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Datafication and implicated networks of demobilization: social movement demobilization in datafied societies

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ABSTRACT

An increasing number of social movements have taken the form of connective action achieved through datafication structures in the absence of central coordinating social movement organizations. Social movement demobilization in digitally-mediated connective action remains a relatively understudied area. Drawing together social movement studies and communication studies, we introduce the theoretical framework of 'implicated networks of demobilization' (INsD) to explore the dynamics and implications of datafication for social movement demobilization. Based on examples from the Anti-Extradition Bill movement in Hong Kong and the 2020 George Floyd protests in the United States, we theorize that the connective action embedded in the datafication structure confronts three demobilizational dynamics: implicated data, materiality, and epistemic dynamics. These dynamics imply that connective action mobilization in datafied societies faces constraints pertaining to state-level network oppression, potential threats imposed by the material datafication structure, and the spread of digital knowledge of self-protection. The INsD framework contributes to understanding the interactive data-mediated dynamics between the state and activists in connective action.

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Introduction

Bennett and Segerberg (2012) suggested that the rise of the digital infrastructure, especially the emergence of digitally-mediated communicative practices, has resulted in the rise of the logic of connective action, in which the centrality of social movement organizations (SMOs) declines, and personalized frames become increasingly important. Scholars have since debated the changing power dynamics in social movements resulting from expanding processes of datafication. Datafication refers to the processes through which contemporary societies become increasingly mediated by and transmuted into data (Beraldo & Milan, 2019; van Dijck, 2014). Theoretical frameworks have been proposed to capture the intersections of political power and datafication (e.g. Beraldo & Milan, 2019; Milan, 2018; Ruppert et al., 2017). Mapping the 'contentious politics of data,' Beraldo and Milan (2019, p. 1) explicate how data become a target of contentious

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politics ('data as stakes') and enrich the repertoire of contention ('data as repertoires'). These are important contributions that inform the potential of creative and new resistance methods enabled by datafication, and a significant step forward to conceptualizing data politics as a field of collective claim-making and power (Van Aelst & Walgrave, 2004).

As datafication reconfigures the logic of connective action, recent years have witnessed growing public concern over the disciplinary functions of data. Journalists and activists have reminded the public about how the police (mis)use data to identify and punish protesters in the Black Lives Matter (BLM) movement in the United States, including articles with titles such as 'How to Protest Safely in the Age of Surveillance' (Greenberg & Newman, 2020) and 'Going to Protest? Here's How to Protect Your Digital Privacy' (Austin, 2020). Similarly, in Hong Kong's Anti-Extradition Bill (Anti-ELAB) movement – a decentralized and networked social movement (Lee et al., 2019; Ting, 2020)—police and pro-government groups have relied on data to monitor and dox protesters (Smith, 2019).

Such surveillance potential of digital technologies speaks to the broader issue of how the expanding datafication structures, which refer to infrastructures through which 'the transformation of social action into online quantified data' occur (van Dijck, 2014, p. 198), may shape social movement demobilization, particularly in the case of state-movement dynamics in connective action that often relies heavily on datafication structures. Studies on the dynamics of social movement demobilization and datafication remain scant. Davenport (2015) argued that social movement demobilization is a result of the dynamics of outside factors (e.g. resource deprivation and state repression) and inside factors (e.g. burnout and organizational rigidity). Although his framework concentrates on the state-led demobilizing effects on SMOs, it pays relatively little attention to the effects of the rising datafication structure on repression dynamics. Classical and contemporary accounts have focused on resource mobilization as the key to explaining movement mobilization and demobilization (Davenport, 2015; Jenkins & Eckert, 1986; McCarthy & Zald, 1977; Tarrow, 2011). Demobilization occurs when states can effectively deplete the resources of SMOs (Giugni, 1998; Opp & Roehl, 1990; Tilly & Tarrow, 2015). This view focuses on repression and counter-repression dynamics between the state and SMOs (e.g. Davenport, 2015; Kalyvas, 2006).

Pinpointing the rise of 'organizationally-enabled' and 'self-organizing' networks of connective action, Bennett and Segerberg (2012, p. 756) contended that large-scale social movement mobilization can be achieved and sustained through different digital platforms in the absence of strong coordination by dominant social movement organizations. Indeed, Tilly's (1978) concept of the political opportunity structure continues to be an important tool for theorizing structural conditions for mobilization and demobilization, particularly the threats and opportunities faced by participants because of repression or facilitation by authorities (Meyer & Minkoff, 2004; Tarrow, 2011). Tarrow's concept of the 'cycles of contention' helps to identify major processes of movements, including diffusion, exhaustion, radicalization/institutionalization, and restabilization (2011, p. 198; see also McAdam et al., 2001). Relevant aspects of mobilization and demobilization include cultural framing processes, underlying social bases and values, political opportunities channeling mobilization, and supporting resources (Giugni & Grasso, 2015). Nonetheless, these frameworks have not been explicitly connected to the

dynamics resulting from the ever-growing datafication structures. As such, datafication structures play an increasingly important role in mobilizational and demobilizational dynamics in emerging connective action because digitally-mediated networks perform a crucial function in organizing and sustaining movements in the absence of coordination by dominant social movement organizations. Hence, threats and opportunities that are particularly salient in datafication structures become more prominent in state–activist interactions.

Leveraging social movement studies and communication studies, we introduce the framework of 'implicated networks of demobilization' (INsD) to capture demobilization dynamics in connective action mediated by the datafication structure. Implicated networks refer to interpersonal connections built through datafication structures. We illustrate the framework with empirical examples from two recent large-scale social movements – the 2019–2020 Anti-ELAB movement in Hong Kong, and the 2020 George Floyd protests in the United States (the Floyd protests hereafter)—by attending to the state-movement dynamics. The two cases were chosen not simply because protesters relied on digital technologies for mobilization but also because police relied on such technologies for demobilization. The Anti-ELAB movement originated from an outcry against the government's proposed changes to fugitive laws, later evolving as the largest pro-democracy movement in Hong Kong's history. The movement was characterized as a leaderless connective action in which protesters relied on digital technologies for protest mobilization and coordination (Lee et al., 2019; Ting, 2020). Grounded in a longstanding history of Black resistance against police brutality and structural racism in the US (Reny & Newman, 2021), the Floyd protests reportedly had over 15 million to 26 million participants (Buchanan et al., 2020). Protesters similarly relied upon a variety of digital technologies and social media for awareness creation and mobilization, although there were growing concerns about digital surveillance among protesters (Wade et al., 2021).

