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The pitfalls of smart urban infrastructure during a period of unrest: Networked dissent against smart lampposts in Hong Kong

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Abstract: While the notion of the smart city has grown in popularity, the backlash against smart urban infrastructure in the context of changing state-public relations has seldom been examined. This article draws on the case of Hong Kong’s smart lampposts to analyse the emergence of networked dissent against smart urban infrastructure during a period of unrest. Deriving insights from critical data studies, dissentworks theory, and relevant work on networked activism, the article illustrates how a smart urban infrastructure was turned into both a source and a target of popular dissent through digital mediation and politicisation. Drawing on an interpretive analysis of qualitative data collected from multiple digital platforms, the analysis explicates the citizen curation of socio-technic counter-imaginaries that constituted a consent of dissent in the digital realm, and the creation and diffusion of networked action repertoires in response to a changing political opportunity structure. In addition to explicating the words and deeds employed in this networked dissent, this article also discusses the technopolitical repercussions of this dissent for the city’s later attempts at data-based urban governance, which have unfolded at the intersections of urban techno-politics and local contentious politics. Moving beyond the common focus on neoliberal governmentality and its limits, this article reveals the underexplored pitfalls of smart urban infrastructure vis-à-vis the shifting socio-political landscape of Hong Kong, particularly in the digital age.

Keywords: urban infrastructure; urban development; smart city backlash; data-driven governance; networked dissent; techno-politics

1. Introduction

Studies on smart cities have acknowledged that public perception and trust are fundamental to the coordinated implementation of smart policies and urban infrastructure (Arku et al., 2024; Leung and Lee, 2021). The literature has further suggested that unbridled development of smart cities through opaque partnerships with technology companies may fuel public uproar and censure (Wachter, 2019). Therefore, while the smart city agenda has brought about a paradigm shift in urban governance and planning, smart urban infrastructure that are supposed to help to establish and maintain urban order may become focal points of contention. To date, however, ‘a comprehensive understanding of citizen discontent with the smart city is missing’ (Van et al., 2023, p. 1), especially with regard to the networking of ‘urban counter power’ (Ting, 2024, p. 99) that arises to contest the power of urban authorities.

Hong Kong’s smart lamppost initiative serves as a valuable case study through which to investigate the backlash against smart urban infrastructure in the context of changing state–public relations. The smart lamppost initiative has been an integral part of the local government’s Smart City Blueprint, and Hong Kong’s urban authorities planned to install over 400 smart lampposts to harness real-time environmental, traffic, and air flow data in pursuit of building ‘a world-famed Smart Hong Kong

characterized by a strong economy and high quality of living' (Innovation, Technology, and Industry Bureau, 2022). However, during the anti-extradition bill movement (AEBM) in 2019, opposing public perceptions of and responses to smart urban infrastructure were marked by an intense wave of networked dissent. As shown in the analysis, given the intensifying state-public relations, socio-technical counter-imaginaries curated by citizen activists over the Internet portrayed an alternative scenario, in which the smart lampposts served as a political tool of urban repression and social control. Meanwhile, digitally enabled citizen activists self-mobilised and self-organised to sabotage and evade the smart urban infrastructure through the intensive use of mobile social media and digital platforms.

The AEBM was the largest and most long-lasting protest movement in Hong Kong's history (Lee et al., 2022). It originated in the opposition to the local government's proposal to amend the Fugitive Ordinance to allow Hong Kong to extradite suspects to mainland China. However, the proposal aroused enormous opposition due to the widespread public distrust of the Chinese legal system (Liang and Lee, 2023). The government's decision to move ahead led tens of thousands of citizens to surround the Legislative Council Complex on 12 June 2019 to demand the withdrawal of the bill, and clashes between protesters and police ensued (Lee et al., 2022). After the incident, more protests went on as protesters' demands expanded to include democratic reform and the addressing of alleged police abuse of power (Ting, 2020). Between June 2019 and January 2020, the movement involved four protest marches with more than one million participants and numerous other sizable protest marches and rallies (Lee et al., 2022). Against this backdrop, citizen activists became concerned over the smart lampposts being equipped with sensors and cameras to conduct surveillance during protests (Leung and Lee, 2021), and some protestors of AEBM self-organised on social media to topple the smart lampposts (Fussell, 2019; Stone, 2022). The case of Hong Kong's smart lampposts thus showcases an adversarial form of citizen engagement, one which targeted the infrastructure of data-driven governance.

