant social and mental anguish.

5. Conclusion

Digital activism is still in its infancy, or perhaps it is now a raucous teenager. In its short existence, it has enjoyed an unprecedented trajectory compared to social activism of the past, bringing in more participants, employing more tools, and creating impacts that change the course of elections, start wars, and destroy businesses. This work examines digital activism through an

exploratory review of 84 papers, articles, websites, blogs, and other media drawn from academia, government, and the press. Like most scholars, we attempted to be as thorough as possible, therefore we identify several limitations to this study. First, digital activism is constantly changing, therefore, we can only offer current representative activities instead of a comprehensive list. Hopefully scholars will see fit to add to the list as time goes on, as our conceptualizations are not mutually exclusive nor collectively exhaustive. Second, because the field is new and little empirical research is available, we pulled from conceptual and representative works to fill in the blanks. After such time that more empirical work is available, a traditional literature review would be of value to scholars. Third, this work pulls from many disparate fields in order to provide a broad perspective (Webster & Watson, 2002). Although we write from an information systems foundation, we attempt to provide an interdisciplinary view. It is likely that different aspects of the paper may appeal to some groups more than others. We hope this stimulates a conversation between these fields. Last, this research is interpretive in nature. Other researchers using a different lens may find substantially different results from the data. We welcome such attention to the burgeoning field of digital activism.

As digitization has disrupted industry and organizations, it has also disrupted political activism. Future research in this area might explore the phenomenon in empirical studies. Qualitative research exploring the activities of specific groups or quantitative research that sifts through the enormous repositories of social media data could enhance our understanding of this topic. New activities are likely to appear in the near future as nascent technologies and applications emerge. We anticipate that new activities will fit into one of the existing constructs, although completely new innovations are certainly possible and to be expected at some point in time. Our propositions suggest that certain mechanisms influence certain impacts, however, some SMOs are more successful than others at creating the underlying processes to achieve this. Future research is needed to explore how to activate digital activism mechanisms in such a way as to influence the desired outcomes. We also note that the digital activism literature may provide a rosier picture than the reality of using digital activism. Future research that takes a critical view would be an interesting contribution to the topic. Undoubtedly things will change as both technology and society evolve, but we hope this research will provide scholars with a foundation for future work.

Declaration of interest

This paper has been developed from two previous works: Digital Activism: a hierarchy of political participation, which was a paper accepted at HICSS 2018, and the original short paper presented at the Big XII + MIS Symposium 2017.

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Appendix A

Table 11
Constructs for the hierarchy of digital activism.

Activity	Construct	Definition
Spectator • Highest volume of activity • Low effort • Low resources	*Clicktivism*	"Liking" or following on social media to show support.
	Metavoicing	Retweeting or forwarding a social media post.
	Assertion	Creating an original statement of support on social media.
Transitional • Medium volume of activity • Medium resources	*Political consumerism*	Use of digital apps to evaluate sellers to ensure that buyers only support companies that agree with their personal values.
	Digital petitions	Digital petitions, particularly that used by Whitehouse.gov in the US. Provide a guaranteed written government response to the request when a minimum number of supporters sign the petition.
	E-funding	Digital funding, donations, & revenue generation, including direct donations, click-through sales revenues, funds from digital events such as online auctions, cryptocurrency mining, ransomware
	Botivism	Use of automated digital actions or digital robots (bots) for political communications, typically used on social media.
Gladiatorial • Low volume of activity • High resources • High impact	*Data activism*	Promotion of ethical data usage, data philanthropy, & open data expansion by individuals, organizations, governments, & NGOs.
	Exposure	The unauthorized release of confidential information on governments, organizations, or individuals.
	Hacktivism	Computer hacking to achieve political objectives is enacted through computer code that exposes/damages data or disrupts operations, such as distributed denial of service attacks.

Table 12
Aggregate mechanisms & impacts.

Participant mechanisms	#	Participant impacts	#	SMO mechanisms	#	SMO impacts	#	Target individual mechanisms	#	Target individual impacts	#	Target organizational mechanisms	#	Target organizational impacts	#
Amplification	28	Emotional	36	Construction	30	Operational	35	Amplification	5	Reputational	5	Aggression	11	Operational	11
Construction	14	Cognitive	14	Amplification	16	Reputational	17	Aggression	4	Cognitive	4	Construction	7	Reputational	11
Aggression	6	Financial	4	Identification	8	Financial	4	Visibilization	4	Emotional	2	Visibilization	6	Power	6
Deception	3	Power	1	Aggression	4	Power	4	Deception	1	Operational	2	Amplification	4	Financial	2
Visibilization	3	Reputational	1	Deception	1			Identification	1			Deception	1		
Identification	2			Visibilization	1							Identification	1		

Table 13
Empirical & representative papers.

Author/date	Title	Description of digital activities	Digital activity type	Hierarchy	Social movement		Target	
					Participant	SMO	Individual	Organizational
					Function	Function	Function	Function
					Impact	Impact	Impact	Impact
2nd Vote, 2018	2ndvote.com	App that allows users to support companies that align with their own political view. 2nd Vote is a "conservative watchdog for corporate activism," organizations are scored from 1 to 5, 1 indicating direct support for liberal orgs, 2 indirect support for liberal orgs, 3 neutrality, 4 indirect support for conservative orgs, & 5 direct support for conservative orgs.	Political consumerism	Spectator	Individuals access political information on companies to inform their purchase decisions to buycott (purchasing from a company whose viewpoints one supports) or boycott (avoid companies whose viewpoints one opposes).	The activity sustains SMO values.	NA	Loss or gain of customers that agree or disagree with the company's stance on a cause. Also customers will identify a company with a cause whether or not the company agrees.
					Repeating	Reinforcing	Repeating	Repeating
					Emotional	Operational	Financial	Financial
Alfonso, 2017	Austin bakery becomes hotbed for gun rights debate	A customer wearing a concealed handgun was asked to leave a bakery in accordance to their legal posted signage regarding weapons on the premises. The customer was removed & mentioned it on social media. Others supporting the customer then took to social media & review sites to inflict harm on the bakery, eventually causing them to remove their Facebook page.	Clicktivism, metavoicing, assertion	Spectator	The individual was supported through pro-gun solidarity.	The SMO was validated by the bakery's action, which they interpreted as anti-2nd Amendment forces were against them.	NA	The bakery experienced loss of reputation through the barrage of hate posts on their Facebook page.
					Repeating	Legitimizing		Denouncing
					Emotional	Reputational		Reputational

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Table 13 (*continued*)