We do not argue that the datafication structure is the main reason for movement demobilization, neglecting other factors, such as crowd-control agents and street protests. We acknowledge that demobilization can take many forms and that different measures of demobilization through multiple sites and means can co-exist. Whether an attempted demobilization is successful depends on a wide range of factors, such as the severity of punishment allowed in a political context and the strength of activists' networks that are beyond unilateral control of a single party. The framework aims to capture the *dynamics* of contentious interactions between the state and protesters through datafication structures. An underlying premise is that both parties account for the opportunities and threats enabled by the structures for demobilizational purposes and usually have internalized relevant concerns into their course of actions. The INsD framework serves to identify, clarify, and detail the concrete elements of these dynamics for further analytical and research purposes. We aim to use the two movements as examples to cast datafication as sites and stakes of political struggle in connective action, rather than to offer an in-depth comparative analysis of the two movements. We center on the concept of connective action rather than other digitally-mediated movements, because it signals a context where the three dynamics of the framework – the implicated data, materiality, and epistemic dynamics – are particularly salient due to the absence of central coordinating SMOs.

This article makes three contributions. First, our conceptual framework highlights the interwovenness between datafication structures and connective action. In response to Beraldo and Milan (2019)'s 'bidirectional perspective' which depicts the relationship between data and activism as 'data-as-stakes' or 'data-as-repertoire' (p. 6), we demonstrate that the demobilizational dynamics resulting from the expanding datafication structures are not a peculiar feature of data activism, but are also found in connective action that draws heavily on the structures.[1] Second, we aim to bridge the logic of connective action with a growing interest in demobilizational dynamics. Third, we highlight how protesters are implicated with datafication structures in connective action.

In the next section, we discuss the existing literature on social movement demobilization and highlight that the role of datafication has not yet been sufficiently addressed. We then explicate the INsD framework, including the implicated data, materiality, and epistemic dynamics. The final section draws on the Anti-ELAB movement in Hong Kong and the 2020 George Floyd protests in the United States to illustrate the framework. We conclude by reflecting on the utility of the INsD framework in studies of demobilization in connective action.

Datafication and social movement demobilization

Contemporary states draw on data infrastructures to maintain political stability, such as managing and demobilizing contentious claim-making (e.g. Milan & van der Velden, 2016). An example is the Russian Yarovaya law, which came into effect in 2016 and requires telecommunications operators to store user data and information for one year. These data could be requested by the authorities for regime repression. In 2018, 'several hundred cases were initiated due to posts, reposts, comments and likes in VKontakte,' which is one of the major social media platforms in Russia that opposition movements often utilize (Poupin, 2021). This incident exemplifies the need to reflect on the changing dynamics in contentious politics resulting from data infrastructures.

Communication researchers have studied new mobilizational opportunities generated by datafication. Beraldo and Milan (2019) have demonstrated that datafication has enriched the repertoire of contention. Specifically, datafication enables 'individual acts of rebellion and practices' (p. 3), and thereby expands the scope of agents who are capable of claim-making and reappropriating data and existing power-relations. Nonetheless, we know less about the new dynamics of movement demobilization resulting from datafication, especially in connective action, where the coordinating role of SMOs becomes less important. The relative lack of attention to demobilization is a long-standing problem in social movement studies. As Taylor stated in 1989, 'scholars generally are more interested in movements undergoing cycles of mass mobilization and have done little research on movements in decline and equilibrium' (p. 772). Two decades later, Fillieule (2013) reaffirmed that social movement scholars 'know relatively little about the mechanisms governing the decline of social movements and the varied forms of individual or collective demobilization' (p. 1), while 'the logical counterpart of the initial recruitment and mobilization processes is clearly collective demobilization and individual disengagement' (p. 1).

Studies of social movement demobilization can be classified into two types. The first type examines the depletion of resources for claim-making in social movements

(Fillieule, 2013; Klandermans, 1997; Tilly & Tarrow, 2015). The second type focuses on various forms of regime repression (Yuen & Cheng, 2017). Both groups of literature can be broadly separated into two levels: the collective level and the individual level. On the collective level, demobilization happens 'in a multiorganizational field … of an entire social movement industry, with its formal organizations, its support networks and those involved along the way' or 'the slow collapse of a mobilization campaign, as a result of its success or, conversely, its failure' (Fillieule, 2013, p. 1). Curtis and Zurcher (1973) argued that the concept of 'multi-organizational field' has indicated that few organizations 'can operate in an interorganizational void' (p. 60). Choudry and Kapoor (2013) have also examined the 'NGOization' process resulting from social movements, such as the professionalization of dissent knowledge and the emergence of NGOs that position 'themselves as the gatekeepers between social movements and other organizations' (p. 9). The collective dimension focuses on resource depletion in the mobilizational network. However, how demobilizational dynamics within datafication structures operate remains unclear. As Grimm and Harders (2018) suggested, these studies are 'endless correlation of the total aggregate level of one output (repression) with another (protest), effectively black-boxing the interaction process itself' (p. 2).

On the individual level, some studies have focused on why participants withdraw from a movement, with three main interdependent factors identified: '*exhaustion of the rewards of involvement*, *the loss of ideological meaning*, and *the transformation of relations of sociability*' (Fillieule, 2013, p. 2, emphasis original). Fillieule (2010) proposed that a career approach helps to understand how 'at each biographical stage, the attitudes and behaviors of activists are determined by past attitudes and behaviours' (p. 1), which enables the study of political disengagement to be situated into an individual's life cycle. McAdam's (1990) classical work showed that the degree of integration into activist networks matters in determining movement withdrawal, especially in high-risk activism. Scholars have argued that the movement reward and participation costs become connected to datafication structures, particularly regarding how the state and activists utilize the structures for mobilization and counter-mobilization purposes (Dencik et al., 2016).

The second group of literature within social movement demobilization is concerned with regime repression. It tackles the issue of authorities' responses to challengers in the cycle of contention (Tarrow, 2011). Four approaches are salient (Yuen & Cheng, 2017). The first approach concerns how different regime types cause different forms of regime responses, including toleration, concession, and repression (Cai, 2010; Tilly, 1978; Yuen & Cheng, 2017). The second approach concerns various forms of regime response and their respective impacts on social movements (Lichbach, 1987; Yuen & Cheng, 2017). For example, Ellefsen (2016) has directed attention to the concept of 'judicial opportunities' in movement demobilization, that is, 'the possibilities and threats perceived and experienced by protestors' (p. 444). Such perceived threats can be creatively exploited by private elites and criminal justice agencies for legal repression against contentious groups (Ellefsen, 2016). The third approach examines variations within each type of regime response (Earl, 2003; Yuen & Cheng, 2017). The fourth approach, what Yuen and Cheng (2017) called 'regime attrition,' examines 'a mode of regime response that only tolerates protests ostensibly but uses a proactive tactical repertoire to discredit, wear out and increase the cost of protests' (p. 613). Nonetheless, this strand of the literature presupposes a relatively active and intentional agent with a clear purpose in the process of

demobilization. It cannot sufficiently address the *structural* demobilizational dynamics caused by the ever-expanding scope of datafication. For example, when activists perceive that they are being targeted by the state and counter-movements, they may engage in forms of self-censorship online (Tufekci, 2017). Structural demobilizational dynamics, therefore, can trigger counter-surveillance dynamics, even without a clear repressive agent acting actively.