This article draws on the case of Hong Kong's smart lampposts to analyse the emergence of networked dissent against smart urban infrastructure during a period of unrest. Deriving insights from critical data studies, dissentworks theory, and relevant work on networked activism, the article illustrates how a smart urban infrastructure was turned into both a source and a target of popular dissent through digital mediation and politicisation. Specifically, drawing on an interpretive analysis of qualitative data collected from multiple digital platforms, the analysis explicates the citizen curation of socio-technic counter-imaginaries that constituted a consent of dissent in the digital realm, and the creation and diffusion of networked action repertoires in response to a changing political opportunity structure. In addition to explicating the words and deeds employed in this networked dissent, this article also discusses the technopolitical repercussions of this dissent for the city's later attempts at data-based urban governance, which have unfolded at the intersections of urban techno-politics and local contentious politics. Moving beyond the common focus on neoliberal governmentality and its limits, this article reveals the underexplored pitfalls of smart urban infrastructure vis-à-vis a shifting socio-political landscape, particularly in the digital age.

1.1. The shift in scholarly attention to the smart city backlash

The notion of the smart city has grown in popularity, and urban authorities worldwide are increasingly addressing urban policy and governance issues by harnessing data infrastructure through smart city policies and projects (Barns, 2019; Leszczynski, 2020; Morozov, 2012). Nowadays, smart city agenda with its emphasis on ‘big data’ has constituted a major approach to urban development (Willis and Aurigi, 2020). It addresses cities as complex systems that are increasingly measured, tracked, modelled and visualised (Luque-Ayala and Marvin, 2020; Mattern, 2021).

However, smart urban infrastructure projects exert control over citizens’ physical movements and mundane activities while supporting or sustaining an array of dominant institutions and power relations (Cook and Karvonen, 2024; Wiig, 2016). In some instances, these projects have been criticised for legitimising excessive platform capitalism and exacerbating social inequality, resulting in uneven distributions of externalities among residents, whose opinions, perspectives, and attitudes tend to be excluded from the implementation of smart urban infrastructure (Latonero and Kift, 2018; Rekhviashvili et al., 2022).

In contrast to optimistic claims about the benefits of smart cities, critical data studies have indicated that ‘data-driven urban practices give rise to technological and management challenges, as well as to normative ethical and social concerns’ (Bunders and Krisztina, 2019, p. 145). Sceptical analyses have primarily been concerned with issues of ‘neoliberal-infused new urban visions’ (Kitchin, 2015, p. 132; see also Chen and Ting, 2019; Ting and Chen, 2021), ranging from privacy intrusions and societal (in)equity to unbridled smart city development that compromises the public interest and undermines democratic participation (Kitchin, 2015; Leitheiser and Follmann, 2020; Luque-Ayala and Marvin, 2020; Mattern, 2021). However, while these studies have expressed scepticism towards the private companies and city administrations leading smart city projects (Wiig, 2016), relatively little attention has been paid to recent episodes of techno-politics that have arisen amidst changing or intensifying state-citizen relations.

An alternative strand of critical data studies has emerged that highlights the tensions and contradictions that are unfolding in smart cities. Some of these studies have shed light on how surveillance and monitoring may be strengthened by the use of artificial intelligence (AI) systems in the urban space (Cordes, 2017), while others have addressed issues of predictive profiling and pre-emptive governance via data-intensive infrastructure used to manage and control cities (Andrejevic, 2017). It is through this lens that other scholars have begun to examine citizens’ counter-hegemonic engagement with smart urban infrastructure. This article contributes to this scholarly discussion through an examination of the ways in which digitally enabled citizens contested and countered smart urban infrastructure amidst changing state–public relations, situating the emergence of networked dissent against Hong Kong’s smart lampposts during the social unrest of 2019 in this growing field of scholarship.

