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Can Digital Democracy Guard Citizens' Safety? Taking Taiwan's Battle against COVID as an Exemplary Case

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Abstract

The COVID-19 pandemic required swift responses from governments at all levels. Government agencies were faced with the immense task of mitigating the health, social, and economic effects of COVID-19. These actions and responses included developing mobile phone location tracking systems and 'electronic fences' alongside the use of big data analytics. Whether intentionally or not, this led to questions about the rise of the 'biosurveillance state'. In this paper, we examine the extent to which digital democracy has emerged as a contested concept in Taiwan. Furthermore, we ask: to what extent is the use of digital surveillance for disease control and prevention justifiable, and to what extent can personal privacy be sacrificed when adopting digital surveillance measures with the aim of securing collective safety? We compare Taiwanese citizens' concerns about personal privacy with those in other democracies, such as the UK, and those in the EU and North America.

Keywords

Taiwan – COVID-19 – digital democracy – big data analysis – civic hacker

1 Introduction

A significant characteristic of a crisis is a sense of urgency to manage it (Boin, Hart, Stren & Sundelius, 2005: 3). The COVID-19 pandemic is a crisis that challenged all fronts of governance, from disease control to public trust, then ultimately a government's capacity. The COVID-19 situation reflected Arjon Boin et al.'s verdict: 'The threat is there, it is real, and it must be dealt with as soon as possible' (2005: 3). Starting from early 2020, the pandemic challenged all countries' political leadership, be they countries of democracy or autocracy. The pandemic was challenging to governance mainly because it required collective action from citizens to follow government regulations, for instance, mask-wearing or social distancing, no matter the kind of political system. The difference is, in any democratic country, the key for citizens to follow the government's regulations is trust; as Francis Fukuyama (2020) contends, the crucial determinant in state performance in combating the pandemic is not necessarily a regime but rather the development of public trust in governments. In contrast, in any authoritarian country, although popular support is still important for the regime (Zhai, 2019), enforcement is key for citizens to follow the government's regulations.

A crisis often reveals what has existed already, either the inequality or the strength of the structure (Shuster, 2020). For instance, the COVID-19 crisis revealed different strengths and shortages in each country, especially because the disease itself is highly contentious. The government's key to reducing infection is providing medical treatment and distinguishing and isolating the infected population. That is why states are engaging with big data to build a 'biosurveillance state' through the work of track and trace to create an electronic fence to protect citizens (Shacher, 2020). It certainly raised the question of whether the state exerted ultimate power to exercise this biosurveillance during the crisis; however, what about after the crisis, when we entered the post-COVID era? Will the state still control the big data? Can the state retreat? Or, as Ayelet Shachar (2020) argues, 'if "knowledge" is power, then "data" is control; whoever controls the data, will have a tremendous edge'. Derived from this argument, this paper's research question is, 'How can digital tools be used to combat COVID in Taiwan to be aligned more with digital democracy, not digital surveillance?'

This article first presents the differences between digital democracy and digital surveillance (section 2). After clarifying the conceptual propositions, we introduce our methodology (section 3). The fourth section discusses digital democracy in Taiwan with three subsections focused on the regulative framework of the state's power (section 4.1), civil society's participation in the digital policymaking forum (section 4.2), and Taiwanese citizens' right to use digital data (section 4.3). With this understanding, in the fifth section we ask who controls the knowledge and discuss the challenges Taiwan's digital democracy faced during and after the COVID-19 pandemic. Following this, we provide some concluding remarks.

2 Difference between Digital Democracy and Digital Surveillance

A strong democracy must offer the opportunity for the 'participation of citizens in all those decisions concerning issues which impinge upon and are important to them' (Held, 1996: 310, cited in Hague & Loader, 1999: 7–8). This is one of the key elements for distinguishing digital democracy and digital surveillance. The emphasis of digital democracy should be on the wording of 'democracy' rather than 'digital'. As a result, digital democracy for citizens involves participation in digital forums for discussion and contributing to policy suggestions. Digital surveillance, on the other hand, is using digital means to monitor citizens' activities, including physical and virtual activities. The similarity between digital democracy and digital surveillance is the usage of digital tools. While information and communication technologies (ICTs) can provide utopian ideas and offer new possibilities for decentralised participation, democracy, and citizenship, they can also support the extreme centralisation of power (Malina, 1999: 24). In this sense, ICTs will only serve the cause of democratisation if a prior will for strong democracy is established (Hague & Loader, 1999: 16).

With the exponential progress of accumulating and abstracting big data, the government and technology giants use digital surveillance. We can see this with Google. Zuboff (2015) coined the term 'surveillance capitalism', reflecting the accumulation of Google's big data, which is processed and sold to advertisers. The implication is that surveillance capitalism's unnerving characteristic is that it thrives on the public's ignorance (Zuboff, 2015: 83). The click on the screen/mobile, searching for something is a private action, yet this action is 'computer-mediated' by the Google search engine and commercialised as a product. In many ways, this pattern of commercialisation is much more efficient than traditional alienation, as Marx initially argued. It

is different from the conventional Marxist pattern; it moves away from what one produces along with concomitant alienation from one's fellow creatures (Erikson, 1986: 2). Google commercialises the action of 'clicking' on the screen. And, more importantly, there is no way the public can have a feedback loop or, in many cases, be aware of what has happened through that simple click. Indeed, commercialisation without consent through digital means is the most controversial part of surveillance capitalism. What if surveillance capitalism merges with digital surveillance from the government? What can the public do with such a combination? These questions can be addressed to all countries, either democracies or autocracies. Nevertheless, in our article, we would like to observe the resilience of societies under potential digital surveillance. That is why we chose to research a democracy rather than an autocracy.