Tilly and Tarrow (2015) defined mobilization as 'an increase of the resources available to a political actor for collective making of claims,' whereas demobilization 'is a reduction of this aggregation of resources' (p. 120). In theory, datafication can enrich both the repertoire of contention and the repertoire of repression. Much research has focused on how creative subversive agents can appropriate data and take advantage of the ever-expanding data infrastructures. However, the state can also take advantage of the data infrastructure for demobilization by demonizing online platforms, creating information gluts, and doxxing (Tufekci, 2017).

Implicated networks of demobilization

Given the growing impact of datafication on social movement demobilization, we introduce the INsD framework. The term 'implicated networks' highlights that the ever-expanding data infrastructure is a key networked public sphere for both mobilization and demobilization in connective action. There are three key dimensions of the INsD framework.

The first is the *implicated data dynamics*. The datafication structures have created 'implicated networks' in which protest coordination and immediate tactical communication are increasingly conducted online, and access to such information is increasingly dependent on access to different communicative networks. The interactions between actors leave relatively durable and traceable imprints for policing. Thus, the state exercises demobilizational tactics through the datafication structure. Datafication enables the state to target and monitor citizens for *reactive* and *preventive* demobilization. In reactive demobilization, the government may police a massive number of loosely connected participants by gaining access to the mobilizational network and platforms that activists rely upon for law enforcement purposes. Preventive demobilization focuses on how data can be used to sketch the networks of protesters for future policing purposes. Digital traces and relational data left by protesters can potentially be used for future demobilizational purposes or for building a network of close monitoring.

The second is *materiality dynamics*. The materiality dimension of datafication structures increasingly becomes the object of mobilization and demobilization. Material objects include mobile phones and material infrastructures. While the government often attempts to neutralize the material dimensions of the datafication structure in the name of efficiency, mobilization may occur through politicization of the material structure. This type of neutralization–politicization dynamics is connected to the discursive effects of datafication. As Benford and Snow (2000) suggested, social movement is about 'meaning work – the struggle over the production of mobilizing and countermobilizing ideas and meanings' (p. 613). Both the state and activists narrate the materiality of datafication structures differently for mobilization and demobilization.

The third is *epistemic dynamics*. Part of the determinant of the cost of social movement participation depends on the successful mastering of digital knowledge and tools to protect oneself from potential arrest. Thus, mobilization and demobilization revolve increasingly around the spread of digital knowledge concerning self-protection. The growth of datafication structures has led to an enhancing awareness that one might be subject to state surveillance (Dencik et al., 2016; Marthews & Tucker, 2017). Notably, activists attempt to spread digital knowledge concerning self-protection and anti-surveillance to incentivize participation. The adoption of privacy and identity protection technologies has become a central tactic for overcoming anticipatory surveillance.

Situating data-mediated demobilization in contexts

Empirical materials

We now turn to illustrate the framework with examples of state-movement dynamics in two large-scale social movements: the 2019–2020 Hong Kong's Anti-ELAB movement, and the 2020 Floyd protests. We selected these movements primarily because police forces reportedly deployed digital technologies and data to track down protesters who also relied heavily on digital technologies and social media for mobilization. The movements make compelling cases for considering the dynamics of demobilization in connective action mediated through the datafication structure.

We drew empirical examples from a variety of sources. In the case of the Anti-ELAB movement, we scrutinized the movement posters collected by the ANTIELAB Research Data Archive (2020).[2] The database collected such posters from two major publicly accessible Telegram channels until January 2020. The examples we discussed here were drawn from a keyword search ('surveillance'; $n = 243$) through the movement posters database. We also examined news coverage of data and surveillance in the movement published between 12 June 2019 and 30 June 2020 ($n = 99$). The news articles were collected from WiseNews. In the case of the Floyd protests, we relied upon the Electronic Frontier Foundation (EFF)'s online publications to identify instances of protest surveillance. It yielded over 20 publications published between May 2020 and September 2021. We particularly attended to how the EFF articulated the strategies that protesters could use to identify and resist protest surveillance. Wade et al. (2021) found that such documents not only identified potential counter-surveillance strategies but also revealed protesters' common concerns about digital surveillance. We also used the LexisNexis search engine to identify newspaper articles concerning surveillance in the Floyd protests published between 25 May and 31 December 2020 ($n = 66$). Lastly, we drew on existing academic studies on the two cases.

The Anti-ELAB movement in Hong Kong

The Anti-ELAB movement between 2019 and 2020 was originally triggered by the government's proposed bill to establish extradition treaties with Taiwan and mainland China. Drawing on on-site protest surveys between June and August 2019, Lee et al. (2019) found that there were no recognized leaders in the movement.[3] Cheng et al. (2022) argued that the abeyance of civil society networks after the 2014 Umbrella Movement

facilitated the initial mobilization and public deliberation of the movement, whereas digital communication technologies cultivated affective ties among protest groups. Protesters relied on Telegram and a Reddit-like online forum called LIHKG to coordinate and mobilize protest events (Cheng et al., 2022; Kow et al., 2020). Platform-specific affordances, Lee et al. (2021) contended, enabled movement supporters to have decentralized participation; for example, LIHKG is a large anonymous forum and does not have a network structure that connects users. Yet, LIHKG's lack of personalized popularity and credibility metrics resulted in the difficulty of sustaining opinion leadership (Liang & Lee, 2021). Telegram enabled the creation of protest-related groups and afforded movement supporters to circulate protest-related information without disclosing their personal information (Kow et al., 2020; Lee et al., 2021). The ANTIELAB Research Data Archive (2020) documented 1,097 protest events coordinated by four Telegram channels between 16 June 2019 and 27 April 2020. The movement lost its momentum after the mass arrests at university campuses in November 2019, followed by the spread of the COVID-19 pandemic and the enactment of the National Security Law in June 2020.

The Floyd protests in the United States

The Floyd protests were triggered by the police killing of George Floyd in Minneapolis, Minnesota on 25 May 2020. The protests spoke to a longstanding history of Black resistance against the structural racism underlying state violence and police brutality in the US (Reny & Newman, 2021). By June 2020, more than 4,700 demonstrations had taken place in about 2,500 small towns in cities (Buchanan et al., 2020). Between 26 May and 7 June 2020, approximately 47.8 million tweets contained the #BlackLivesMatter hashtag (Anderson et al., 2020). Although the Anti-ELAB movement and the Floyd protests took place in different institutional settings and had different repertoires of contention, police reportedly used protesters' phone data and facial recognition technologies for policing and law enforcement in both cases (e.g. Schoolov, 2020; Smith, 2019).