1.2. Towards an analysis of networked dissent

Although hyper-connectivity, digital virality, and data motility are increasingly built into smart urban infrastructure, they do not necessarily lead to the stability and

social order desired by urban authorities. Conversely, the proliferation of ‘an ultra-saturated media and communication environment provides ample opportunities for activists to resist, to exert their agency, to self-represent themselves and to defy the structural constraints’ (Cammaerts, 2012, p. 122). Today, networked individuals, through experimentation with various visual and textual elements via the Internet, are enabled to act as informational and relational brokers and to form bridges in and across citizen groups and activist channels (Ting, 2022a). Through the promotion of relational density and diversity, mobile infrastructure and Internet access may be conducive to the emergence of a ‘mediation opportunity structure’ (Cammaerts, 2012, p. 117) and the articulation of what Coopman (2011) coined a ‘network of dissent’ that consists of ‘relational, action-oriented, heterogeneous networks of action’ (Coopman, 2011, p. 154).

Yet the emergence of networked dissent against smart urban infrastructure ultimately depends on the situated ‘media and communication practices that constitute [...] mediation opportunity structure’ (Cammaerts, 2012, p. 117) vis-à-vis the changing or emerging ‘political opportunity structure’ (Tarrow, 1994). Coopman’s (2011, p. 154) dissentworks theory notes how such networked dissent emerges when public deliberation and contestation and ‘challenge[s] the validity, exclusivity, and “natural” purview of existing systems’. In cases of backlash against smart cities, this process may involve the construction of ‘socio-technical [counter-]imaginaries’ (Jasanoff and Kim, 2015) of certain smart urban infrastructure. As online discussions allow digitally enabled citizens to formulate counter-narratives and oppositional knowledge that contest the prescribed meaning of the smart urban infrastructure and attach new meanings to it, socio-technical counter-imaginaries may emerge based on citizens’ subjective (re)assessment and criticism of smart urban infrastructure through ‘citizen curation’ (Pedersen and Burnett, 2018, pp. 545–562). These socio-technical counter-imaginaries may challenge the normative discourse around smart urban infrastructure ‘via an unofficial consensus on the failure of existing institutions and regimes of control’ (Coopman, 2011, p. 154).

Another dimension of analysis explores the crowdsourcing of ‘best practices through direct action, resource sharing, and detail to organizational process’ (Coopman, 2011, p. 165) in a digitalised network of dissent. A corresponding analytical emphasis is placed on the networked, dynamic process of practice sharing and organising creates various ‘repertoires of contention’ (Tilly, 1977, pp. 126–155) during a smart city backlash. Instead of drawing on traditional leadership or vertical organisation, networked dissent builds on a rhizomatic network and relies on the distributed participation of networked individuals who contribute their techniques, knowledge, and skills to the cause in an ad hoc manner (Ting, 2017). This networked endeavour thus entails the crowdsourcing of citizen direct actions, as its open-source and asymmetric dynamic promotes the development of diverse modes of citizen intervention and involvement by permitting the co-existence of various forms of non-compliance with adversarial actions against smart urban infrastructure.

2. Materials and methods

This study drew on digital ethnography and archival research to investigate the

emergence of networked dissent against Hong Kong’s smart lampposts during the AEBM. Digital ethnography involves the unobtrusive, observational analysis of content on digital platforms and is used to understand the communicative interactions among and perspectives of the members of online groups. Conducting digital ethnography non-participant online observations on open-access platforms will minimise the potential risk and harm to researched subjects, and avoid intruding on privacy or disturbing the natural behaviour on these sites, particularly where a potentially sensitive topic is concerned (Kozinets, 2012; Langer and Beckman, 2005). This study drew specifically on Coleman’s (2010) analytical framework of ethnographic digital analysis to conduct observations of the self-constructed culture, discourses, and conventions in the digital realm examined. The study collected empirical materials primarily from LIHKG, the Reddit-like platform that was widely used by protestors as the de facto virtual command centre during the AEBM (Liang and Lee, 2021; Ting, 2020) and as a popular site on which to dox police officers in its aftermath (Li and Whitworth, 2023). The study examined the period between June 2019, when the smart city backlash emerged during the AEBM, and January 2020, when the citywide protest movement was curtailed, in part, by the outbreak of the COVID-19 pandemic (Cheng et al., 2022). Related posts on LIHKG and other social media platforms were predominantly written in traditional Chinese characters and expressed in colloquial Cantonese by citizen activists. They were translated into English by the author, who are native speakers of Cantonese, in the presentation of findings.