After a brief review of digital surveillance, we will explore conceptual understandings of digital democracy. There is no single agreed definition of digital democracy. One potential reason for this is that the development of digital democracy was more exponential than any other democratic development. In 2009, blogging was seen as a form of digital democracy (Hindman, 2009: 17, 135). It was revolutionary then to see citizens express direct political speech online and attract online audiences. The main argument Hindman put forward was that 'the internet seems to be good at gathering large, loose, geographically dispersed groups together to pursue common goals' (ibid., 139).

Concerning recent developments, although Hindman has made a significant contribution to the conceptual contours of digital democracy, it is somewhat deficient as 'it is only a blog'. Thus, Dahlberg, in 2011, attempted to identify a definition of digital democracy. He thus put forward four positions: liberal-individualist, deliberative digital democracy, counter-publics, and autonomist-Marxist (Dahlberg, 2011: 858–865). Apart from the autonomist-Marxist position, the other three positions work within the existing democratic system. In contrast, the autonomist-Marxist position aims to be the basis for producing an independent, fully democratic 'commons' (ibid., 863).

Derived from our conceptual definitions, we propose that two key elements to differentiate digital surveillance from digital democracy are the legal regulation of the state to abuse citizens' private data and the participation of civil society organisations (CSOs) in building the digital platform. These two elements are discussed in Section 4.

3 Theoretical Understanding and Methodology

We take a relativist ontology stance to approach our research, accepting the idea of 'the relative nature of social reality' (Banister et al., 1994: 172) and considering that realities are multiple and socially constructed (Furlong & Marsh, 2002; Lincoln & Guba, 2005). Our epistemological positions are bound up by the perspectives of constructionism, leading us to consider that knowledge is socially constructed (Burr & Dick, 2017). We also align with Camargo-Borges and Rasera (2013: 2), who state that 'individual rationality is not conceived of as an attribute of individual thinking but as a consequence of cultural convention'. Furthermore, the constructionists would invite 'other forms of evaluating knowledge production, which goes beyond a focus on individual rationality, and moves to relationality and creativity with the ability to generate involvement and to promote change' (ibid.).

Science and technology are progressing rapidly, reshaping how digital democracy is conceptualised and practised. We discuss how two conflicting perspectives—technological determinism and social constructionism—have been negotiated with one another in terms of conceptualising and understanding the influence of technology on society or vice versa. Technological determinism, as illustrated by Jordan (2008: 13), 'is the claim that the nature of a particular technology determines the nature of society', and, as stated by Dotson (2015: 102), it 'is a type of governing mentality'. When it comes to its contextualisation in Taiwan, Chen and Hsieh (2014) illustrate that the Taiwanese government has been adapting to advancing technology, using big data to re-energise the so-called digital government and move towards digital governance by creating a data-driven decision-making culture.

To consider the perspective of socio-constructionists, we establish our argument from what Rees, Crampton, and Monrouxe (2020: 846) note, 'understandings are "shaped by time and place" and "different constructions of the world eliciting different behaviours"'. In a similar vein, there are studies that discuss citizens' participation in interactive governance in digital forms. For example, Faraon (2018), Simon, Bass, Boelman, and Mulgan (2017), and Voorberg and Bekkers (2016) argue that governance is a constant shaping and reshaping process through co-producing social realities. Bradbury (2020: 110) reminds us that as participants within the larger ecology of life, people are not 'passive recipients of inert facts' but should act as 'transformative co-creators within an ecology of living beings'. Voorberg and Bekkers's research (2016) on the social construction of citizens as co-creators in the context of interactive governance leads us to examine the role that CSOs play in co-producing and

co-designing the concept and practice of digital democracy in Taiwan. Voorberg and Bekkers also suggest that co-creating citizens usually stems from society's 'upper class' (2016). In the context of Taiwan, the CSOs may not entirely come from higher social class backgrounds but are well educated and well equipped to contribute their ideas, knowledge, and skills to resolve pressing issues that Taiwan has faced.

As Dafoe argued, there should be a spectrum between technology determinism and social constructionism (2015: 1050). Even for the most extreme technology determinism, it would be difficult for them to argue that technology decides all the changes in a certain society without human agency. Equally, it is also quite extreme for constructionists to argue that subjective values or understandings construct all the technological advances in a given society. Following this vein, our analysis adopts a constructionist perspective but with less technological determinism usually associated with the category. We thus adopt a social constructionist perspective because it values coherence in epistemology, methodology, and data analysis (Camargo-Borges and Rasera, 2013).

Our research was carried out qualitatively, drawing on document analysis. We have conducted this research since the spring of 2020, when COVID-19 was widely spread. Strict rules for controlling the spread of the virus put a limit on various forms of social engagement. As such, we had difficulties in scheduling and conducting interviews with key figures in the field. Document analysis is one of the most common research methods. With the public sector working towards transparency, participation, and accountability, most documents published by government agencies are in the public domain. Apart from governmental documents, we also collected data from daily newspapers.