Author/date	Title	Description of digital activities	Digital activity type	Hierarchy	Social movement		Target	
					Participant	SMO	Individual	Organizational
					Function	Function	Function	Function
					Impact	Impact	Impact	Impact
Anduiza, Cristancho, & Sabucedo, 2014	Mobilization through online social networks: the political protest of the indignados in Spain	15 M anti-austerity movement in Spain was one of the first major demonstrations to be mobilized through digital action. The authors use Connective Action (Bennett and Segerberg, 2012) as their lens: "…Intensive mobilization in digital media, & particularly social networks, managed to channel collective outrage through many small organizations with little resources or mobilization experience in this type of massive protests."	Clicktivism, metavoicing, assertion	Spectator	Individuals were able to find & collaborate with like-minded others. Repeating Emotional	15 M was able to mobilize large numbers of participants very quickly. Designing Operational	NA Disrupting Operational	Government activities were obstructed, unethical behaviors exposed, & policies questioned. Disrupting Operational
Baack 2015	Datafication & empowerment: How the open data movement re-articulates notions of democracy, participation, & journalism	The paper "shows how activists in the open data movement re-articulate notions of democracy, participation, & journalism by applying practices & values from open source culture to the creation & use of data." 3 types of open source are shown: because data is a precursor to knowledge creation, activists expand open source code sharing to raw data sharing. Activists use open source principles in political participation. The role of intermediaries is mandatory to open data to the public.	Data activism	Gladiatorial	Individuals can directly participate in making government better. Creating Cognitive	Openness principles are promoted, drawing attention to the movement. Repeating Reputational	NA	Open government data leads to more efficient government, better government decisions, & lower corruption. Open data projects hasten the development of e-gov projects through volunteer labor. Creating Operational
Baym, 2013	Data not seen: the uses & shortcomings of social media metrics	The paper explores how audiences are analyzed through social media usage, finding that quantitative data, such as the number of likes, are helpful for economic measures but values are more difficult to measure & manage.	Clicktivism, metavoicing, assertion	Spectator	The individual's level of SM engagement can help or hurt the cause they support. Communicating Cognitive	SMOs may be underestimated because of over reliance on SM metrics. Legitimizing Operational	People may be overlooked because of over reliance on SM metrics. Legitimizing Cognitive	Organizations may be overlooked because of over reliance on SM metrics. Legitimizing Operational

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Table 13 (*continued*)

Author/date	Title	Description of digital activities	Digital activity type	Hierarchy	Social movement		Target	
					Participant	SMO	Individual	Organizational
					Function	Function	Function	Function
					Impact	Impact	Impact	Impact
Becker & Copeland, 2016	Networked publics: how connective social media use facilitates political consumerism among LGBT Americans	The study of LGBT individuals finds a relationship between connective social media activities, such as finding new friends or participating in LGBT topic discussions, & a higher likelihood of participating in political consumption such as buycotts & boycotts.	Clicktivism, metavoicing, assertion	Spectator	Individuals were able to find, support, & collaborate with like-minded others through SM posting, sharing, & liking. Repeating Emotional	Increase in SMO participation through creating SM posts that like-minded others can follow, share, & comment on. Reinforcing Operational	NA	NA
Benkler, 2011	A free irresponsible press: Wikileaks & the battle over the soul of the networked fourth estate	Wikileaks represents a new model of democratization of information by networked individuals & groups.	Exposure	Gladiatorial	Individuals can directly change things in their world. Exposing Emotional	The SMO gained global attention from the exposures. Exposing Reputational	The public now knows information the target wished to keep secret. Exposing Reputational	The public now knows what influenced the target's decisions & policies, although the leaked information may be taken out of context. Exposing Reputational
Bennett & Segerberg, 2012	The logic of connective action - digital media & the personalization of contentious politics (journal article)	Combines collective action logic (high resources & creation of collective identity) with connective action (the "recognition of digital media as organizing agents" & sharing personal content via social media). Includes understanding "digitally networked action" (DNA) in terms of personalized Communicating & digital media.	Clicktivism, metavoicing, assertion	Spectator	Individuals feel personally connected to the movement through liking & sharing personal content on SM. Repeating Emotional	SMOs create a collective identity through creation of a SM presence & related content where participants can gather. Designing Operational	NA	NA
Bennett & Segerberg, 2013	The logic of connective action: digital media & the personalization of contentious politics (book)	"The logic of connective action explains the rise of a personalized, digitally networked politics in which diverse individuals address the common problems of our times." Communicatings become an organizational process, particularly digitally mediated communicatings such as social media. Collective & connective action are not competing theories, but are complementary.	Clicktivism, metavoicing, assertion	Spectator	Individuals feel personally connected to the movement through liking & sharing personal content on SM. Repeating Emotional	SMOs organize & mobilize through SM Communicating. Designing Operational	NA	NA

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Table 13 (*continued*)

Author/date	Title	Description of digital activities	Digital activity type	Hierarchy	Social movement		Target	
					Participant	SMO	Individual	Organizational
					Function	Function	Function	Function
					Impact	Impact	Impact	Impact
Bimber, Flanagin, & Stohl, 2012	Collective action in organizations: interaction & engagement in an era of technological change	"Collective Action Space" combines personal social media usage with personal behavior, values, objectives, & incentives to explain organizational participation.	Clicktivism, metavoicing, assertion	Spectator	SM allows individuals to boundary span, which increases the variety of engagement & participation methods. Repeating Cognitive	Increase in SMO participation methods. Designing Operational	NA	NA
Boingboing.net, 2015	Boingboing.net	A bot that replies to basic questions about racism & social justice questions on social media.	Metavoicing, assertion	Spectator	NA	Automating responses frees up SMO resources for larger concerns. Designing Operational	Questions are answered quickly & misconceptions reduced as the target is educated by the bot. Educating Operational	NA
Brenig, Accorsi, & Müller, 2015	Economic analysis of cryptocurrency backed money laundering	"Cryptocurrencies…are convertible decentralized virtual currencies based on cryptographic operations." They are coming under scrutiny by law enforcement because of money laundering capabilities.	e-Funding	Transitional	Crypto provides new giving options for donors. Donating Financial	Crypto donating options & crypto mining operations can increase revenues. SMOs that operate outside of the law can gain funding more easily. Donating Financial	NA	NA
Campbell, Lambright, & Wells, 2014	Looking for friends, fans, & followers? Social media use in public & nonprofit human services	Social media is often used by nonprofit & government agencies, but the activity is plagued by unhelpful institutional policies, confidentiality, & propriety concerns.	Assertion	Spectator	NA	Timely information on SM can reduce questions & inquiries & thus improve efficiency & service levels. Designing Operational	People are educated about the organization's activities & operations, which can smooth subsequent interactions. Educating Cognitive	NA

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Table 13 (*continued*)

Author/date	Title	Description of digital activities	Digital activity type	Hierarchy	Social movement		Target	
					Participant	SMO	Individual	Organizational
					Function	Function	Function	Function
					Impact	Impact	Impact	Impact
Dahan, 2013	Hacking for the homeland: patriotic hackers versus hacktivists	Individuals, on their own initiative, attack enemy countries & citizens through a variety of hacking methods. One example includes a Saudi hacker that released the personal credit card information of Israelis, which was then responded to by Israeli hackers who exposed Saudi credit card & personal information. "This minor hacking war ended with the suspicious death of the Saudi hacker." Nation-based patriotic hackers differ from "cosmopolitan hackers" who follow more general values, such as freedom of information or human rights, rather than hurting enemies.	Hacktivism	Gladiatorial	Allows participants to personally wage war against an enemy. Destroying Emotional	Participants take action with or without SMO endorsement. Thus participants can act when the SMO can't or won't. This lack of Power can either help or hurt the SMO. Designing Operational	The targeted individual may experience harm to their safety, privacy, finances, or reputation. Disrupting Emotional	The targeted organization may experience harm to operations, privacy, finances, or reputation. Disrupting Operational
Data for Climate Action Challenge, 2017	Data for climate action challenge	The event was an "open innovation challenge to channel data science & big data from the private sector to fight climate change".	Data activism	Gladiatorial	Participants can be "part of the solution" for climate change. Creating Emotional	Free labor resources & publicity raise public awareness of the cause. Designing Reputational	NA	New solutions may be easier to implement, thus improving conditions. Creating Operational
Denning, 2001	Activism, hacktivism, & cyberterrorism: The Internet as a tool for influencing foreign policy	The Kosovo war on the internet (1998–99) was one of the first to use online propaganda, shared personal horror stories, & spreading information about the war on the ground to a wider, international audience. Internet usage was protected by anti-regime forces to protect freedom of information.	Metavoicing, assertion	Spectator	Participants could share stories, bond together, & receive news about the war. Communicating Emotional	The stories drew widespread attention to Yugoslavia & its people, garnering global sympathy. Legitimizing Reputational	Regime atrocities were exposed to the world, building a case against Milosevic. Exposing Reputational	Regime atrocities were exposed to the world, building a case against the existing government. Exposing Reputational