In what follows, we will draw examples from these two cases to illustrate three core demobilizational dynamics in the INsD framework: (1) implicated data dynamics, (2) materiality dynamics, and (3) epistemic dynamics.

Implicated data dynamics

The first aspect of the INsD framework concentrates on policing enabled by datafication for reactive and preventive demobilization. In both cases, there were concerns about how law enforcement officers could (mis)use protesters' data against them. In the Floyd protests, Wade et al. (2021) found that many of the publications about protest privacy recommendations explicitly articulated fears of being monitored, such as ruined reputation, online harassment, and arrest. In the Anti-ELAB movement, Kow et al. (2020) observed that there was a widespread belief among participants that 'the police and other institutional actors were monitoring and identifying the chat group' on Telegram (p. 6). The fear of surveillance was evidenced by the platform-specific affordances of LIHKG and Telegram. Both LIHKG and Telegram have features that afford movement

supporters the ability to connect with others while maintaining anonymity (Kow et al., 2020; Lee et al., 2021).

There were at least two sources of data for policing – social media posts and protesters' phone data. In 2016, the Baltimore Police Department relied on real-time maps of social media activities at protest sites to identify BLM protesters (Ringrose & Ramjiee, 2020). The Los Angeles Police Department (LAPD) similarly developed a social media user guide to encourage officers to create a 'fictitious online persona' and to monitor 'content on the Internet for any discussions, posts, videos, blogs, and online conversations about the Department or other topics of interest to the Department' in 2015 (Dwyer, 2021). During the Floyd protests, the LAPD worked with Dataminr – a social media surveillance company that advertised its software as a means to monitor 'high impact events and emerging risks'—to closely observe posts regarding protest events in real time on Twitter, Facebook, Snapchat, and other social media platforms (Ray, 2021). Based on official email exchanges between the LAPD and Dataminr, the latter helped identify potential protests based on the monitoring of a public message board (Ray, 2021). Further, the Minneapolis Police Department arrested an activist for allegedly inciting riots on Facebook on 27 May 2020 (Farivar & Solon, 2020). These examples reveal how social media posts can be used for reactive and preventive demobilization.

Police could speculate whether individuals frequently participated in protests based on their phone's locational data (Ringrose & Ramjiee, 2020). Although police must obtain a search warrant to gain access to one's locational data in the US, they have increasingly opted to use geofence warrants 'which do not garner information on specified individuals but information on numerous persons within a specific area' (Ringrose & Ramjiee, 2020, p. 355). A geofence warrant may be issued when it is difficult to identify a suspect. Fussell (2021) reported that 'geofence request to Google increased from 941 in 2018 to 11,033 in 2020.' The Minneapolis Police Department, for instance, used geofence warrants to order Google to share data about any devices in the area of the AutoZone store because a masked man broke windows during a protest about Floyd's death on 27 May 2020 (Whittaker, 2021). However, protesters might not be informed about geofence warrants (Ringrose & Ramjiee, 2020). Importantly, geofence warrants enable law enforcement officers to collect data about people in the area, regardless of their participation. Such data can be used for preventive demobilization.

Similarly, the Hong Kong police force, particularly the Cyber Security and Technology Crime Bureau, actively monitored internet activities during the Anti-ELAB movement. One notable example occurred in August 2019, when a photo of a female protester who claimed she was shot in the eye was widely circulated online. The injured protester subsequently posted a short video to thank the fellow protesters for their support and to denounce police brutality. In the video, she wore a mask and used a voice changer to protect her identity. After the video was posted, the police, however, obtained a warrant to search her medical records from the Hospital Authority until the protester won a juridical review against the police's action (Smith, 2019).

Furthermore, Hong Kong police arrested several administrators of Telegram channels, allegedly for doxxing police by leaking their personal information online (Lau & Lum, 2019) and 'incit[ing] users to damage police property and interfere with traffic' (Siu & Leung, 2020), respectively, during the Anti-ELAB movement. One of the administrators was found guilty of spreading hate speech and inciting doxxing and other criminal

activities via Telegram (Wong, 2021). The police could potentially screen the contact information of all these members (if the members made it available in the app) and messages in Telegram (Lau & Lum, 2019). One of those arrested – who managed a Telegram group with more than 30,000 users – stated in a media interview that he never participated in the protest; instead, he had only shared protest-related information (Pang, 2019). He also claimed that the police forced him to unlock his mobile phone and interrogated him about how the Telegram group worked. These instances reveal how platform-specific affordances could be deployed by the state to demobilize and discipline protesters.

Once protesters are arrested and their phones seized by the police, there are potential risks associated with their phone data. In 2020, the Court ruled that the Hong Kong police are authorized to 'search the digital contents of a mobile phone (or a similar device) seized on arrest without warrant only in exigent circumstances' and when 'it is not reasonably practicable to obtain a warrant' (*Sham Wing Kan v Commissioner of Police*, 2020). This ruling has expanded the police's authority to use data for demobilization. By 22 January 2020, the police arrested over 7,000 protesters (ANTIELAB Research Data Archive, 2020). The police seized and stored at least 3,700 protesters' phones at the police headquarters in Wan Chai (Ng, 2020). Then, they successfully obtained a warrant to search the headquarters to access phone data, without informing the arrestees. The police also reportedly used the phone hacking services from an Israeli firm, Cellebrite, to crack into activists' mobile devices. Although Cellebrite announced that it would stop selling the software to the police in October 2020, the police had used the software for a long time in the past. In January 2021, the police reportedly began sending the arrestees' phones to mainland China to extract the data for policing (Mahtani, 2021).

In both cases, datafication has strengthened law enforcement officers' capacity to gather protesters' digital traces and data through their implicated networks for reactive and preventive law enforcement at a distance, without the need to rely on street-level bureaucrats.

Materiality dynamics

Whereas the first dimension explores how implicated networks can be used for demobilization purposes, materiality dynamics focus on how political authorities collect such data through visible and invisible data infrastructures. Protesters' mobile phones and social media posts are part of the *invisible* infrastructures because protesters do not know whether, when, and how their data could be collected. In the case of Floyd protesters, police might use cell-site simulators to identify and track their phones' international mobile subscriber IDs at protest sites (Guariglia, 2020). Only when authorities obtained warrants to search protester' phones, data-driven surveillance becomes more visible to protesters. Police officers and data analysts are often behind the scenes, but they are essential human actors for rendering data infrastructures possible, as they constantly decide what to record and whom to police (Brayne & Christin, 2021).