We conducted our data collection and analysis to examine these articulations at three levels: macro, meso, and micro. As discussed in subsection 4.3 concerning citizens' right to use, the macro level of our analysis investigated the social, economic, and political conditions and international environment that pushed the Taiwanese government to practise digital government and digital democracy. We also looked at the Taiwanese government's role in how digital democracy has been conceptualised and practised, particularly through its national initiatives and strategic planning for combating the COVID-19 pandemic. Rather than collecting, we 'selected' (Bowen, 2009: 31) policy-related documents predominantly released by relevant government agencies. Atkinson and Coffey (2004: 58) remind us that

> documents are 'social facts', in that they are produced, shared, and used in socially organised ways. They are not, however, transparent

> representations of organisational routines, decision-making processes, or professional diagnoses …. Equally, we cannot treat records—however 'official'—as firm evidence of what they report.

To fill the missing elements of policymaking processes and of social realities, we also looked at reports written by scholars or researchers (with some commissioned by government agencies, whereas others were produced to express independent policy advocacy or commendation) and papers and commentaries written by scholars, journalists, and professionals based at think tanks (Table 1). The majority of documents were selected for the following purposes:

1. to understand why and how the Taiwanese government has adapted the ideas and ways of practising digital government, digital democracy, and citizen participation in the context of Taiwan;
2. to understand how the transformation of rhetoric, for example, service-oriented digital government and digital governance, has reshaped how government agencies and citizens engage with one another; and,
3. to examine the strategies planned by the Taiwanese government during the pandemic, with a discussion on the government's actions or inaction on some issues, such as personal data protection and digital surveillance.

At the meso level, we intend to explore how key social players engage with reforming the governance framework for the digitalisation of public service with an emphasis on widening citizen participation. As will be discussed in Section 4, our focus of analysis is on how policies, national initiatives, and action plans have been developed to firstly widen citizen participation and secondly institutionalise how the government sector and CSOs work collaboratively with one another to resolve pressing issues. To conduct this analysis, we selected policy papers that discuss institutionalisation, along with documents that seek to facilitate interaction between government agencies and CSOs (see Table 1). We also examined articles published in newspapers and magazines that provide a timely report of events and opinions regarding what engagement between government agencies and CSOs has achieved or could achieve to enrich both the conceptualisation and practice of digital democracy. We also noted from these materials how many civic scientists and engineers have voluntarily helped their fellow citizens and how public sector bodies are better prepared for the pandemic.

At the micro level, we intend to explore how digital democracy has emerged as a social practice in Taiwan. We will also take a closer look at the contextualisation of digital democracy during the pandemic. Digital surveillance and digital democracy have often been considered competing

TABLE 1 Source selection for data analysis

Category	Documents selected	Data analysed	Themes selected and analysed
official documents (produced by supranational organisations)	– official statements and declarations – official position papers – policy directives	– global trends in policy direction – how relevant themes are conceptualised and contextualised in other countries	– data protection and privacy – data-driven economy
official documents (produced by the Taiwanese government)	– policies or national programmes – national action plans (including contingency planning) – official statements and declarations – official position papers – statistical surveys or publications – investigative report – initiatives and programme evaluation reports	– chronological development of policies and national programmes – de/construction of policy rhetoric – how relevant themes are conceptualised and contextualised in Taiwan – the driving forces of agenda-setting and policy formulation – the inertia and change of policymaking concerning digital governance – the gap between policy rhetoric and practice	– citizen participation – CSOs – digital governance – data-driven economy – e-government – participatory governance

TABLE 1 Source selection for data analysis (*cont.*)

Category	Documents selected	Data analysed	Themes selected and analysed
legal documents	– bills, Acts, and laws – regulations	– policy regime of personal data protection – the legitimacy and authority of the government's COVID-19 contingency plans – shifting the government's legislative actions and regulatory regimes in response to the coronavirus epidemic	– big data analysis – data security – digital surveillance – personal data protection
publications of CSOs, NGOs, and think tanks	– discussion papers – mission statements – monitoring reports – position papers	– the role and influence of these organisations in the public policy process – their specific advocacy activities for making changes in current political and social climates, facilitating digital democracy, and widening citizen participation – the stances that these organisations take on sociopolitical issues that concern our research	– big data analysis – data security – personal data protection – social dimension of privacy – widening citizen participation

TABLE 1 Source selection for data analysis (*cont.*)

Category	Documents selected	Data analysed	Themes selected and analysed
scholarly works	– scientific or peer-reviewed publications – academic blogs	– the theoretical underpinnings of key conceptions – the conceptual framework that connects market economy, technological innovation, and sociopolitical forces – the analytical frameworks that are developed to illustrate the relationships between policy re/formulation and policy inertia	– capitalisation of data – electronic surveillance – social sorting – surveillance capitalism
media and communications	– newspaper and magazine articles written by journalists and/or professionals – newspaper columns contributed by university academics – newsletters, blogs, and webpages of research institutions and NGOs	– the conflicting values, negotiation, and collaboration between social actors in general and government agencies and CSOs in particular. – the theory– practice gap – the stances that each social player takes on sociopolitical issues – unintended consequences and paradoxical effects concerning the practice of widening digital participation	– electronic surveillance – widening citizen participation – data security – data-driven economy – personal privacy – COVID-19

Note: This table is developed based on the works of Braun and Clarke (2006), Bowen (2009: 36), and Dalglish, Khalid, and McMahon (2020: 1428).

concepts. Often regarded as an unintentional consequence of practising digital democracy, the controversial adaptation of digital surveillance received mixed opinions during the pandemic, which led to the discussion of whether personal privacy should be sacrificed for collective safety regarding epidemic prevention. On this point, we draw on daily newspapers that reported timely news regarding digital surveillance as real and alarming, while scholarly works are primarily used as sources to explore theoretical underpinnings (Table 1).