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Table 13 (*continued*)

Author/date	Title	Description of digital activities	Digital activity type	Hierarchy	Social movement		Target	
					Participant	SMO	Individual	Organizational
					Function	Function	Function	Function
					Impact	Impact	Impact	Impact
Dewey, 2016	The next frontier of online activism is 'woke' chatbots	It is a political bot used on Twitter. "When a Twitter user initially follows @ StayWokeBot, it auto-tweets them a singsong affirmation; when a follower tweets at the bot with his or her state, it responds with contact information for that state's senators & a prompt to ask them to vote in favor of two gun-Power measures."	Metavoicing, assertion	Spectator	Participant receives a quick response. Reinforcing Emotional	Automating responses frees up SMO resources for larger concerns while the messages reinforce values. Reinforcing Operational	NA	NA
Disis, 2018	Starbucks will close 8000 US stores May 29 for racial-bias training	Two black men were waiting for a friend at a Starbucks & had not yet purchased anything. The white manager asked them to leave & called the police. This resulted in Starbucks closing 8000 stores to conduct training on racial bias to avoid this occurring in the future.	Clicktivism, metavoicing, assertion	Spectator	Through sharing, liking, & commenting on the story, participants signaled their opposition to racism. Repeating Emotional	By changing how one large organization managed race & bias, the cause for racial equity was validated. Legitimizing Reputational	The Starbucks manager was vilified in the incident as a racist person. Exposing Reputational	Starbucks lost revenue during the store closure, however, by publicizing the training they mitigated long term reputational loss & related revenue loss. Exposing Reputational
Elmer, et al., 2015	Compromised data: from social media to big data	Social data mining is taking personal data & turning it into big data, which can then be used to manipulate individuals towards purchases, ideologies, & societal changes. This research explores the negative side of big data & its social implications.	Clicktivism, metavoicing, assertion	Spectator	NA	Big data is used for e-decision making. Context is lost through abstraction of the data & automated decision making, which results in poorer outcomes. Designing Operational	Data provided by individuals on social media sites is gathered, stored, mined, & analyzed, often without the knowledge of the owners of that data. Exposing Cognitive	Data provided by individuals on social media sites is gathered, stored, mined, & analyzed, often without the knowledge of the owners of that data. Exposing Operational
Foot & Schneider 2-002	Online action in campaign 2000: an exploratory analysis of the US political web sphere	The authors focus on 3 types of digital activism: coproduction (joint online content production), carnival "online action that transgresses and/or inverts established social & political mores, norms, & hierarchies," & mobilization (an attempt to convince others to join your side).	Clicktivism, metavoicing, assertion	Spectator	SM brings multiple participants together, provides new opportunities to participate (such as carnival), & aids in reaching out to new participants. Repeating Emotional	SM increases participation through coproduction, carnival, & mobilization. Designing Operational	NA	NA

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Table 13 (*continued*)

Author/date	Title	Description of digital activities	Digital activity type	Hierarchy	Social movement		Target	
					Participant	SMO	Individual	Organizational
					Function	Function	Function	Function
					Impact	Impact	Impact	Impact
Goode, 2015	Anonymous & the political ethos of hacktivism	The paper explores the value & ethics within the hacktivist group Anonymous. Hacktivism forces transparency & openness & punishes those who are perceived to be against these principles.	Hacktivism	Gladiatorial	Hacking allows participants to take direct action against adversaries. Destroying Emotional	Actions promote & protect the SMOs values. Repeating Reputational	NA	Operations are disrupted by DDOS as punishment for their actions. Attacking Financial
Green, 2016	People's war in cyberspace: using China's civilian economy in the information domain	The author states that the Chinese army has responsibility for "offensive operations in cyberspace." Such action is part of the "Information Domain" that includes intelligence, networks, electromagnetic technologies, & propaganda. It is part of the "Three Warfares" ideology, which "refers to the use of legal, propaganda, & media operations to degrade the political will of China's opponents without resorting to kinetic force."	Hacktivism	Gladiatorial	Participants may be drawn by the government from academia, private firms, civil government & infrastructure, regardless of their preference. Coercing Cognitive	Using assets outside of the military expands available resources. Attacking Operational	NA	Targets are hit on multiple fronts & from multiple agencies, forcing targets to acquiesce without violence. Attacking Power
Hauser, 2018	Starbucks employee who called police on black men no longer works there, company says	After viral coverage of the Starbucks episode, the company fired the manager who called police on two black customers waiting for their friend prior to ordering.	Clicktivism, metavoicing, assertion	Spectator	Through sharing, liking, & commenting on the story, participants signaled their opposition to racism. Repeating Emotional	By changing how one large organization managed race & bias, the cause for racial equity was validated. Legitimizing Reputational	The Starbucks manager lost her job for racist behavior. Attacking Financial	By firing the employee, Starbucks mitigated long term reputational loss & related revenue loss. Protecting Reputational
Datafordemocracy, 2017	Data for democracy	Data for democracy (D4D) is a group of civic hackers that promote open data. They participate in hackathons to manipulate, store, & rescue at-risk data collections.	Data activism	Gladiatorial	Participants are able to directly aid the effort through data labor. Creating Emotional	Data hacking draws attention to the need for government transparency. Repeating Reputational	NA	Open data & formerly open (now closed) data is manipulated & archived without authorization, regardless of the target's preferences. Appropriating Power

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Table 13 (*continued*)

Author/date	Title	Description of digital activities	Digital activity type	Hierarchy	Social movement		Target	
					Participant	SMO	Individual	Organizational
					Function	Function	Function	Function
					Impact	Impact	Impact	Impact
Opendata.org, 2017	Open data day 2017	Open data day is celebrated in cities around the world, where data activists participate in local hackathons to massage, manipulate, & store open data. Besides hackathons, the day may also include presentations, training, & demonstrations.	Data activism	Gladiatorial	Participants are able to directly aid the effort through data labor. Creating Emotional	Free labor resources & publicity raise public awareness of the cause. Repeating Reputational	NA	Free labor speeds up data projects, but may work outside policy & guidelines. Creating Operational
Datarefuge.org, 2017	Data refuge	Data refuge is focused on the preservation of open climate & environmental data.	Data activism	Gladiatorial	Participants are able to directly aid the effort through data labor. Creating Emotional	Data hacking draws attention to the need for government transparency & value of data. Repeating Reputational	NA	Open data & formerly open (now closed) data is manipulated & archived without authorization, regardless of the target's preferences. Appropriating Power
Hunsinger & Schrock, 2016	The democratization of hacking & making	The authors suggest that "hacking & making are about how practices of creation & transformation generate knowledge & influence institutions." Hacking & making redistribute power through people creating their own products & solutions.	Hacktivism	Gladiatorial	Participants are able to directly change the status quo. Creating Emotional	Hacking & making engenders less organizational Power because the power to act resides in participants. Designing Power	NA	NA
Janze, 2017	Are cryptocurrencies criminals best friends? examining the co-evolution of bitcoin & darknet markets	Cryptocurrency is the "digital equivalent of cash" & allows for digital transactions without oversight or regulation, which makes it an attractive option for criminals.	E-funding	Transitional	Participants can use or create crypto in secrecy to fund their beliefs. Affirming Financial	SMOs may not know who supporters are or where funds originate. Donating Financial	NA	NA
Johnson & Robinson, 2014	Civic hackathons: innovation, procurement, or civic engagement?	Events promoted by governments to "spur innovative use of open data" & build systems to provide services. Such events may include also prize money.	Data activism	Gladiatorial	Participants are able to directly aid the effort through data labor. Creating Emotional	Data hacking draws attention to the need for government transparency & value of data. Repeating Reputational	NA	The target receives free labor & new systems, but these may not conform to established procurement policies. The new systems are built faster & are free but may cause other problems. Creating Operational