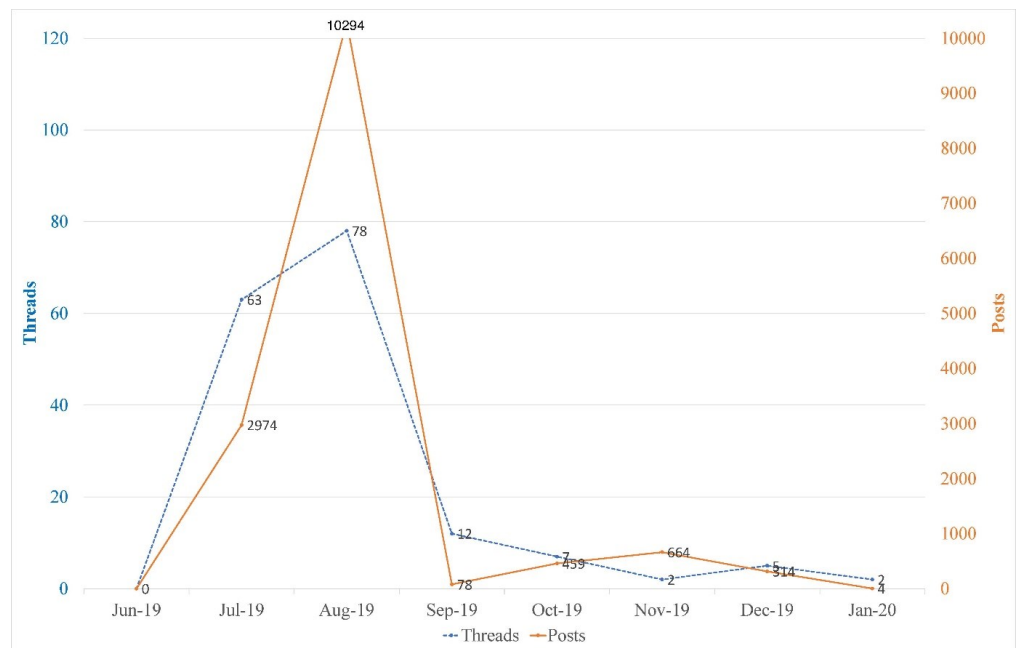


Figure 1. Total numbers of monthly threads and posts about the smart lampposts on LIHKG.

In the case of Hong Kong’s smart lampposts, the development of a digitalised network of dissent began and overlapped with the AEBM’s pre-existing activist networks. Due to its popularity and intensive use during the citywide protest movement, LIHKG similarly provided a pluralistic, yet centralised, platform on which

to mobilise and coordinate networked dissent against smart urban infrastructure. **Figure 1** illustrates the centrality of LIHKG in the digitised network of dissent that targeted Hong Kong's smart lampposts. In the summer of 2019, at the peak of the AEBM, there was a dramatic surge in online discussions revolving around this smart city apparatus, characterised by socio-technical counter-imaginaries and crowdsourced repertoires of contention that sought to resist and counter the smart lampposts. As the protestors of AEBM switched from street protests to 'networked mall protests' (Ting, 2022b, p. 21) since late-August 2019, there was a decline in relevant LIHKG posts regarding the mobilisation and organisation of collective action against smart lampposts during street protests. Between June 2019 and January 2020, a total of 14,787 posts under 169 threads that contained the keywords 'smart lampposts', 'surveillance lampposts', or 'multifunction lampposts' were created on LIHKG.

A robust network of dissent is composed of multiple activist communities and groups, not a network structure that draws on a single digital platform (Coopman, 2011). Observations made using digital ethnography uncovered an array of online groups and communication channels linked to LIHKG via cross-posting and engagement across platforms. The relationships between these platforms indicated that there was high relational diversity in the dissent network, in which '[m]embers of homogenous groups within the larger network act as brokering and bridging agents' in and across digital platforms (Coopman, 2011, p. 169). Citizen activists, many of whom were ad hoc members of multiple activist groups during the social media-based 'be water' protests (Ting, 2020), converged on the LIHKG forum and forwarded the online discussions and calls for action on LIHKG to their groups' own communication channels to guide locally organised direct action. In turn, these activists shared and circulated their groups' daily activities and experiences on LIHKG, linking and enmeshing smaller homogeneous networks into a large-scale, robust, and heterogeneous network of dissent.