4 Digital Democracy in Taiwan

4.1 *Regulation of the State's Power of Public Data Usage*

Issues such as surveillance, privacy, and the appropriate use/collection/storage of personal data have arisen and sparked serious debates in countries during the COVID-19 pandemic. The discussion on these issues is relatively mild in Taiwan. Like in other countries, personal data use/collection/storage must comply with regulations concerning personal data protection. Three legislative Acts were adopted as key elements of the regulatory framework: the Communicable Disease Control Act (amended in 2019, hereafter CDC Act), the Special Act for Prevention, Relief and Revitalisation Measures for Severe Pneumonia with Novel Pathogens (announced in 2020) (subsequently Special Act for COVID-19), and the Personal Data Protection Act (announced in 1995 and last amended in 2015, hereafter PDP Act).

To combat the pandemic, the Digital Fencing Tracking System and Electronic Fence Monitoring System were controversially adopted in January 2020 as monitoring mechanisms for those under home isolation and home quarantine. In addition, the 1922 SMS Contact Tracing System was introduced in May 2021 to record the footprints of individuals. Taiwanese citizens were asked to register with this system through their mobile phones, which would generate a set of randomly generated place codes in SMSs and send it to 1922. This system would store the mobile phone number, the code of venues, and entry time. Once any individual is confirmed to have contracted COVID-19, the Taiwan Centers for Disease Control (hereafter Taiwan CDC) and the Ministry of Health and Welfare (MOHW) can ask for information regarding that individual's footprints from the network providers.

After the end of the SARS outbreak, the National Health Command Center (NHCC) was launched under the MOHW in 2004 in response to public health emergencies. Following the launch of the NHCC, the Central Epidemic Command Center (CECC) was created as an ad hoc organisation to monitor and respond to a disaster with different emergency services. The CDC Act

and the Special Act for COVID-19 give the commander of CECC the power to make necessary arrangements to prevent the possible outbreak, aiming to 'minimise the infringement of personal privacy and maximise the benefit of public health security' (MOHW, 2020). The PDP Act is supposed to ensure that tracking systems will stop functioning after the end of self-isolation or quarantine, and all data and personal information is supposed to be deleted 28 days afterwards. Anyone with personal data stored in these systems has the legal right to request that it be removed (Liao, 2021).

However, surveillance facilities are in place in Taiwan to fight against COVID-19. Although these surveillance and monitoring systems were adopted for epidemic prevention only, there are concerns that deploying these systems could potentially risk violations of the right to privacy. During the pandemic, the United Nations and the European Union have continually issued legislation with relevant human rights and data protection guidelines. The Control Yuan, the supervisory and auditory branch of the government of Taiwan, has been concerned about whether the CDC Act fully authorised the Taiwan CDC's right to deploy these systems. A select committee was formed by three members of the Control Yuan, along with legal scholars and legal professionals, to investigate the legitimacy of adopting tracking and monitoring-related systems and whether there was an infringement of privacy. The report of this committee concludes with three critical points (Control Yuan, 2022). Firstly, in response to the fast-changing coronavirus, the CECC has acted dynamically. Some control measures, particularly regarding deploying digital fencing tracking, were implemented hastily and could potentially violate the human rights and fundamental freedoms of those subject to the monitoring systems. The relevant measures and regulations were implemented before appropriate guidance was provided. Obviously, the CECC failed to adopt the principle of prioritising procedural law (how rights and obligations are realised) over substantive law (concerned with the subject of the relationship between rights and obligations). In principle, procedural law is the law on how substantive law is applied or enforced. Secondly, the legal foundation that Taiwan's epidemic prevention model is based on could potentially be problematic in the long run as there have been many signs of loosening the principle of the rule of law. These signs include overly relying on general clauses in the law. This would significantly weaken the principle of legal clarity so that existing legal provisions can be expanded and interpreted and loosely adapt the proportionality principle for self-censorship. Thirdly, laws that normally apply to general periods—and not specific periods—have put pressure on creating an emergency response in fighting the pandemic.

Furthermore, these measures applied for the state of exception have gradually emerged as normal practices. As a result, the boundary between emergency and normality is blurred, which could lead to the potential risks of broadly expanding the administrative power of the CECC. At the same time, the threat of sudden outbreaks would become the 'new normal', and agile responses and contingency measures for the state of exception need to be reviewed and amended with a commitment to adapting the lawful processing principle.