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Table 13 (*continued*)

Author/date	Title	Description of digital activities	Digital activity type	Hierarchy	Social movement		Target	
					Participant	SMO	Individual	Organizational
					Function	Function	Function	Function
					Impact	Impact	Impact	Impact
Jordan & Taylor, 2004	Hacktivism & cyberwars: rebels with a cause?	Hacktivism, defined as hacking for a cause, is a new form of political protest.	Hacktivism	Gladiatorial	Participants can directly change the status quo. Destroying Emotional	Hacktivism gives SMOs a fighting arm with which to attack adversaries. Attacking Operational	NA	Hacktivism puts information & digital Power in the hands of people & takes it away from governments & organizations who seek to Power the people. Disrupting Power
Jordan, 2002	Activism!: direct action, hacktivism & the future of society	The author defines hacktivism as "politically motivated hacking." Hacking is defined as "innovative uses of technology."	Hacktivism	Gladiatorial	Participants can directly change the status quo. Destroying Emotional	Hacktivism gives SMOs a fighting arm with which to attack adversaries. Attacking Operational	NA	Hacktivism provides non-violent alternatives for direct action. Hacktivists take what they want, they do not wait for the target to grant it. Disrupting Power
Kane, Alavi, Labianca, & Borgatti, 2013	What's different about social media networks? A framework & research agenda	Social media, although new, shares features of previous collaborative systems such as USENET, knowledge management, & decision support systems. The authors provide 4 main features of SM: digital profiles of the user, relational ties between users, search & privacy capabilities, & network transparency that reveal relational ties.	Clicktivism, metavoicing, assertion	Spectator	Participants can see & appropriate novel uses of SM that others demonstrate. Repeating Emotional	Platforms are a major part of new SM, which was not the case for previous offline social networks. Therefore, SMOs will need a strong SM platform presence. Communicating Operational	NA	NA
Katona, Zubcsek, & Sarvary, 2011	Network effects & personal influences: the diffusion of an online social network	Marketers must attempt to identify social network influencers & predict consumer adoption of their products. The authors present 3 elements of predicting consumer adoption: network effects, influencer effects, & adopter effects.	Clicktivism, metavoicing, assertion	Spectator	Influencers sway participant opinions, recruit, & mobilize. Repeating Emotional	SMOs need to identify & leverage influencers to increase impact. Legitimizing Reputational	NA	Targets can use the same principles to defend themselves. Protecting Reputational

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Table 13 (*continued*)

Author/date	Title	Description of digital activities	Digital activity type	Hierarchy	Social movement		Target	
					Participant	SMO	Individual	Organizational
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Kavada, 2015	Creating the collective: social media, the Occupy Movement & its constitution as a collective actor	Occupy is a global movement started in 2011 that is expressed locally. The rallying cry is "we are the 99%" & focuses on equity for the masses, not just the elites. Communicating is the cornerstone in how the movement created its scope & its identity or "collective voice."	Clicktivism, metavoicing, assertion	Spectator	SM lets participants find their niche & like-minded others to bond with. Repeating Emotional	SM gives SMOs a platform for communicating, educating, & mobilization. Communicating Operational	NA	NA
Kirkpatrick, 2011	Data philanthropy: public & private sector data sharing for global resilience | United Nations Global Pulse	Data philanthropy is organizational data & data assets, such as data scientists & technology. The author describes it as "the private sector shares data to support more timely & targeted policy action."	Data activism	Gladiatorial	Participants are able to directly aid the effort through data donations & data labor. Creating Reputational	SMOs receive data assets that can provide new solutions. Donating Operational	NA	New solutions may be easier to implement, thus improving conditions. Creating Operational
Liu & Aaker, 2008	The happiness of giving: the time-ask effect	The paper looks at individual charitable donatings in terms of cash donatings vs. volunteering (time donating).	e-Funding	Transitional	Participants are willing to give more money when asked first for their time. Therefore, participants value time over money. Donating Financial	If SMOs ask for volunteer time prior to asking for money, they can increase the Donating amount. This also suggests that it is easier to raise funds than get volunteers to work. Donating Financial	NA	NA
Louie, 2018	The Incel Movement	Incel stands for involuntary celibate. Incels are a decentralized group of ostracized people who connect with each other online. In general, Incels are men, & often social awkward, virgins, socially isolated, & frequent technology users. Hobbies may include gaming, comic books, & Japanese animations such as Manga & Pokémon. Incels have many frustrations with the "normal" world mostly due to their inability find a romantic partner to have sex.	Clicktivism, metavoicing, assertion	Spectator	Participants find like-minded others with which to bond & empathize. While most Incels stay under the radar, some have taken to violence, such as the 2018 mass murder by Alek Minassian, the 2015 mass murder & suicide by Chris Harper-Mercer, & Elliot Rodger, who killed 6 people & himself in 2014. All were self-proclaimed Incels. Repeating Emotional	The lack of centralized organization allows members to act without restraint, leading to a negative public view. Designing Reputational	Incels target women in particular, especially those deemed to be desirable & unattainable sexually. Incels also target men who are able to find sex partners. Attacking Emotional	NA
			Assertion	Spectator			NA	NA

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Table 13 (*continued*)

Author/date	Title	Description of digital activities	Digital activity type	Hierarchy	Social movement		Target	
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Lovejoy, Waters, & Saxton, 2012	Engaging stakeholders through Twitter: how nonprofit organizations are getting more out of 140 characters or less	Nonprofit organizations have begun to use Twitter to communicating & stakeholder engagement. Nonprofits using Twitter tend to use them as one-way communications. Few conduct conversations or demonstrate indirect connections to other users.			Participants receive information from the SMO. Communicating	SMOs get their message out to stakeholders & participants. Communicating Cognitive		
Operational								
Lynch, 2011	After Egypt: the limits & promise of online challenges to the authoritarian Arab State	Arab Spring began in Tunisia in late 2010 & spread throughout the Arab world, protesting against authoritarian rule. The author describes the events as contentious collective action.	Clicktivism, metavoicing, assertion	Spectator	Participants were able to find & act with like-minded others. Repeating Emotional	SM provides a way to mobilize participants in oppressed nations. Designing Operational	NA	Loss of power over information. Disrupting Power
Majchrzak, Faraj, Kane, & Azad, 2013	The contradictory influence of social media affordances on online communal knowledge sharing	In terms of knowledge sharing, the paper describes the 4 affordances of social media: metavoicing, triggered attending, network-informed associating, & generative role-taking. Metavoicing is participating through reacting to others. Triggered attending is defined as attendance due to digital reminders. Network-informed Associating means connecting with people because of shared values or experiences. Generative role-taking occurs when ad hoc roles are created by individuals for the purpose of keeping the conversation going.	Clicktivism, metavoicing, assertion	Spectator	Participants are able to find, join with, & interact with like-minded others through SM. Repeating Emotional	SMOs recruit & mobilize through SM repeating & interaction. Designing Operational	NA	NA

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Table 13 (*continued*)