However, some surveillance technologies, such as CCTV cameras in public spaces, are *visible* to protesters. In the Floyd protests, the Homeland Security Department used helicopters to film demonstrations in over 15 cities (Kanno-Youngs, 2020). In San Francisco, police deployed over 400 semi-private surveillance cameras (Guariglia & Maass, 2021). Such video footage was transmitted to control centers for reactive and

preventive demobilization. With the partnership with Amazon Ring and its associated app, the LAPD reportedly used a law-enforcement portal to request footage from Ring users (Guariglia & Maass, 2021). These examples show how protesters can be constantly monitored by data-driven devices.

In the Anti-ELAB movement, protest events about smart lampposts are particularly relevant to the materiality dynamics of datafication. These events offer insights into tensions between the Hong Kong government's smart city vision and protesters' counter-claims about facial recognition and data surveillance. It is noteworthy that the events took place in August 2019, before the Anti-ELAB lost its momentum. Yet, our goal is to use this example to highlight how protesters' concerns over data-driven surveillance would increase the anticipatory cost of participation.

Such tensions are revealed in the two parties' distinctive naming of the technology. The government considered the 'smart lampposts' as a key digital infrastructure project to promote cost-effective and transparent urban governance (Smart Lampposts Technical Advisory Ad Hoc Committee, 2020). By contrast, the protesters considered such a project an expanding surveillance infrastructure. A protest event called 'Light Up Hong Kong, Awake Hongkongers' was organized in Kwun Tong on 24 August 2019. The organizers' pamphlet named the lampposts as 'surveillance lampposts' with a facial recognition system. The organizers denounced that such lampposts, together with the new RFID Hong Kong identity cards, could render Hong Kong into 'a large prison' where Hongkongers 'are completely monitored.'

Protesters associated the anticipatory threats of the lampposts with those of mainland China's state-centered social credit systems. Consistent with popular surveillance imaginaries of mainland China's state-centered social credit systems (Liu, 2019), protesters contended that the government could use lamppost data to monitor people's daily activities, distribute social resources, and punish dissents. On August 21, one of the protest organizers stated that the government had not consulted the public before installing the lampposts. They were aware that the lampposts were 'only a tool,' but they did not trust 'the government behind the technology.') During the August 24 protest, some protesters used electric saws to cut down about 20 lampposts and looked into the specifications of the lampposts (Chan, 2019). They found a Bluetooth beacon called 'BLE Locator: Model SPLD01' inside such lampposts and suspected that the lampposts could be used to track people's personal and location data from their digital devices. When looking into the provider of the beacon, TickTack, protesters discovered that the provider's website was connected with Shanghai Sansi, one of the companies that supported China's digital surveillance network (Chan, 2019). As activists elaborated, although the government claimed that the lampposts were not intended to collect people's personal data, it remains unclear how the government would use the data for law enforcement.

Indeed, we can observe parallel future-oriented concerns over data misuse and surveillance in COVID-19 pandemic governance in Hong Kong. Although the government has reiterated that the contact tracing mobile app poses no privacy concerns, some citizens believe that the government is rolling out a surveillance system similar to mainland China's 'Health Code' (Li, 2021). What is at stake here is not whether the government actually collected data about protesters from surveillance cameras in the Floyd protests or the lampposts and contact tracing app in Hong Kong, but how the materiality of data-driven technologies incited protesters to anticipate surveillance and counter data

surveillance accordingly, or what Kazansky (2021) termed 'anticipatory data practices' (p. 2). For protesters in the Anti-ELAB movement, wearing face masks (Mahtani, 2019) was not simply to protect themselves from the tear gas but also to prevent the threats of being identified by the materiality structures. In this vein, the introduction of surveillance technologies would increase the cost of participation.

Epistemic dynamics

In both cases, protesters were aware of the use of data-driven technologies for surveillance and policing. Epistemic dynamics are concerned with how protesters share privacy knowledge and articulate counter-strategies against the (mis)use of data.

In the Floyd protests, civil society organizations, such as the EFF and the American Civil Liberties Union, developed a list of strategies that protesters could use to protect themselves from surveillance (Wade et al., 2021). EFF's (Electronic Frontier Foundation, 2020) guide, 'Surveillance Self-Defense,' suggested that protesters should turn on full-disk encryption on their mobile devices, remove biometric unlocking, install encrypted messaging tools, and purchase a prepaid, disposable phone before participating in protests. EFF also suggested that people should 'consider obscuring the faces of anyone who has their eyes or mouth visible' when taking and posting photos of protests on social media because the police might use such photos to identify and arrest protesters. Other common protest-related recommendations in relevant media and online publications include the use of airplane mode and the management of locational and metadata (Wade et al., 2021).

In the Anti-ELAB movement, Telegram enabled protesters to 'broadcast' and circulate protest-related information and discuss future protest actions (Kow et al., 2020). Although Telegram's anonymity features allowed users to protect their privacy, platform-specific affordances do not determine movement dynamics and outcomes (Lee et al., 2021). Instead, epistemic dynamics contributed to how digital technologies could and should be used. For instance, protesters instructed others that they should use customized privacy settings to conceal their identities (Kow et al., 2020), although they recognized that this strategy was not entirely safe. Some self-organized protest groups on Facebook further urged protesters to use a virtual private network (VPN) and an anonymous prepaid SIM card to access Telegram. The movement posters circulated through the Telegram channels also suggested that a 'safe' and 'reliable' VPN should not have any affiliations with companies from mainland China. Protesters were also instructed to avoid using public Wi-Fi in public spaces to prevent their IP addresses from being tracked. This is because the internet service providers would have phone users' location data, browsing history, and other usage data if protesters did not use a VPN and the prepaid SIM card. The government could then request such data from the service providers. These privacy instructions also encouraged protesters not to discuss their protest experiences, even with their friends. The spread of this digital privacy knowledge, together with the practices of using cash and wearing face masks during protests (Mahtani, 2019), as well as using pseudonyms on social media platforms (Smith, 2019), aimed to inform protesters to remove any digital traces that could be used by the government for repression of an individual user and their connective network.

In both cases, the opacity of data-driven technologies resulted in a dilemma – protesters lacked full knowledge about how their data could be used (Wade et al., 2021),

despite having some awareness concerning the potential sensitivity of their data. While protesters' epistemic practices might lower the cost of participation, these fears testified to the idea that protesters were trapped into implicated networks. As reflected by Smith (2019), a Hong Kong-based writer who used a pseudonym to stay anonymous, regarding the Anti-ELAB movement, 'The people who built these networks [i.e. social media] didn't think about how they might work in countries where public assembly can be criminalized or a connected online identity can be grounds for arrest. Now, some protesters are realizing too late that their digital footprint is hard to erase.'