During the pandemic, these tracking, surveillance, and monitoring systems were deployed with the assistance of innovative technologies. The CECC and Taiwan CDC note that the PDP Act would protect individuals. However, as Ho points out, the Act was announced in 1995 (2020; also Xiaojun, 2021). It was last amended in 2015 and is unlikely to fully catch up with the development of emerging technologies. In other words, the current policy framework regarding personal data protection and privacy could fail to protect individuals' right to privacy in Taiwan.

4.2 *Participation of Civil Society Organisations*

Weng (2020) notes that since 2009, CSOs and individuals have advocated for openness of government information and data. Many individuals were involved in the global Open-Source Initiative and later joined different CSOs with respective focus areas, including cybersecurity and cloud computing (*CommonWealth*, 2021). Engard (2010: 3) points out that this initiative was developed to advocate liberating software users to run, enhance, and modify source code for any purpose, suggesting that 'open source is about much more than just the code behind the software; it's about community, collaboration, and innovation'.

Before May 2021, the international community applauded Taiwan for professionally managing the COVID-19 outbreak, with only single-digit deaths and no full lockdown. Many reports, for example, Silva (2020), mentioned that so-called civic hackers had played a critical role in helping the public sector combat the pandemic. Furthermore, Nabben (2020) traces back how the growth of civic hacking has been rooted in participation in the Sunflower Movement and how, unexpectedly, civic hackers have made vital contributions with their technical knowledge and skills during the pandemic. The current debate has focused on those distinctive features of hackers that have increasingly blurred. Audrey Tang, Taiwan's minister of digital affairs since 27 August 2022, has told audiences that 'it is not about cybersecurity hackers. The civic hackers connect existing systems, open-source, open data software in surprising ways' (NPR, 2020). As mentioned, many Taiwanese CSOs and civic

engineers have been involved in liberating open source, open data, and digital democracy, which set a foundation for assisting the response to the pandemic (*CommonWealth*, 2021).

Engard (2010: 6) explains that some open source developers proudly call themselves hackers because 'to be a hacker is not to be a menace, but to be a computer programmer'. As illustrated by Engard, those involved in open source initiatives are inspired to be 'hackers' and work collaboratively for the common good. Moreover, what Engard notes has been fully reflected in how CSOs in Taiwan are committed to being part of a joint force in combating the pandemic. Furthermore, as Ho (2020: 11) observes, unlike in most other countries, the pandemic in Taiwan 'did not trigger a major political crisis or polarisation in civil society'. 'Nevertheless, Taiwanese civic activists have engaged strongly to ensure the government respects fundamental rights in its responses to the coronavirus' (ibid.). This subsection explains the government's digital features used to combat the pandemic and how civic engineers had worked with the government beforehand.

In 2004, the Taiwanese government issued a smart card that contained individuals' medical history. In 2012, it started initiating programmes adopting big data technologies to establish cloud computing environments. This aimed to connect the public sector, industry, and the public, working together to respond to societal demands while boosting the applied value of ICT industries. Against this backdrop, the National Health Insurance (NHI) PharmaCloud System was established under the overall cloud constellation governed by the MOHW in July 2013 (upgraded to 'NHI MediCloud System' in 2015). Furthermore, a patient-centred health insurance medical record information system was built and attached to PharmaCloud, providing several electronic medical record exchange services. As a result, doctors and pharmacists gained access to patients' records of e-prescribing.

Yet, as indicated in the previous subsection, these systems are subject to strict privacy and security measures to prevent unauthorised access (MOHW, 2020). In addition, as part of the NHI MediCloud System, the Epidemic Prevention Cloud has been serving as a cloud computing management platform to notify about infectious diseases, store relevant data, share cross-institutional laboratory data, and use cloud computing technology to accelerate epidemic analysis.

Since 2014, the National Development Council (NDC) has been deployed to initiate My Data system projects, integrating more than 100 personal data sets, for example, concerning health insurance, household registration, cadastral,

tax registration, income, and labour insurance (NDC, 2015, 2020). My Health Bank (健康存摺系統, hereafter MHB), which was developed by the MOHW, has been one of the most successful applied cloud platforms affiliated with the My Data system. The MHB platform, primarily designed to function as a personal health record system, was created for citizens to download the information they need, for example, regarding their records of prescriptions, medical history, hospitalisations and surgeries, test results, preventive healthcare data, registration for organ donation, and so on (MOHW, 2021). During the pandemic's peak, the MediCloud System would also record and monitor some specific individuals' travel history (T), occupation history (O), contact history (C), and cluster history (C)—collectively, TOCC—which helped first-line medical staff better assess individuals with a high risk of infection. An application for the MHB platform was updated to allow citizens to purchase face masks when a shortage of supply occurred at the beginning of the global pandemic and record COVID-19 vaccination and virus test results (MOHW, 2021).

All these digital measures are part of a Taiwanese governmental initiative: the Anti-pandemic Technology Project (hereafter the APT Project). The major achievements of the APT Project include helping Taiwan CDC and medical researchers trace sources of infection by illustrating a visualised relationship diagram and connecting the contact history of the epidemic investigation data. Moreover, it uses AI algorithms to detect new coronary pneumonia, optimise the allocation of medical resources, monitor the transmission route of virus strains with gene sequencing analysis, and so forth (NCHC, 2022). According to the same index released by the *Nikkei Asia* financial newspaper on 4 March 2022, Taiwan ranked third out of 120 (Li, 2022). Such an achievement would not have been achieved without the contribution of the APT Project. The important thing for us to note here is that before officially announcing APT projects, many civic scientists and engineers based at public or private organisations had already voluntarily worked on projects to help fellow citizens and the public sector better prepare for the pandemic. These projects included designing maps and charts to facilitate the purchase of face masks, tracking confirmed cases, and showing the COVID-19 prevalence rate.