Author/date	Title	Description of digital activities	Digital activity type	Hierarchy	Social movement		Target	
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Milan & van der Velden, 2016	The alternative epistemologies of data activism	The authors define data activism as "new forms of political participation & civil engagement in the age of datafication." It includes citizen concerns about data collection, concerns about surveillance, collective action taken in regard to data, & responses to datafication. The paper focuses on big data, which they define as "big data as information-related tasks whose complexity requires individuals to take action with the support of software." Data can be used to foster societal change. The paper engages both the dark side of datafication (surveillance, loss of privacy, susceptible to presentation differences) & the benefits (better serves the needs of citizens). Data activism is made up of 4 parts: people, some form of contention, information, & technology.	Data activism	Gladiatorial	Participants are able to mobilize to protect their privacy. Contentious actions do not require collective action in data activism. Great impact may be achieved by individuals. Protecting Cognitive	The decentralized nature of data activism allows participants to take a greater individual role. SMOs have less Power over participants actions. Designing Operational	NA	NA
Morisse, 2015	Cryptocurrencies & bitcoin: charting the research landscape	The authors define a cryptocurrency as "decentralized digital currency schemes based on peer-to-peer networks & cryptographic tools." Cryptocurrencies utilize digital artifacts to provide secure, anonymous financial transactions. Cryptocurrencies bypass intermediaries such banks & regulators. An ecosystem, specialized networks, & protocols are all required to enable transactions. Participants use pseudonyms & do not need to reveal their	E-funding	Transitional	Participants can donate anonymously. Affirming Financial	SMOs do not know who is providing the donating or why they are the recipient. SMOs may unwittingly help donors with ulterior motives. Donating Financial	NA	NA

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Table 13 (*continued*)

Author/date	Title	Description of digital activities	Digital activity type	Hierarchy	Social movement		Target	
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					Impact	Impact	Impact	Impact
		real identity. Some currencies may offer exchange services with fiat money such as the US dollar.						
Nam, 2011	Internet effects on political participation: an empirical study on the reinforcing vs. mobilization effect	The study is based on the 2005 Citizenship Involvement Democracy survey on political participation & the internet. The survey found that internet based political participation does, to some extent, improve inclusiveness & inequity in the political process. The internet reinforced offline participation behaviors in addition to new web-related participation. Last, the author found that the predictors for traditional offline political participation differed from internet enabled participation.	Clicktivism, metavoicing, assertion	Spectator	Marginalized participants find new ways to join movements through digital participation. Repeating Cognitive	Internet enabled political participation has the potential to bring in previously marginalized participants, broaden recruitment, create new methods of participation, & reinforce offline behavior such as demonstrations & marches. Designing Operational	NA	NA
Pierskalla & Hollenbach, 2013	Technology & collective action: the effect of cell phone coverage on political violence in Africa	The study compares cell phone coverage with violent political action in Africa & finds a strong correlation.	Clicktivism, metavoicing, assertion	Spectator	CTO features such as text messaging allow participants to share organizing plans. Communicating Emotional	Phone based technologies lack centralized messaging & Power over participants. This can result in greater contention & violence. Designing Power	NA	Text messaging allows for fast action against targets, leaving little time for preparation or defense. Attacking Operational
Pozzebon, Cunha, & Coelho, 2016	Making sense to decreasing citizen e-Participation through a social representation lens	Implementation of an e-participation platform in a Brazilian city, which hoped to increase citizen input for budgeting (i.e. prioritizing projects) & other decisions. Over the three times this system was utilized (2006, 2008, & 2011), participation fell even though the system itself improved. The paper attempts to discover why citizen participation dropped.	Clicktivism, metavoicing, assertion	Spectator	The new budgeting system was conceptually tied to the current corrupt voting system, thus delegitimizing the new system in the eyes of the public. Denouncing Cognitive	E-participation dropped because of perceived corruption & the system failed in its goal of empowering the public in budget decisions. Legitimizing Operational	NA	NA
				Spectator			NA	NA

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Rainie, Smith, Schlozman, Brady, & Verba 2012	Social media & political engagement	This Pew research shows that 66% of social media users engage in political activities. The SM activities included original posts about issues & candidates, reacting to others' posts, liking, following candidates & causes, & joining SM political groups. Participants with stronger ties to the more extreme ideologies of their party engaged more than moderates. Younger participants were also more engaged in political SM than those 50+.	Clicktivism, metavoicing, assertion		Participants are able to find, join with, & interact with like-minded others through SM. Repeating	SM is now a required element for SMO strategies to recruit & mobilize participants, particularly those under 50 years of age. Designing Emotional		
Operational								
Salge & Karahanna, 2018	Protesting corruption on Twitter: is it a bot or is it a person?	Exploration a 6-day protest in Brazil that was focused on the exposing of vote buying in public elections. The study uses a problematization view by challenging the assumption that social media activist messages are always created by humans & that actors can also include AI or bots. The paper warns in particular of issues with research validity when assumptions are made about who is creating social media messages. The paper also discusses bot detection methods.	Clicktivism, metavoicing, assertion	Spectator	Participants are misled & believe the poster is human. Deceiving Cognitive	Bots raise awareness through retweeting, reposting, & spreading news & thus amplify the message. Reinforcing Operational	NA	NA

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Table 13 (*continued*)

Author/date	Title	Description of digital activities	Digital activity type	Hierarchy	Social movement		Target	
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Sauter, 2013	"LOIC will tear us apart": the impact of tool designing & media portrayals in the success of activist DDOS attacks	Examination of tool designing & press coverage during operation payback, the anonymous DDOS attacks on PayPal, PostFinance, MasterCard, Visa, and Bank of America because they stopped processing payments to WikiLeaks.	Hacktivism	Gladiatorial	Participants inflict direct punishment against perceived adversaries. Destroying Power	The author suggests that anonymous' use of DDOS changed their role from direct action to "media manipulation & identity creating—from an action-oriented tactic to an attention-oriented tactic." Destroying Power	NA	Targets are not only impacted operationally by DDOS, but when they are attacked as punishment for their actions it draws attention to the org's stance. Attacking Reputational
Savage, 2017	Fighting online trolls with bots	Botivist looked for Twitter complaints about corruption in Latin America, then engaged those tweeters with a goal to encourage greater participation & action. Who the bot appears to be & how many followers it has moderate its impact - a white male identity with many followers had greater influence than females, people of color, or those with few followers. The bot was able to increase levels of engagement, conversation, & idea generation among participants.	Metavoicing, assertion	Spectator	Participants may interact with bots believing they are human. Deceiving Emotional	Bots can increase participation, but certain profiles are more influential than others. Thus, SMOs need to understand which profiles are most effective for their cause. Designing Operational	NA	NA
Savage, Monroy-Hernández, & Hollerer, 2016	Botivist: calling volunteers to action using online bots	The paper examines how & when Botivist was successful in eliciting the desired engagement from participants during a Latin American corruption case study. Botivist used 4 strategies: direct, solidarity, gain, & loss. Direct strategies triggered the most responses & interactions between participants. However, solidarity strategies created the greatest number of exchanges between the participant & the bot. The authors were "surprised to discover	Metavoicing, assertion	Spectator	More than 80% of volunteers responded to the Botivist call to action with credible ideas to help solve the problem. Creating Cognitive	Bot strategy is a new science that digital activists will need to understand to be able to achieve greater impact. Designing Operational	NA	NA

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Table 13 (*continued*)