Conclusion

Due to the rise of digital communication technologies, an increasing number of social movements have taken the form of connective action achieved through datafication structures in the absence of central coordinating SMOs. Social movement demobilization remains a relatively understudied area, let alone social movement demobilization in data-mediated connective action. Thus, we attempted to bridge communication studies with social movement studies to address this gap. We propose the INsD framework to highlight three major demobilizational dynamics – implicated data, materiality, and epistemic – which are particularly salient in connective action achieved through datafication structures.

In the Anti-ELAB movement and the Floyd protests, datafication structures became one of the major sites of struggle between the state and protesters. Concerning implicated data dynamics, accessing, tracking, and policing protesters and their implicated networks through the digital imprints that they have left is a key strategy for demobilization. In the Floyd protests, the police relied on this strategy for arresting activists and identifying potential protests. In the Anti-ELAB movement, police used protesters' phone data for law enforcement. There was also the criminalization of doxxing against the police. Regarding materiality dynamics, data infrastructures could be deployed for policing purposes. Although protesters were aware of and anticipated the surveillance threats of such infrastructures, they could not escape from data surveillance, which in turn increased the cost of participation in connective action. The epistemic dynamics are concerned with both the lack of transparency in how law enforcement officers police through data and in protesters' digital knowledge. Although the affordances of digital technologies facilitate movement mobilization (Lee et al., 2021), people's knowledge – both of counter-surveillance strategies and digital technologies – shape their anticipatory practices. The circulation of counter-surveillance strategies is evidenced in the Floyd protests and the Anti-ELAB movement. As such, epistemic dynamics illustrate protesters' efforts in hiding themselves from these surveillance threats. The article's contributions lie in articulating these three dynamics in connective action achieved through datafication structures and illustrating these dynamics by concrete cases in the Anti-ELAB movement and the Floyd protests.

The article highlights that understanding the mobilizational logic of connective action executed through datafication structures requires an understanding of the demobilizational logic of the state. Some mobilizational measures are indeed counter-demobilization measures, such as the smart lampposts in the Anti-ELAB movement and police surveillance in the Floyd protests. The INsD framework thereby helps to

analyze the interactive dynamics between the state and activists that are crucial for understanding the two parties' data-mediated struggles.

Lastly, the INsD framework applies to other, more general, digitally-mediated movements and contestations between the state and protesters. An example is the outbreak of the COVID pandemic, which sparked a new wave of concern over the normalization of data collection and the potential threats to individual privacy. As Deibert (2020) put this, 'the more we embrace and habituate to these new applications, the deeper their tentacles reach into our everyday lives and the harder it will be to walk it all back.' Controversies have also been surrounding issues pertaining to the three dynamics of the INsD framework: first, about the implicated data generated by the extensive adoption of vaccine passports; second, about the monitoring infrastructures built in the name of public health; and third, about the lack of knowledge over how pandemic-related data would be used in the future. Thus, the INsD framework could be a useful tool for future research on digitally-mediated struggles.

Notes

1. It is noteworthy that whether the dynamics exist and become prevalent depend on contextual factors such as whether there exists a well-developed datafication structure in which both the state and activists could draw on to suppress or sustain claim-makings.
2. The "ANTIELAB Research Data Archive" is an open access database created by the Journalism and Media Studies Centre at the University of Hong Kong. It extracted and stored data about "Mobilization Map," "Teargas Map," and the movement posters from the movement-related Telegram channels. The dataset, however, is now set to private. For a description of the data archive, see https://antielabdata.jmsc.hku.hk/about-us/
3. Lee et al. (2019) made the survey data about the demographics of protesters available online.

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References

Anderson, M., Barthel, M., Perrin, A., & Vogels, E. A. (2020, June 10). *#BlackLivesMatter surges on Twitter after George Floyd's death*. Pew Research Center. https://www.pewresearch.org/fact-tank/2020/06/10/blacklivesmatter-surges-on-twitter-after-george-floyds-death/

ANTIELAB Research Data Archive. (2020). Retrieved 14 January 2021, from https://antielabdata.jmsc.hku.hk/

Austin, P. L. (2020, June 17). Going to protest? Here's how to protect your digital privacy. *Time*. https://time.com/5852009/protest-digital-privacy/

Benford, R. D., & Snow, D. A. (2000). Framing processes and social movements: An overview and assessment. *Annual Review of Sociology*, *26*(1), 611–639. https://doi.org/10.1146/annurev.soc.26.1.611

Bennett, W. L., & Segerberg, A. (2012). The logic of connective action: Digital media and the personalization of contentious politics. *Information, Communication & Society*, *15*(5), 739–768. https://doi.org/10.1080/1369118X.2012.670661

Beraldo, D., & Milan, S. (2019). From data politics to the contentious politics of data. *Big Data & Society*, *6*(2), 205395171988596. https://doi.org/10.1177/2053951719885967

Brayne, S., & Christin, A. (2021). Technologies of crime prediction: The reception of algorithms in policing and criminal courts. *Social Problems*, *68*(3), 608–624. https://doi.org/10.1093/socpro/spaa004

Buchanan, L., Bui, Q., & Patel, J. K. (2020), July 3. Black lives matter may be the largest movement in U.S. history. *The New York Times*. https://www.nytimes.com/interactive/2020/07/03/us/george-floyd-protests-crowd-size.html

Cai, Y. (2010). *Collective resistance in China*. Stanford University Press.

Chan, H. (2019, August 26). Hong Kong tech firm pulls out of smart lamppost programme after surveillance accusations and staff threats. *Hong Kong Free Press*. https://hongkongfp.com/2019/08/26/hong-kong-tech-firm-pulls-smart-lamppost-programme-surveillance-accusations-staff-threats/

Cheng, E. W., Lee, F. L. F., Yuen, S., & Tang, G. (2022). Total mobilization from below: Hong Kong's freedom summer. *The China Quarterly*, 1–31. https://doi.org/10.1017/S0305741022000236

Choudry, A., & Kapoor, D. (Eds.). (2013). *NGOization: Complicity, contradictions and prospects*. Bloomsbury.

Curtis, R. L., & Zurcher, L. A. (1973). Stable resources of protest movements: The multi-organizational field. *Social Forces*, *52*(1), 53–61. https://doi.org/10.2307/2576423

Davenport, C. (2015). *How social movements die: Repression and demobilization of the republic of New Africa*. Cambridge University Press.