This study, therefore, also conducted online observations of relevant citizen groups and activist channels that were publicly available on Hong Kong's popular social media platforms. As shown in **Table 1**, of the most prominent groups and channels linked to LIHKG, two Telegram groups had over 50,200 members, a Facebook group had 26,154 followers, and an Instagram account had over 8845 subscribers. The encrypted messaging application Telegram was widely used as an instant communication tool not only due to the absence of algorithmic filtering and advertisements but also the difficulty of searching for new channels so that 'it is more difficult for authoritarian states to spam and hijack conversations on Telegram compared to other platforms such as Facebook or Twitter' (Urman et al., 2021, p. 21).

While many of the smaller, yet more homogenous, networks were both social media groups and channels of the 'be water' protests, they simultaneously served a range of functions that were specific to the mobilisation and coordination of networked dissent against Hong Kong's smart lampposts. These functions ranged from providing real-time updates about dissent activities against smart lampposts, deliberation and debate of counter-surveillance tactics, and mobilisation of data and everyday networked activism to providing up-to-date information and news about the development of Hong Kong's smart urban infrastructure and raising public awareness

of these developments. By affording both relational density and diversity, the open-ended, consensus-based network of dissent provided a mobilising infrastructure widely adopted by citizen activists to develop frames and tactics in and across digital platforms.

Table 1. The most prominent social media groups and channels linked to LIHKG.

Code	Platform	Followers	Major function(s) and/or focus(es)
1	Telegram	52,600	Providing real-time updates about dissent activities against smart lampposts; deliberation and debate of counter-surveillance tactics.
2	Telegram	50,200	Providing information and news about the development of the city's smart urban infrastructure; online mobilisation of everyday networked activism.
3	Telegram	12,980	Providing information and news about the development of the city's smart urban infrastructure; online mobilisation of doxing and data activism.
4	Facebook	26,154	Providing real-time updates about dissent activities against the smart lampposts.
5	Facebook	5041	Deliberation and debate of counter-surveillance tactics.
6	Facebook	3836	Providing information and news about the development of the city's smart urban infrastructure.
7	Facebook	2826	Raising public awareness of the perceived pitfalls of the city's smart urban infrastructure.
8	Instagram	8845	Raising public awareness of the perceived pitfalls of the city's smart urban infrastructure.

Last, this study conducted in-depth analyses of media coverage, documents, and records that were collected from multiple online platforms. It curated an archive of materials, including press articles and public records from the LexisNexis database, as well as policy documents, announcements, and press releases from government websites. This digital archival research enabled a context-dependent analysis and guided the observations of the digital platforms by identifying the corresponding institutional forces, events, and actors at the key time points. The analysis of the online observations was integrated with information derived from archival research to offer a contextual account of citizens' discourses and activities. The process of interpretation began with a coding process to identify the key themes, but remained open to further refinement. To achieve a context-specific account, this study adopted an iterative and dialogical process that moved between the empirical materials and theorisation (Spiggle, 1994), gradually refining the themes until sufficient levels of interpretive convergence and theoretical saturation were achieved (Belk et al., 2012). This study was ethnically approved by the Institutional Review Board at the author's university. To protect citizens' privacy and anonymity, the names of the citizen groups and activist channels are not mentioned, or pseudonyms are used, in the findings.

3. Results

3.1. The words of dissent: Politicisation of smart urban infrastructure

Like any political process and social struggle (McAdam, 1982), the networking of urban counter power depends on 'the rational capacity that enables a social actor [or actors] to influence asymmetrically the decisions of other social actors in ways that favor the empowered actor's will' (Castells, 2009, p. 10). This process is increasingly (re)constituted through the process of 'mass self-communication' (Castells, 2009, p. 9) in the digital age. Although urban authorities tend to construct and disseminate

normative discourses of ‘technological solutionism’ (Morozov, 2012) in support of smart city development, opposing statements concerning urban counter power may emerge as counter-imaginaries. In these counter-imaginaries, citizen activists ‘put into contention the objective status of what is “given”’ (Rancière and Panagia, 2000, p. 125), targeting the smart urban infrastructure of concern.