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					Impact	Impact	Impact	Impact
		that strategies that work well face-to-face were less effective when used by Botivist."						
Selander & Jarvenpaa, 2016	Digital action repertoires & transforming a social movement organization	The paper asks how "values influence the relationships between an SMO, its supporters, & its digital action repertoires." The authors provide a model that "illustrates the dynamics between values, the Designing intent, & subsequent interaction & engagement among supporters & the professional groups," which extend SMO boundaries. The study focused on the Amnesty International digital media group & a senior management task force that decided what information to publish, what medium to use, & which repertoire to use. Participants included local group members, paying members, & digital supporters (paying & non-paying). AI's online presence was originally one-way in presenting information but participants desired two-way engagement in the form of original posts. Allowing original content while maintaining SMO values was a challenge. New repertoires can be created during such expansions that can either promote value stability or a change in values. Last, designing intent can help maintain SMO values.	Clicktivism, metavoicing, assertion	Spectator	New repertoires can increase engagement & participation through content creation. Creating	While SM allows for greater participation, SMOs can lose Power over participants' expressions of the SMO's values. Boundary crossing can impact the values of the SMO even while expanding the reach of the organization. Messages get lost or distorted, & social media threads may be highjacked for ulterior motives that do not benefit the SMO. Designing	NA	NA

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Table 13 (*continued*)

Author/date	Title	Description of digital activities	Digital activity type	Hierarchy	Social movement		Target	
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					Impact	Impact	Impact	Impact
Emotional	Operational							
Southern Poverty Law Center, 2018	Hate map by ideology	The SPLC tracks & publishes lists of hate groups in the US, noting locations, primary participants, & ideologies. As of early 2019, SPLC noted the following hate groups: 22 anti-immigrant, 51 anti-LGBT, 114 anti-Muslim, 233 black nationalist, 20 Christian identity, 53 general hate, 15 hate music, 10 holocaust denial, 72 Ku Klux Klan, 2 male supremacy, 31 neo-Confederate, 121 neo-Nazi, 28 neo-Volkisch, 71 racist skinhead, 11 radical traditional Catholicism, & 100 white nationalist.	Exposure	Gladiatorial	NA	The SMO provides information & evidence that hate crimes & hate groups exist in great numbers, thus demonstrating a need for action. Legitimizing Reputational	NA	Hate groups are categorized so that the public has a view to not only the identity of these groups, but if they are located in their city. This transparency permits the public to understand what exactly a group stands for & how they operate. Exposing Reputational
Vaast, Safadi, Lapointe, & Negoita, 2017	Social media affordances for connective action - an examination of microblogging use during the Gulf of Mexico oil spill	The paper presents a new concept of connective affordances that explains how connective action is an affordance of social media usage. The authors found participants falling into 3 groups: advocates, supporters, & amplifiers. Advocates create original messages. Supporters build on the original message & amplifiers spread it. These 3 are interdependent & one cannot succeed without the other two.	Clicktivism, metavoicing, assertion	Spectator	Social media brings together disparate participants with varying levels of commitment & interest & results in content coproduction & co-participation. Creating Cognitive	SMOs need to identify & value all 3 types; advocates, supporters, & amplifiers, for a wholistic SM strategy. Designing Operational	NA	NA

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Table 13 (*continued*)

Author/date	Title	Description of digital activities	Digital activity type	Hierarchy	Social movement		Target	
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Vitak et al., 2011	It's complicated: Facebook users' political participation in the 2008 election	The authors ask if Facebook political activities are just "feel-good" low-impact activities (slacktivism) or do they actually change political participation. Participants engaged in a range of Facebook behaviors from liking to actively following, sharing, & posting. The authors found a direct relationship between the amount of political SM activity & other political activity such as volunteering & organizing. Therefore, slacktivism is often a precursor to stronger political engagement.	Clicktivism, metavoicing, assertion	Spectator	SM brings participants together through the ability to find & interact with like-minded others. Repeating Emotional	Because slacktivism is a precursor to other activities, SMOs should not discount the value of slacktivists. Designing Operational	NA	NA
Wadman, 2017	USDA blacks out animal welfare information	The USDA took offline open data reports on almost 8000 facilities that "document the numbers of animals kept by research labs, companies, zoos, circuses, & animal transporters—and whether those animals are being treated humanely under the Animal Welfare Act. Henceforth, those wanting access to the information will need to file a Freedom of Information Act request. The same goes for inspection reports under the Horse Protecting Act, which prohibits injuring horses' hooves or legs for show." The information was removed for over a year. The replacement information required a user to search for the organization specifically, rather than view a comprehensive list of offenders.	Data activism	Gladiatorial	Participants were unable to find data on companies with animal welfare citations. Concealing Cognitive	Animal rights SMOs could not track offenders. Concealing Operational	Animal rights offenders gained privacy & secrecy about their citations, thereby avoiding public censure. Concealing Reputational	Animal rights offenders gained privacy & secrecy about their citations, thereby avoiding public censure. Concealing Reputational

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Author/date	Title	Description of digital activities	Digital activity type	Hierarchy	Social movement		Target	
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Webb & Mohr, 1998	A typology of consumer responses to cause-related marketing: from skeptics to socially concerned	The study examines consumer sentiment towards cause related marketing (CRM), which ranges from cynicism to support. The authors find 4 consumer groups when it comes to cause related marketing: skeptics, balancers, attribution-oriented, socially concerned. Half of the study's participants indicated skepticism & cynicism regarding a firm's motives in CRM.	Political consumerism	Transitional	Participants can reinforce their values by supporting companies that advocate the participant's values. Reinforcing Emotional	CRM helps bring attention to the cause, but CRM can also highjack the cause for corporate benefit. Repeating Reputational	NA	CRM can give firms a positive image, but can backfire if people perceive the firm's efforts to be hollow. Repeating Reputational
Whitehouse.gov, 2017	Whitehouse petitions, 2017	Whitehouse.gov provides petitions for citizens to bring issues to the attention of the president. However, since 2017 no petitions have been addressed by the administration, rendering this previously useful tool ineffectual. This may change with a future administration.	Digital petitions	Transitional	Participants can directly pose requests to the presidential administration. Communicating Cognitive	SMOs must mobilize supporters to sign the petition in order to gain enough signatures to meet the minimum number for consideration. Designing Operational	NA	NA
UK Government and Parliament Petitions, 2018	UK parliament petition	The UK offers a citizen petition site where 10,000 signatures will garner a government response. As of 2019, the government responded to hundreds of petitions. Over 50 were debated in the House of Commons.	Digital petitions	Transitional	Citizens can bring issues to the attention of parliament without the need for lobbying or resources. Communicating Cognitive	SMOs must mobilize supporters to sign the petition in order to gain enough signatures to meet the minimum number for consideration. Designing Operational	NA	NA
Yelp, 2018a, b	Starbucks - Rittenhouse Square - Philadelphia, Pa	A US Starbucks manager had two black patrons arrested because they were waiting for a friend to arrive before ordering.	Clicktivism, metavoicing, assertion	Spectator	Participants demonstrate their disapproval of the incident by posting bad reviews. Denouncing Emotional	SMOs have proof of racial bias. By going viral, the message was seen by a broader audience & drew attention to the cause. Repeating Reputational	The Starbucks manager was vilified in the incident as a racist person. Repeating Reputational	Starbucks was vilified in the incident & declaimed as a racist business. Repeating Reputational

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Table 13 (*continued*)

Author/date	Title	Description of digital activities	Digital activity type	Hierarchy	Social movement		Target	
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Young, 2018	Using ICT for social good: cultural identity restoration through emancipatory pedagogy	The Klamath tribe used ICT to rebuild their cultural identity on a path towards emancipation. The tribe implemented a website in 1998 as part of a larger plan with goals for "land reacquisition, history clarification, language revitalization, & natural resource preservation initiatives." The website was used to "express cultural values, frame historical events, & provoke reflection around "who" the Klamath are, i.e., oppressed awareness." The paper challenges prevailing ICT4D practices & "provides normative recommendations for conquered groups & developmental agencies."	Exposure	Gladiatorial	Participants could look to the website to reaffirm their identity & understand the emancipatory goals for the tribe. Repeating Emotional	The tribe opened up about itself on the website to support a larger plan for emancipatory pedagogy. The website improved understanding & communications both within & outside the tribe, helping change the balance of power in favor of the tribe. Educating Power	Targets were presented with clear illustrations of Klamath values, culture, & history. This decreased misunderstandings & negative stereotypes (such as government dependence). Educating Cognitive	Targets were presented with clear illustrations of Klamath values, culture, & history. This decreased misunderstandings & negative stereotypes (such as poor quality workforce or lack of investment opportunities). Educating Operational

Table 14
Conceptual research on digital activism.