Deibert, R. J. (2020, November 23). We've become dependent on a technological ecosystem that is highly invasive and prone to serial abuse. *The Globe and Mail*. https://www.theglobeandmail.com/opinion/article-the-pandemic-has-made-us-even-more-dependent-on-a-highly-invasive/

Dencik, L., Hintz, A., & Cable, J. (2016). Towards data justice? The ambiguity of anti-surveillance resistance in political activism. *Big Data & Society*, *3*(2), 205395171667967. https://doi.org/10.1177/2053951716679678

Dwyer, M. P. (2021). *LPAD documents reveal use of social media monitoring tools*. Brennan Center for Justice. https://www.brennancenter.org/our-work/analysis-opinion/lapd-documents-reveal-use-social-media-monitoring-tools

Earl, J. (2003). Tanks, tear gas, and taxes: Toward a theory of movement repression. *Sociological Theory*, *21*(1), 44–68. https://doi.org/10.1111/1467-9558.00175
Electronic Frontier Foundation. (2020). *Surveillance self-defense*. https://ssd.eff.org/en
Ellefsen, R. (2016). Judicial opportunities and the death of SHAC: Legal repression along a cycle of contention. *Social Movement Studies*, *15*(5), 441–456. https://doi.org/10.1080/14742837.2016.1185360
Farivar, C., & Solon, O. (2020, June 20). FBI trawled Facebook to arrest protesters for inciting riots, court records show. *NBC News*. https://www.nbcnews.com/tech/social-media/federal-agents-monitored-facebook-arrest-protesters-inciting-riots-court-records-n1231531
Fillieule O. (2010). Some elements of an interactionist approach to political disengagement. *Social Movement Studies*, *9*(1), 1–15. 10.1080/14742830903442436
Fillieule, O. (2013). Demobilization. *The Wiley-blackwell Encyclopedia of Social and Political Movements*. https://doi.org/10.1002/9780470674871.wbespm064
Fussell, S. (2021, August 27). An explosion in geofence warrants threatens privacy across the US. *Wired*. https://www.wired.com/story/geofence-warrants-google/
Giugni, M. G. (1998). Was it worth the effort? The outcomes and consequences of social movements. *Annual Review of Sociology*, *24*(1), 371–393. https://doi.org/10.1146/annurev.soc.24.1.371
Giugni, M., & Grasso, M. T. (2015). Environmental movements in advanced industrial democracies: Heterogeneity, transformation, and institutionalization. *Annual Review of Environment and Resources*, *40*(1), 337–361. https://doi.org/10.1146/annurev-environ-102014-021327
Greenberg, A., & Newman, L. H. (2020, May 31). How to protest safely in the age of surveillance. *Wired*. https://www.wired.com/story/how-to-protest-safely-surveillance-digital-privacy/
Grimm, J., & Harders, C. (2018). Unpacking the effects of repression: The evolution of Islamist repertoires of contention in Egypt after the fall of President Morsi. *Social Movement Studies*, *17*(1), 1–18. https://doi.org/10.1080/14742837.2017.1344547
Guariglia, M. (2020, November 5). *How to identify visible (and invisible) surveillance at protests*. Electronic Frontier Foundation. https://www.eff.org/deeplinks/2020/06/how-identify-visible-and-invisible-surveillance-protests
Guariglia, M., & Maass, D. (2021, February 16). *LAPD requested ring footage of Black Lives Matter protests*. Electronic Frontier Foundation. https://www.eff.org/deeplinks/2021/02/lapd-requested-ring-footage-black-lives-matter-protests
Jenkins, J. C., & Eckert, C. M. (1986). Channeling Black insurgency: Elite patronage and professional social movement organizations in the development of the Black movement. *American Sociological Review*, *51*(6), 812–829. https://doi.org/10.2307/2095369
Kalyvas, S. N. (2006). *The logic of violence in civil war*. Cambridge University Press.
Kanno-Youngs, Z. (2020, June 19). U.S. watched George Floyd protests in 15 cities using aerial surveillance. *The New York Times*. https://www.nytimes.com/2020/06/19/us/politics/george-floyd-protests-surveillance.html
Kazansky, B. (2021). 'It depends on your threat model': The anticipatory dimensions of resistance to data-driven surveillance. *Big Data & Society*, *8*(1), 205395172098555. https://doi.org/10.1177/2053951720985557
Klandermans, B. (1997). *The social psychology of protest*. Blackwell.
Kow, Y. M., Nardi, B., & Cheng, W. K. (2020). Be water: Technologies in the leaderless Anti-ELAB movement in Hong Kong. *CHI'20: Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems*, 1–12. https://doi.org/10.1145/3313831.3376634
Lau, C., & Lum, A. (2019, November 8). Telegram social media channel used by protesters for doxxing Hong Kong police suspended after leaking thousands of pictures and videos of officers and their families. *South China Morning Post*. https://www.scmp.com/news/hong-kong/politics/article/3037001/telegram-social-media-channel-used-protesters-doxxing-hong
Lee, F. L. F., Liang, H., Cheng, E. W., Tang, G., & Yuen, S. (2021). Affordances, movement dynamics, and a centralized digital communication platform in a networked movement. *Information, Communication & Society*. https://doi.org/10.1080/1369118X.2021.1877772

Lee, F. L. F., Tang, G., Yuen, S., & Cheng, E. W. (2019). *Onsite survey findings in Hong Kong's anti-extradition bill protests*. Centre for Communication and Public Opinion Survey, The Chinese University of Hong Kong. https://sites.google.com/view/antielabsurvey-eng

Lee, F. L. F., Yuen, S., Tang, G., & Cheng, E. W. (2019). Hong Kong's summer of uprising: From anti-extradition to anti-authoritarian protests. *The China Review*, *19*(4), 1–32.

Liang, H., & Lee, F. L. F. (2021). Opinion leadership in a leaderless movement: Discussion of the anti-extradition bill movement in the 'LIHKG' web forum. *Social Movement Studies*, 1–19. https://doi.org/10.1080/14742837.2021.1989294

Lichbach, M. I. (1987). Deterrence or escalation? The puzzle of aggregate studies of repression and dissent. *The Journal of Conflict Resolution*, *31*(2), 266–297.

Liu, C. (2019). Multiple social credit systems in China. *Economic Sociology: The European Electronic Newsletter*, *21*(1), 22–32.

Li, Y-T. (2021). Accounting for "the social" in contact tracing applications: The paradox between public health governance and mistrust of government's data use. Big Data & Society. https://doi.org/10.1177/20539517211054277

Mahtani, S. (2019 , June 15). Masks, cash and apps: How Hong Kong's protesters find ways to outwit the surveillance state. *The Washington Post*. https://www.washingtonpost.com/world/asia_pacific/masks-cash-and-apps-how-hong-kongs-protesters-find-ways-to-outwit-the-surveillance-state/2019/06/15/8229169c-8ea0-11e9-b6f4-033356502dce_story.html

Mahtani, S. (2021, January 12). First came political crimes. Now, a digital crackdown descends on Hong Kong. *The Washington Post*. https://www.washingtonpost.com/world/asia_pacific/hong-kong-national-security-law-internet/2021/01/12/01738064-53b6-11eb-acc5-92d2819a1ccb_story.html

Marthews, A., & Tucker, C. (2017, February 17). Government surveillance and internet search behavior. Available at SSRN: https://ssrn.com/abstract=2412564

McAdam, D. (1990). *Freedom summer*. Oxford University Press.