The Taiwanese government's background of working with civic engineers started with the 2014 Sunflower Movement, organised by students to demand more legislative transparency in forming a trade deal with China (Rowen, 2015). After that, a group of civic hackers was organised around the CSO 'gov' (pronounced 'gov-zero'), with a philosophy of building consensus rather than division. As declared on its website, the gov positions itself as a 'decentralised civic tech community with information transparency, open results, and open cooperation as its core values. gov engages in public affairs by drawing from

the grassroots power of the community'.[1] The community later built an open online platform called 'v-Taiwan' (O'Flaherty, 2020). The idea of v-Taiwan is to create a digital platform to invite citizens' opinions on certain issues. By the end of February 2018, there were 26 cases under discussion, and 80 percent of them led to governmental decisions (e.g., the regulation of Uber in Taiwan).[2] The Taiwanese government continued to work with this open platform, especially after the appointment of digital minister Audrey Tang in 2016 (Miller, 2020).

4.3 *Acknowledging Citizens' Right to Use Digital Data*

In 2012, the Ma administration began working on 'opening government data' (OGD) initiatives and planned to collaborate with civil society groups. These CSOs and civic tech communities have been consulting and lobbying government officials and departments, seeking to bridge communication between the government and the public. The efforts that these organisations and communities have made since the early stages of OGD have not only accelerated data access processes, data openness, and interoperability between data formats but have also set up the foundation for collaboration between public, private, and CSO sectors in Taiwan (Tseng & Lee, 2017). The formation of policy regarding open data and digital and smart government over the past decade has been developing into institutionalising how the government sector and CSOs engage with one another in co-creating (mostly) social values (NDC, undated, 2015, 2020; Executive Yuan, 2020).

The 'Advance Action Plan for Open Government Data' was released by the NDC in 2015, encouraging citizens to use government data and work with the government to engage in collaborative data analysis (NDC, undated). As stated in the document, the primary goal of taking this policy direction is to 'improve the governance model collaborated by government and civil source' and 'enhance the operational efficiency and decision-making quality of government agencies and promote the application of data related to public development' (ibid.). Under this condition, as Fischer (2016: 349) elaborates, participatory governance 'includes but moves beyond the citizen's role as voter or watchdog to include practices of direct deliberative engagement with the pressing issues of the time'.

Indeed, encouraging civil society and the private sector to collaborate on pressing issues has emerged as a norm in the public sector's engagement with CSOs. For example, a press release published by the Taiwan CDC in 2016 stated that in striving for information transparency concerning infectious disease

1 See https://gov.tw/intl/en/.

2 For more on the v-Taiwan project, see https://info.vtaiwan.tw/.

epidemics—to comply with the government's open data policy—the Taiwan CDC released 199 data sets about contagious disease surveillance and other epidemic prevention on the open government data platform (data.gov.tw) at the end of 2013. This includes statistical data on nearly 70 infectious diseases, emergency infectious disease monitoring, vaccination information, and so on. In addition, the Taiwan CDC held an open data application competition in 2016, encouraging citizen scientists and engineers to conduct a project to enhance the value-added use of open data for combating infectious diseases (Taiwan CDC, 2016).

Policy directions towards the digitalisation of government data that the Taiwanese government has taken since 2012 have emphasised open data's reusability and machine readability. Moreover, there is a focus on maximising the data value through working collaboratively with citizens and the private sector by planting seeds of civic engagement and participation. The emphasis on policy goals and objectives has progressively shifted from satisfying citizens' 'right to know' government information to fulfilling people's right to 'use' information and data released by the government (Juang, 2015).

To fulfil citizens' right to use the data, we have to ask whether citizens have ever actually used the said data. As NDC (2021) notes, 50,000 data sets had been opened by July 2021, with 16 million downloads. The re/use of open government data—as a critical pillar of OGD-related policies—is to establish the public–private partnership (PPP) and drive the reconfiguration of government while enhancing the interests and well-being of Taiwanese citizens. According to the NDC (2021), the most downloaded data sets in 2020 included the remaining quantity of face masks, air quality, meteorological observation, real estate registration, electricity supply and demand, and population density. To align with central government open government initiatives, relevant government agencies have been asked to constantly enhance both the quality and quantity of data sets and maintain user-friendly data infrastructures for citizens, university researchers, and private sectors.

Furthermore, government agencies have been allocating funding for researchers based in government-funded research institutions and universities to conduct research that uses open government data and big data analytics to help the government develop insights and solutions to pressing issues. For example, the Standardised Incidence Rate Map of Infectious Diseases in Taiwan is one of the research outputs of Academia Sinica's Multidisciplinary Health Cloud Research Program Project. Moreover, Academia Sinica's project thus uses healthcare data sets to analyse and evaluate the cost-effectiveness of healthcare in Taiwan (Taiwan CDC, 2016).