Author/date	Title	Digital activism studied	Description	Key points	Impact
Axford, Browning, & Huggins, 2-002	Politics: an introduction	Multiple activities in a variety of examples.	Definitions & examples of multiple levels of analysis (individual, organizational, global).	Success factors vary widely depending on region, time period, economics, & other factors. Context determines success.	Most of the examples used were impactful activities in their respective forms, generally in regards to policy changes, often determined by the loudest petitioners rather than the majority.

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Table 14 (*continued*)

Author/date	Title	Digital activism studied	Description	Key points	Impact
Bimber, 2000	The study of information technology & civic engagement	Digital political action	The author rejects "the internet" as a distinct construct because of the integration of technologies with traditional political activities & combined with the spawning of new activities.	The cost of digital information is substantially lower than traditional information, providing new information resources to political organizations.	Digitally enabled political groups have greater information at their disposal, providing for different actions. The author also suggests that "the cost & accessibility of political information may ultimately modulate a general trade-off between liberty & the achievement of a deliberative common good."
Carpenter, 2016	Recruitment by petition: American anti-slavery, French Protestantism, English suppression	Political petitions, digital petitions, cases include antislavery petitions in pre-Civil Way US, petitions surrounding the birth of Protestantism in 16th century France, & England's repression of petitions in 1660 following the Restoration Settlement.	The author suggests that petitions do little to sway governments & policies; however, they have great value for recruiting new members to a cause.	Those who sign petitions are the most valuable aspect of the document, above its message or impact. Digital petitions are particularly efficient at capturing signatory data & leveraging it.	Petitions identify new members. & build participation Petitions can help mobilize an early-stage movement, while the authors note that established organizations petition far less. "Contemporary digital petitioning both routinizes & takes its force from the petition's embedded recruitment technology." Participants can lose privacy when their petition-signing is tracked.
Coleman, 2011	Hacker politics & publics	Political hacking, hacktivists, anonymous, Wikileaks	Political hacking has been "sensationalized" by journalists as angst ridden young males with anti-social tendencies & a reliance on digital technologies, but a glib description leads to a lack of understanding about hacktivists, their motivations, & their methods. "Computer hackers" are often IT professionals. "Computer geeks" are less technically skilled, but often possess digital media expertise that is valuable. Both may hold convictions about politics or policies, particularly about freedom of information. & may participate in hacker events & organizations.	Technology is core to hacktivism because its users employ it for both work & personal enjoyment. A range of skills is used, not just the highest levels. Terms used by hackers often include "freedom, free speech, privacy, the individual, & meritocracy." There is a strong liberal leaning in many hacker public communications.	Exposure of confidential information can jeopardize international alliances, incite protests, sway elections, & harm both individuals & organizations. Actions taken to mitigate hackers can produce unexpected consequences such as denial of service attacks that result in financial loss for firms taking action against hackers. There can also be Citizen ambiguity because of the methods used.
Constantinides, Henfridsson, & Parker, 2018	Introduction — platforms & infrastructures in the digital age	Digital platforms & infrastructures	The paper describes 5 themes in the special issue: "the new mirroring hypothesis; platformization & infrastructuring; competition & scaling of digital platforms; blockchain as a new infrastructure & platform; & online labor platforms."	"Digital platforms are created & cultivated on top of digital infrastructures" such as networks, computers, & the human resources to manage them. Digital platforms enable location independence, & even independence from humans as tasks can be automated. Platforms don't generally have physical assets, such as infrastructure resources, & they don't generate sales revenue from products.	Digital platforms change the nature of work & workers, increase speeds of exchange, provide greater access to previously marginalized groups, & disrupt competition.

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Table 14 (*continued*)

Author/date	Title	Digital activism studied	Description	Key points	Impact
Macintosh, 2004	Characterizing e-participation in policy-making	E-democracy, digital government	E-democracy, currently known as digital government or e-government, is defined by the author as "the use of ICT to support the democratic decision-making processes," but she also suggests that this definition is too abstract. In particular, e-democracy includes voting & e-participation activities. The goal of e-democracy is to "enable, engage & empower civil society."	*E*-democracy reaches a wider audience, uses a range of technologies, provides information in understandable formats, & promotes civil debate & discussion about civil matters.	*E*-democracy allows citizens to access information, voice their opinion, & engage in open discussion about issues with their representatives beyond traditional government intercourse.
Margolis & Resnick, 2000	Politics as usual	Internet technologies & politics	Internet technologies present new levels of information & participation, but do not provide a utopian world of democracy. The author states that cyberspace has become normalized.	These technologies include internet based information sharing, mainly through websites & discussions/forums. They may also include e-voting.	Internet technologies do not fundamentally change politics at all. The authors suggest that the internet will not increase political participation even with new outlets like electronic voting & forums for public opinion. Direct democracy will not be enabled by internet technologies.
McCarthy & Zald, 1973	The trend of social movements in America: professionalization & resource mobilization	Social movements, resource mobilization	While previous social movement theory focused on the individuals within the movement & their grievances (hearts & minds approach), this work approaches social movements through the resources accessed by the movement.	Research in resource mobilization looks at what resources are available to the movement. Resources can be anything, not just money. Access to influencers, volunteers' time, & special skills can all be considered resources.	This research was groundbreaking at a time when social movements of the 1960s & 70s reached their height. It provided a new way to look at the success factors of social movements.
McCarthy and Zald, 1973	Resource mobilization & social movements: a partial theory	Social movements, research mobilization	This work positions itself against the prevailing social psychology view of social movements & their foundation of the shared grievances of members. Looking instead at the resources utilized by movements, the authors develop a multi-level theory of resource mobilization in social movement sectors, social movement industry, & in social movement organization.	Social movements are not necessarily based on collective grievances. Social movements must identify & execute strategic tasks, such as building participation & influencing elites. Last, in terms of environment, resource mobilization works within existing societal structures.	Social movements with the greatest control over resources will experience greater success for their cause than those that do not harness their resources as well.
Melucci, 1996	Challenging codes: collective action in the information age	Collective action & collective identity	Collective action is built from a coalition & union of all the disparate individuals within the social movement. This research looks at how actors in social movements construct their collective action. Building a collective identity is an "interactive process through which several individuals or groups define the meaning of their action & the field of opportunities & constraints for such an action."	Social movements are made up of heterogeneous individuals & bringing them together into one voice & collective action is a major task for SMOs.	By understanding how actors construct collective action we are better able to understand the outcomes of social movements.