McAdam, D., Tarrow, S., & Tilly, C. (2001). *The dynamics of contention*. Cambridge University Press.

McCarthy, J. D., & Zald, M. N. (1977). Resource mobilization and social movements: A partial theory. *The American Journal of Sociology*, *82*(6), 1212–1241.

Meyer, D. S., & Minkoff, D. C. (2004). Conceptualizing political opportunity. *Social Forces*, *82*(4), 1457–1492. https://doi.org/10.1353/sof.2004.0082

Milan, S. (2018). Political agency, digital traces, and bottom-up data practices. *International Journal of Communication*, *12*, 507–527.

Milan, S., & van der Velden, L. (2016). The alternative epistemologies of data activism. *Digital Culture & Society*, *2*(2), 57–74. https://doi.org/10.14361/dcs-2016-0205

Ng, K. C. (2020, January 8). Hong Kong police seized more than 3,700 mobile phones from protesters in space of five months and had devices broken into to read contents, security chief reveals. *South China Morning Post*. https://www.scmp.com/news/hong-kong/law-and-crime/article/3045263/hong-kong-police-seized-more-3700-mobile-phones

Opp, K.-D., & Roehl, W. (1990). Repression, micromobilization, and political protest. *Social Forces*, *69*(2), 521–547. https://doi.org/10.2307/2579672

Pang, J. (2019, June 21). Fate of 24 arrested Hong Kong protesters hangs in balance as anger turns on police. *Reuters*. https://www.reuters.com/article/uk-hongkong-extradition-protesters-idUKKCN1TM0Z8

Poupin, P. (2021). Social media and state repression: The case of VKontakte and the anti-garbage protest in Shies, in Far Northern Russia. *First Monday*, *26*(5). https://doi.org/10.5210/fm.v26i5.11711

Ray, L. O. (2021, September 3). Official emails show that LAPD worked with a controversial social media surveillance company during George Floyd protests. *LA Taco*. https://www.lataco.com/lapd-social-media-surveillance-protest/

Reny, T. T., & Newman, B. J. (2021). The opinion-mobilizing effect of social protest against police violence: Evidence from the 2020 George Floyd protests. *The American Political Science Review*, *115*(4), 1499–1507. https://doi.org/10.1017/S0003055421000460

Ringrose, K., & Ramjiee, D. (2020). Watch where you walk: Law enforcement surveillance and protester privacy. *California Law Review*, *11*, 349–366. https://doi.org/10.15779/Z38G44HR3X

Ruppert, E., Isin, E., & Bigo, D. (2017). Data politics. *Big Data & Society*, *4*(2), 205395171771774. https://doi.org/10.1177/2053951717717749

Schoolov, K. (2020, June 18). As protests over the killing of George Floyd continue, here's how police use powerful surveillance tech to track them. *CNBC*. https://www.cnbc.com/2020/06/18/heres-how-police-use-powerful-surveillance-tech-to-track-protestors.html

Sham Wing Kan v Commissioner of Police, HKCA 186. (2020). https://legalref.judiciary.hk/lrs/common/ju/ju_frame.jsp?DIS=127304&currpage=T

Siu, J., & Leung, C. (2020, August 28). Hong Kong protests: Alleged telegram channel administrator charged with inciting arson against police facilities, denied bail. *South China Morning Post*. https://www.scmp.com/news/hong-kong/law-and-crime/article/3099336/hong-kong-protests-alleged-telegram-channel

Smart Lampposts Technical Advisory Ad Hoc Committee. (2020). *Report of the technical advisory ad hoc committee on multi-functional smart lampposts*. https://www.ogcio.gov.hk/en/our_work/strategies/initiatives/smart_lampposts/committee/doc/CommitteeReport_en.pdf

Smith, T. (2019). In Hong Kong, protesters fight to stay anonymous. *The Verge*. https://www.theverge.com/2019/10/22/20926585/hong-kong-china-protest-mask-umbrella-anonymous-surveillance

Tarrow, S. (2011). *Power in movement: Social movements, collective action and politics* (2nd ed.). Cambridge University Press.

Taylor, V. (1989). Social movement continuity: The women's movement in abeyance. *American Sociological Review*, *54*(5), 761–775. https://doi.org/10.2307/2117752

Tilly, C. (1978). *From mobilization to revolution*. Addison-Wesley.

Tilly, C., & Tarrow, S. (2015). *Contentious politics* (2nd ed.). Oxford University Press.

Ting, T.-Y. (2020). From 'be water' to 'be fire': Nascent smart mob and networked protests in Hong Kong. *Social Movement Studies*, *19*(3), 362–368. https://doi.org/10.1080/14742837.2020.1727736

Tufekci, Z. (2017). *Twitter and tear gas: The power and fragility of networked protest*. Yale University Press.

Van Aelst, P., & Walgrave, S. (2004). New media, new movements? The role of the internet in shaping the 'anti-globalization' movement. In W. Van De Donk, B. D. Loader, P. G. Nixon, & D. Rucht (Eds.), *Cyberprotest: New media, citizens and social movement* (pp. 87–108). Routledge.

van Dijck, J. (2014). Datafication, dataism and dataveillance: Big data between scientific paradigm and ideology. *Surveillance & Society*, *12*(2), 197–208. https://doi.org/10.24908/ss.v12i2.4776

Wade, K., Brubaker, J. R., & Fiesler, C. (2021). Protest privacy recommendations: An analysis of digital surveillance circumvention advice during Black Lives Matter protests. *CHI EA '21: Extended Abstracts of the 2021 CHI Conference on Human Factors in Computing Systems*. https://doi.org/10.1145/3411763.3451749

Whittaker, Z. (2021, February 7). Minneapolis police tapped Google to identify George Floyd protesters. *TechCrunch*. https://techcrunch.com/2021/02/06/minneapolis-protests-geofence-warrant/

Wong, B. (2021, April 20). Hong Kong protests: woman in doxxing case jailed for three years, becomes first person in two decades sentenced using colonial-era sedition law. *South China Morning Post*. https://www.scmp.com/news/hong-kong/law-and-crime/article/3130291/hong-kong-protests-woman-doxxing-case-jailed-three

Yuen, S., & Cheng, E. W. (2017). Neither repression nor concession? A regime's attribution against mass protests. *Political Studies*, *65*(3), 611–630. https://doi.org/10.1177/0032321716674024