In the case of Hong Kong, as shown in the analysis, while the local government presented positive scenarios concerning the smart lamppost initiative in which technological progress was linked with urban development and well-being, public deliberation and contestation over the smart city apparatus featured interlinked socio-technical counter-imaginaries that arose and proliferated in the digital realm. In particular, when the AEBM rapidly escalated in summer 2019, a series of popular threads emerged on LIHKG that constructed connections between the smart lampposts and urban repression. **Table 2** shows that the phrase ‘surveillance lampposts’ appeared 2261 times across the 169 relevant threads on LIHKG during the period examined. This large number of threads and reply posts conceived of Hong Kong’s smart lampposts as ‘surveillance lampposts’, alleging that the smart city apparatus was being ‘used by the government for urban repression and police clearance’ during the AEBM. These claims were echoed in other online discussions that targeted specific components of the smart lampposts. For instance, online discussions that frequently featured the keywords ‘facial recognition’ and ‘arrest’ were primarily concerned with the possibility that ‘the devices [were] equipped with sensors and cameras that [were] compatible with facial-recognition technologies’ and that ‘the use of geo-information allow[ed] the police to accurately locate protestors by analysing their bodily movements for mass arrests’.

Table 2. Types of socio-technical counter-imaginary and the frequently appearing keywords on LIHKG.

Socio-technical counter-imaginaries	Keyword	Count
Smart lampposts as a tool of repression and arrest	Surveillance lamppost	2261
	Facial recognition	98
	Arrest	35
Smart lampposts as an infrastructure of social control	Social credit system	140
	Xingjian/Uighur	56
	Stability maintenance	17

Some of the socio-technical counter-imaginaries were curated by protestors and their sympathisers to depict the smart lampposts as a tool for police repression and mass arrests, while others characterised smart urban infrastructure as a central component of larger projects of social control to be implemented in the future. As shown in **Table 2**, online discussions featuring frequent appearances of keywords such as ‘social credit system’ and ‘stability maintenance’ posited that the deployment of smart lampposts was ‘paving the way for the establishment of a citywide social credit system’ to reward people who were politically submissive and to punish those who were disloyal. Others suspected ‘the building of a database for implementing grid-style surveillance in the near future’ that would allegedly expand the system of

automated surveillance and political repression to Hong Kong’s civil society. Online discourse that featured the keywords ‘Xingjian’ and/or ‘Uighur’ also characterised the smart city apparatus as a means of implementing the same technologies that were allegedly used against the Uighurs in Xingjian (Fussell, 2019). Consequently, rather than being viewed as an element of a more efficient and healthier city life, the smart lampposts initiative became a symbol of social control through the lens of online politicisation.

Moreover, as discontent over Hong Kong’s smart lampposts grew, sentiments of dissent and calls for action followed. Studies of contentious politics suggest that ‘cognitive liberation’, which involves defining ‘situations as unjust and subject to change through group action’ (McAdam, 1982, p. 51), provides ‘cognitive cues’ (McAdam, 1982, p. 49) and constitutes a crucial factor in mobilisation. **Table 3** presents the phrases that were frequently used on LIHKG to characterise dissenting sentiments and ‘cues’ for mobilisation in the digital realm. These phrases, often loaded with intense emotion, included ‘opposing’ and ‘fuck your mother’—a popular curse phrase among locals—and expressed a strong sense of mistrust and hostility towards the smart city apparatus and government officials or the police. The phrases ‘Today’s Xingjian, tomorrow’s Hong Kong!’ and ‘Today’s Xinjiang is tomorrow’s Hong Kong!’ also appeared in multiple threads and posts, implying a connection between Hong Kong’s smart lampposts and the alleged constant surveillance in Xingjian (Fussell, 2019). The phrases were characterised by a sense of both urgency and injustice, calling for immediate intervention and promoting self-mobilisation among citizen activists.

Table 3. Frequently occurring phrases exhibiting dissenting sentiments and calls for action on LIHKG.

Type of phrases	Phrase	Count
Dissent sentiment	Opposing	570
	Fuck your mother	125
	Today’s Xinjiang (is) Tomorrow’s Hong Kong	28
Call for action	Toppling down	781
	Protest/Demonstration	182
	6/7 Demands (not one less)	89

Finally, calls for action constituted another type of online content. **Table 3** presents the frequently used phrases relevant to the mobilisation of networked dissent against Hong Kong’s smart lampposts. The phrases ‘toppling down’, ‘protest’, and ‘demonstration’ vividly exhibit calls for action and were apparently used to mobilise citizen activists to unite in damaging or protesting against the smart lampposts. The slogan ‘six demands’ or ‘seven demands’ was also commonly used, sometimes followed by the second half of the slogan, ‘not one less’. Originally, ‘five demands’ emerged from an LIHKG post in June 2019, which stated that the uncontested goals of the AEBM were to ‘withdraw the bill; retract the riot definition; establish an independent commission of inquiry into police conduct; no arrest and prosecution of protesters; [and] institutionalize genuine universal suffrage’ (Cheng et al., 2022, p. 635). In July 2019, citizen activists revised the protest claims on LIHKG to include

the demand to ‘remov[e] all the smart lampposts’, and occasionally, a demand for ‘no installation of a social credit system’. The revised protest claims thus turned the smart lampposts into an explicit target of networked dissent and citizen direct action during the AEBM.