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Table 14 (*continued*)

Author/date	Title	Digital activism studied	Description	Key points	Impact
Milbrath, 1965	Political participation: how & why do people get involved in politics?	Political participation	The author breaks political participation into 3 types: spectator, transitional, & gladiatorial. The 3 types explain the level of participation (starting from low to high) the individual is engaged in. He suggests that participants continue to engage in lower level activities even when they practice the highest levels of participation.	Each level has its own types of commitment & activities. Participating in lower level activities continues as one climbs the pyramid from spectator through transitional to gladiatorial.	The theory helps researchers understand different types of political participation & how/when people will engage in it.
Milbrath, 1981	Political participation	Political participation	History of political participation, beginning with voting, & a synthesis of multiple theories on the topic.	The author defines political participation as actions by private citizens for the purpose of impacting politics & government.	Aids researchers by providing a theoretical history of political participation research.
Newman & Bartels, 2011	Politics at the checkout line: explaining political consumerism in the United States	Political consumerism	The purchase or avoidance of particular brands & products in support of political, ethical, & social values.	Consumerism is used as political action. Consumers buy brands & products from companies they support, while some consumers may specifically avoid them. This may include environmental, labor, religious, or political support & objections.	There is financial impact when customers choose to avoid or support firms & brands. Large boycotts can have a major effect on a firm's revenues; however, sometimes boycotts can backfire if supporters of the other side choose to act in favor of the firm. Public opinion expressed through political consumerism can also convince firms to choose more ethical supply chains, fair labor practices, & environmentally sound products.
Schrock, 2016	Civic hacking as data activism & advocacy: a history from publicity to open government data	Civic hacking, white hat hackers.	Data hacking has its roots in openness & transparency movements begun in the early 20th century.	The authors suggest that "civic data hacking can be framed as a form of data activism & advocacy: requesting, digesting, contributing to, modeling, & contesting data."	Open data "remediates previous forms of openness." This puts data hackers in a nebulous place & opens the door to crossing ethical & otherwise established boundaries of political participation.
Shirky, 2011	The political power of social media: technology, the public sphere, & political change	Multiple activities in a variety of examples.	The paper examines both successes & failures of SMO that use social media for organizing.	The authors ask if digital tools actually aid democracy & find mixed results depending on how much control the government has in that country.	The author suggests that international internet policy should be more holistic & not narrowly focused on this or that country or group. He also considers that SM tools may not even be effective & any efficacy could be mitigated by repressive governments who are learning to use SM tools.
Snow, Soule, & Kriesi, 2004	Mapping the terrain (chapter in the Blackwell companion to social movements)	Multiple activities in a variety of examples.	The authors examine social movements as "one of the principal social forms through which collectivities give voice to their grievances & concerns about the rights, welfare, & well-being of themselves & others by engaging in various types of collective action." Multiple definitions & concepts on social movements are provided.	"Social movements can be thought of as collectivities acting with some degree of organization & continuity outside of institutional or organizational channels for the purpose of challenging or defending extant authority, whether it is institutionally or culturally based, in the group, organization, society, culture, or world order of which they are a part."	This conceptualization broadens what is considered a social movement. This permits us to tie together events that appeared previously unrelated.

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Table 14 (*continued*)

Author/date	Title	Digital activism studied	Description	Key points	Impact
Teorell, Torcal, & Montero, 20-07	Political participation	Political participation, multiple activities in a variety of examples.	Describes the participatory actions by members of 13 different societies.	The authors use a broad definition of political participation. The major categories of participation include attempts to influence society, involvement in political parties, & voting. Modes of participation include contacting, party activity, protest activity, & consumer participation.	Across countries, the empirical data generally showed that voting was the most prevalent activity, followed by consumer activities, contacting, & then protest.
Tilly & Wood, 20-15	Social movements 1768–2012	Multiple activities in a variety of examples.	Analytical history of social movements.	The range of examples includes immigrant rights, financial collapse, new media technology, & SM activities. Special attention is given to Facebook. Globalization of social movements is enabled through technology.	As technology expands the boundaries of social movements, new problems arise such as coordination, discounting of local activists, & the creation of macro umbrella causes with shifting temporary targets. Transnational social movements will test society.
Tilly, 1978	From mobilization to revolution	Collective action, multiple activities, variety of examples.	The components of collective action include interest, organization, mobilization, opportunity, & collective action itself. Collective action is people working together towards a common goal. Collective action comes together through a dynamic mix of interests, organization, mobilization, & opportunity.	Mobilization describes the group's control over any resources that are required for specific actions. You can't take action without the ability to act. Opportunity to act is the relationship between a group & the larger world. It is subject to change, for better or worse, as events impact this relationship over time.	
Tilly, 2006	WUNC	Multiple activities in a variety of examples.	Tilly presents 3 facets of SMOs: campaigns, repertoires, & WUNC (short for worthiness, unity, numbers, & commitment).	Campaigns are about the claims of the SMO (i.e.: pay is too low or pollution is too high). The claim is then expressed through various venues, which are the repertoires. WUNC is the last requirement. Worthiness demonstrates the legitimacy & value of the SMO. Unity refers to the solidarity the SMO enjoys. Numbers is a reference to the number of participants & commitment is the strength of participants' dedication & the effort they are willing to expend for the cause.	SMOs must do well with all 3 aspects for success (campaigns, repertoires, & WUNC). SMOs with low WUNC lack legitimacy.
Wright, 1981	Political disaffection	Political alienation	The author asks if "American democracy is sufficiently stable & viable to contain the waves of conflict & discontent which the events of the past twenty years have swept over it."	When this piece was written, political disaffection was rampant in the US, encompassed by political powerlessness & political distrust. Between the end of WWII & the election of John F. Kennedy as US president, there was an unprecedented period of political peace. The 60s ushered in a new era of political contention.	As the public fought back during the turbulent 60s & 70s, malaise & discouragement began to seep into mainstream political views. This evolved into a generation of anger, frustration, & distrust of politics as usual. This older treatise is important to understanding the history behind 21st century digital activism.

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Author/date	Title	Digital activism studied	Description	Key points	Impact
Zald & Ash, 1966	Social movement organizations: growth, decay & change	Social movements, multiple cases	Social movements are brought about through organizations that bring change. However, the SMOs themselves change the cause because of new institutionalization & structure.	"A social movement is a purposive & collective attempt of a number of people to change individuals or societal institutions & structures." SMOs are different from bureaucracies in that they have a specific societal goal to achieve, not a long-term service to provide. SMOs also require substantial commitment from volunteers, which the bureaucracy does not have.	The authors propose that the size of the potential base & society's interest in the cause will influence success of the SMO. More insulated organizations are less pressured to change according to societal whims or external values.
Zuckerman, 2015	Cute cats to the rescue? participatory media & political expression	Social media posts of seemingly innocent material with hidden political content.	The rise of social media expressions of political activity have led some governments to crack down with censorship. Political participants work around this by posting innocuous material that appears censor-appropriate but holds political messages.	The "cute cat" theory suggests that participants can employ existing easy-to-use SM tools to create political content that may avoid censorship & may inspire more people to participate. The use of innocuous material, such as cute cat pictures, can throw off censors.	The concept offers a way for participants to avoid censorship & partake in social media political activities when anti-censorship technologies are not available.
Tufekci, 2014	The medium & the movement: digital tools, social movement politics, & the end of the free rider problem	The author discusses new civics, which is founded on technology.	New civics embodies disillusionment with traditional politics. The author believes that digital activism is indeed "thick" or deep with participant commitment, in counterpoint to the Zuckerman (2014) paper he rebutts.	Cause campaigns, especially those driven by celebrities, tend to be "thin" or lacking substance. "Thin" campaigns expect little from participants. In contrast, "thick" campaigns require substantial effort & commitment from participants. However, the author points out that context is a better indicator of how thick or thin & action. An activity deemed thin in a tolerant society may be deemed very thick in a repressive one.	The author suggests that "organizing through advanced communication tools rather than formal institutions — makes it harder for movements to engage policy through paths, such as elections, court cases, & primary challenges that require formal & institutional organizational structure." He also finds that "technology & long-term cultural trends are converging towards noninstitutional politics" which results in changes to how the movement progresses.

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