5 Personal Privacy vis-à-vis Public Safety: Who Controls the Knowledge?

In spring 2020, it was the first time in human history that multiple countries adopted strong containment measures to 'flatten the rise in contagion' (OECD, 2020: 6), including developing and strengthening surveillance systems and tighter citizen monitoring in the interest of speed. Leaders of seven industrialised nations made a joint statement, committing 'to doing whatever is necessary to ensure a strong global response through closer cooperation and enhanced coordination of our efforts' (cited in European Council, 2020). Zwitter and Gstrein (2020: 2) argue that this 'whatever is necessary' mentality has been reflected in how 'decisionism characterises many emergencies'. In terms of how these state actors reacted to the pandemic by using surveillance to trace the spread of the disease, the *Economist's* report and analysis present the contrasting scenarios between China and European countries (2020a, 2020c). During the pandemic, the magazine asked significant questions of political leaders, indeed ones for us to ponder as social science researchers. For example, 'In democracies, leaders have to judge if people will tolerate China's harsh regime of isolation and surveillance' (*Economist*, 2020a). Furthermore, 'EU governments will be judged on how quickly life returns to normal, with states that used heavy-handed surveillance the obvious comparison' and 'if a gap emerges, even the apostles of privacy may find it hard to keep the faith' (*Economist*, 2020c).

However, Gary Marx argues that 'in popular and academic dialogue, surveillance is often wrongly seen to be only the opposite of privacy' (2017: 23). He quotes Peter Kelvin (1973), who suggests that 'surveillance is not necessarily the dark side of the social dimension of privacy' (ibid.). Examining the Taiwanese's experience of combating the COVID-19 outbreak, Keliher and Guldi (2020) point out that 'framing forces citizens to think about privacy as something personal and data as something that we possess, but both these assumptions are misguided'. Yang and Tsai's (2020) survey research shows that 68.2 percent of respondents value public safety more than individual privacy or freedom, while only 21.4 percent hold the opposite opinion. They also suggest that in Taiwan, those who 'support democratic values and pursue collective security tend to avoid violating privacy by opposing the release of personal information' (ibid., 237). Yang and Tsai conclude their research by arguing that in the context of Taiwan, 'democratic values do not necessarily hinder collective safety, and the pursuit of collective safety need not necessarily sacrifice personal privacy' (ibid). Drawing on the finding that two-thirds of Yang and Tsai's respondents valued public safety over personal privacy, it appears we

can answer the question raised in subsection 4.3: it *is* considered acceptable to the Taiwanese public for the government to trace citizens' e-footprints, for instance, the TOCC, in exchange with public safety to combat the pandemic.

Moreover, as Tan's (2020) paper indicated, this 'collectiveness' characteristic might differentiate Taiwanese society from those in Europe, the United Kingdom, and the United States, especially in the sense of state surveillance breaching personal privacy, as long as this surveillance is applied to the promotion or protection of common good or public health. This finding brings us back to the understanding of constructionism; as Rees et al. (2020) have argued, certain concepts are changed and shaped by certain social constructions. Taiwan is a democratic society similar to countries in Western Europe, the United Kingdom, and the United States. However, the understanding of the state's intervention in citizens' privacy in Taiwan is different from that of other democratic countries.

The extent of strict European regulations on protecting personal data even impeded medical or scientific collaboration (Eiss, 2020). In the United Kingdom, the controversial proposal in 2002 of a national identity card began with the intention to reduce illegal migration and terrorism, especially after the 9/11 attacks (Beynon-Davies, 2011: 14). However, British civil society worried that the introduction of national ID cards would create a 'surveillance society'. In 2010, then-home secretary Theresa May stated that the ID card bill signified greater state control over UK nationals. However, such a system persists for foreign nationals from outside the European Union (ibid., 20). Arguably, the debate on ID cards in the UK is primarily concerned with combating illegal migrants. However, without an e-system of citizens in place, in 2020, the UK government could not trace e-footprints or medical histories as the Taiwanese government could. A point worth making here is that British citizens' concerns about ID cards are not isolated; the debate on ID cards is also closely associated with state surveillance and monitoring of citizens' behaviour in the United States and Canada (Lyon, 2013). The technical setting (of e-ID card) is similar in the EU, UK, North American countries, and Taiwan, but citizens' acceptance of such a setting varies. We argue that building such an e-platform in Taiwan was a collaborative project with civic engineers, which is one of the reasons why Taiwanese citizens were more open-minded to it. More importantly, as we've said, citizens in Taiwan are more relaxed about state intervention in personal data in general, as long as it is for the 'common good'.

However, we should not take this concept of the 'common good' for granted. What if the public's personal data falls into the hands of individuals whose aims are *not* to promote or preserve the common good or public health? During the pandemic, the Taiwanese government worked with network service providers

to develop tracking programmes and systems while paving the way for the PPP. And yet, as Preneel, Rogaway, Ryan, and Ryan note, 'the separation between data collected by governments and private organisations is increasingly blurred' (2015: 32). The 1922 SMS Contact Tracing System was designed only for contact tracing to curb the spread of COVID-19 but was in reality also used in criminal investigations (Shan, 2021). Although Taiwan's CECC later reaffirmed in a press conference that the 1922 system would not be used for anything other than 'disease prevention purposes', its accidental use for criminal investigations triggered increasing concerns about state surveillance. At the time of writing, there has been minimal discussion about how private network providers deal with data collected concerning the digital footprint of individuals. With the strengthening of the PPP during the pandemic, what concerns us is whether the potential risks and consequences of state surveillance would unintendedly bridge surveillance capitalism (Zuboff, 2019).