3.2. The deeds of dissent: Crowdsourcing action repertoires

As digitally enabled citizen activists converged in and across these digital platforms to curate socio-technical counter-imaginaries and dissenting sentiments concerning Hong Kong’s smart lampposts, a networked consensus of discontent was articulated, resulting in the development of various acts of dissent that allowed for diverse participation. Analysing the posts on LIHKG and social media platforms suggested that mobile media and social technology were used intensively to create and diffuse different sets of citizen direct actions targeting the smart lampposts. In this regard, the networked action repertoires are characterised by ‘low versus high thresholds’ (Van Laer and Aelst, 2010, p. 5) for participation. As the outbreak of the AEBM opened the political opportunity structure in the smart city in a context of contention, diverse participants were aggregated into distinct modes of citizen direct action. Citizens mobilised against the smart lampposts according to their varying levels of commitment and involvement with regard to the potential risks and costs of various actions.

Given its confrontational and destructive nature, toppling smart lampposts involved the highest degree of risk and the greatest potential costs. It thus had the highest threshold for participation. From the outset of the AEBM, fears over the lampposts emerged due to the suspicion that they were equipped with sensors and cameras with the capability for facial recognition that would enable the identification of protestors by the police. Although no one could offer uncontested proof of the lampposts being used to spy on protestors (Fussell, 2019), these concerns led to a series of wildcat actions aimed at wrecking these smart urban devices, partly as an attempt to protect the anonymity of those participating in the AEBM (Stone, 2022). Sometimes referred to as ‘blossom everywhere’ (Ting, 2020, p. 363), this strategy required rapid mobilisation via LIHKG—usually a day or two in advance—and was coordinated in almost real time via Telegram and mass Airdrops over Bluetooth. Action groups of ‘smart mobs’ (Rheingold, 2002) were self-organised to destroy the newly installed lampposts or to disable their surveillance capabilities.

Citizen activists targeted not only the smart lampposts but also their corporate networks and supply chains. Doxing constituted another type of high-threshold citizen direct action, as it may have been deemed ‘illegal as it breache[d] personal privacy without agreement’ (Li and Whitworth, 2023, p. 1653). Given the burgeoning criticism and doubts over whether the local government and the police were stealthily collecting data on citizens through the lampposts, information technology (IT) companies involved in the smart lamppost initiative were seen as forming an alliance with the urban authorities to profit from the project at the expense of the Hong Kong people. A networked doxing campaign was mobilised and coordinated across LIHKG and social media platforms targeting these IT companies and, sometimes, their senior management staff. Citizen activists self-organised to collect and analyse publicly

available data to find evidence supporting their claims about these corporations. Subsequently, based on the information obtained and analysed, posts expressing intense public criticism were created and disseminated via social media in an attempt to force suppliers and constructors to cease supplying and installing the smart devices. For example, Ticktack Technology Limited, the IT company that supplied Bluetooth beacons for the lampposts, eventually withdrew from the smart lamppost project (Fussell, 2019).

While high-threshold citizen direct actions attracted the more radical citizen activists, ‘everyday networked activism’ also emerged, as some the networked acts of dissent were ‘embedded in and in turn (trans)formed [a part of] people’s everyday routines and orientations’ (Ting, 2019, p. 3255). For instance, in summer 2019, a few citizen groups that were concerned about the perceived pitfalls of the smart lampposts were formed on social media and frequently linked to LIHKG. Instead of toppling lampposts and doxing IT companies, they focused on soliciting information about smart urban infrastructure and news of its implementation while circulating analyses of the perceived dangers of these devices online. Citizen direct actions with lower thresholds for participation thus created a series of networked endeavours, ranging from the curation of relevant data and IT knowledge to the mobilisation of votes for or against legislative or district councillors who had previously opposed or supported the smart city project, respectively, and the development of crowdsourced maps of newly installed lampposts.

Another type of citizen intervention with a low threshold for participation was the crowdsourcing of counter-surveillance measures on LIHKG in attempts to address the concern over alleged automated monitoring and pervasive data collection of the smart lampposts. Protestors and their sympathisers, especially those in the social media groups used to organise the protests, reminded one another to disable the location tracking function on their smartphones to ensure better protection from the alleged automated surveillance of smart lampposts. Even in the aftermath of the AEBM, many citizens and activists continued to suspect that the radio-frequency identification (RFID) technology embedded in the smart lampposts would allow urban authorities to remotely track citizens, especially former protestors, using the new smart identification cards, which have a built-in RFID chip for accessing public and commercial e-services (Chan, 2019). Using what may be called the ‘citizen science’ of data technology, tech-savvy citizens, who were referred to as ‘frontline fighters of science and technology’ and thanked by many online, suggested wrapping the smart identity cards in aluminium foil to shield them from the electromagnetic fields of the lampposts. Various counter-surveillance measures were thus developed in a largely networked and ad hoc manner and took shape, assumed meaning, and exerted influence in the context of a broader networked community of dissent.

4. Discussion

Hong Kong is a timely case through which to examine the pitfalls of smart urban infrastructure in a shifting socio-political landscape. In the light of the backlash unfolding during AEBM, some legislative council members urged the government to undertake follow-up actions proactively to allay public disquiet about the installation

of smart lampposts at the Legislative Council meeting (Legislative Council, 2021). Although the local government decided to continue to install smart lampposts in the city after ABEM, government officials acknowledged and recognised the urgency to solicit the public's support in implementing the smart urban infrastructure (Legislative Council, 2021).

Notably, while the case of Hong Kong's lampposts raised many issues of concern during the AEBM, the citizens' strong mistrust of the (local) state's smart urban infrastructure initiative has had a long-term impact on the city's data-driven governance. Unfolding at the intersections of techno-politics and contentious politics, tension between the (local) state's emerging 'smart' power and digitally enabled citizenship has continued to evolve in post-AEBM Hong Kong. This tension, for instance, is key to understanding why of the launch of the LeaveHomeSafe (LHS) app—the mobile app for digital contact tracing—during the COVID-19 pandemic provoked another wave of networked dissent against the smart city apparatus immediately following AEBM.

Especially in times of prolonged social distancing and urban policing, digital platforms have, once again, become a locus of citizen discontent. In response to the government's announcement of the LHS app, networked citizens organised a boycott campaign via LIHKG and social media; they called on the larger public to instead handwrite their name, phone number, data, and time of entry on a slip of paper instead of using the app promoted by the government. Countermeasures were also solicited on LIHKG to meet the new contact-tracing requirements. For instance, after studying LHS's human activity recognition technology and machine learning process, tech-savvy citizens advised people to disable Bluetooth and other smartphone functions with LHS installed, to turn on airplane mode while using the app, and to delete LHS after every use. Therefore, what began as a smart infrastructure tool for health surveillance was similarly politicised and opposed in the digital realm, as many believed that the government was using the app to normalise the strict controls that it had imposed in urban public spaces after the AEBM (Ting, 2022b).

While drawing on an in-depth analysis of a single case study, this article sheds light on the citizens' curation of networked consensus of discontent and action repertoires that underpin the emergence of citywide dissent against smart urban infrastructure, alongside the technopolitical repercussions of the networked dissent. Future research that further examines these key constituent elements and their articulation could be valuable in understanding the techno-politics of smart policy and urban infrastructure, especially in the contexts of emergent authoritarian or hybrid regimes. Future research should also explore how projects of smart urban infrastructure are experienced and acted upon by ordinary, yet digitally enabled, citizens in various socio-political settings.

5. Conclusion

This article aims to explore the latest contours of the smart city backlash amidst changes in state–public relations in Hong Kong, highlighting the dynamics and tensions between local political contention and smart city development, which have thus far been underexplored. By analysing the case of Hong Kong, the article offers

nuanced insights into the articulation of networked dissent against smart lampposts by explicating the constitution of both the discursive backbone and citizen direct actions in the digital realm and discusses the repercussions of this contention for the city's data-driven governance. In doing so, this article provides an alternative account of the challenges of smart city development and the conceptualisation of an adversarial form of citizen engagement that emerges in an increasingly digitalised and data-driven urban landscape.

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