As mentioned above, the Taiwanese government has been promoting the value-added use of data to foster a data-driven economy. Many initiatives have been conducted to promote open government data and launch the My Data platform to boost a data economy and facilitate the development of PPPs. Furthermore, government officials claimed that citizen scientists and engineers used data released by the MOHW and connected the application programming interface (API) to develop applications during the pandemic that 'makes the original static data a model for the benefit of the country and the people' (Executive Yuan, 2020).

However, this concept of 'benefit' is more than *just* social benefit. The government sector has intended to create both economic and social values by working with the private sector. Research on the social and economic benefits of opening government data remains under-researched (Bonturi, 2020). Additionally, there is still a lack of concrete policy guidance and outcomes regarding how the private sector can generate social benefits by using data released by the government. As a result, there is a tendency for economic values to outweigh social values created through using and reusing government data. In July 2020, seven commercial banks and four local authorities registered as service providers. In January 2021, 13 commercial banks were authorised to interface with the My Data system, with securities, futures, and life insurance firms expected to be new service providers by late 2021 (Su, 2021).

Before the pandemic, the National Health Insurance Administration (hereafter NHIA) of the MOHW announced that to apply health data effectively—and help develop the smart healthcare industry—several platform software development kits (SDKs) are being designed for the MHB platform (NHIA, 2019). The NHIA's announcement indicated that healthcare

firms had been competing to develop online medical consultation and personal disease management apps and may have intended to apply for permits and licences through NHIA to connect with these platform SDKs. The MHB system and platform would connect to a third-party app service through the SDK. Puschmann and Ausserhofer (2017: 149) note that 'APIs can be seen as powerful mediators in a datafied society'. This aligns with what Bodle (2011) stated, that while APIs 'provide new ways of sharing and participating, they also provide a means … to achieve market dominance, as well as undermine privacy, data security, contextual integrity, user autonomy and freedom' (cited in Puschmann & Ausserhofer, 2017: 149).

Arguably, the government–business interaction has unsurprisingly caused concern about possible thefts of personal data, leading to its misuse or unauthorised resale. This applies to the issue of the declinature of life insurance companies, mainly when said companies are seen on a list of third-party application service providers (Chiu, 2019). The marketisation of personal health/care data may not be new. Yet, this particular type of government-to-business service raises questions about ownership and whether personal data can be considered a public good. During the pandemic, as some governments claimed to be in a state of emergency, shared data under such circumstances could be regarded as a public good, 'an asset of sorts that could potentially be beneficial not only to the individual but to society at large' (Ajana, 2017: 9). However, while we look forward to the post-pandemic era, Ajana (ibid., 11) reminds us that without pondering and debating these questions,

> the outcome may end up being a total transfer of power from individuals and communities to organisations and industries, such as insurance and pharmaceutical companies, whose ultimate aim might not so much be about the public good after all, but profitmaking.

Zuboff (2019: 90) argues that 'in the larger societal pattern, privacy is not eroded, but redistributed'. The launch of MHB is claimed to 'return personal information in the database back to the insured' (NHIA, 2020), while the launch of the My Data platform is 'empowering autonomous application of personal data by citizens' (NDC, 2021: 13). Whether having commercial banks and life insurance firms act as service providers would empower or disempower citizens remains doubtful. Bernard, Bowsher, and Sullivan (2020: 1783) note that:

> Surveillance capitalism is a new phase in 'dataveillance,' a term that reflects the collection of personal data and its aggregation into a

surveillance model but wherein, by framing it as a transaction, the user maintains the illusion of participation by choice.

We can argue that power has been transferred from the individual to commercial firms, and individuals' privacy has been redistributed once they allow the government sector to share their data with the private sector.

6 Concluding Remarks

In this article, we have examined how the Taiwanese combatted the COVID pandemic in the era of digital democracy. We have gone beyond the discussion of the digital government concept that emphasises how authorities deploy digital technologies during the turbulent time of COVID-19. Instead, we have looked into the genesis of digital government in Taiwan, which was initiated by the government's incentives to enhance the transparency of government services, widen citizen participation, and create value for the broader economy. While highlighting CSO s' engagement with this genesis, our analysis suggests that digitalising and opening government data, as Chui, Farrell, and Jackson (2014: 3) put it, help the government sector 'unlock economic and societal benefits', with the emerging tendency of the former outweighing the latter.

Drawing on our discussion on digital government, we have reviewed the literature on digital democracy with a specific focus on the dynamics of political discourse during the COVID-19 outbreak. We argue that digital democracy is what Gallie (1956: 169) designated as an 'essentially contested concept' that is 'the proper use of which inevitably involves endless disputes about their proper uses on the part of their users'. Both the meaning and applications of digital democracy could be contested and evolved in response to its interplay with social players, political debates, technological innovation, and societal transformation. We align with Spicer (2019: 724), who notes that the origins of such contestation 'are to be found in our political practices rather than in the concept per se'. We go further and suggest that the concept is contestable in contemporary Taiwan because its practice unintendedly invites surveillance as a conflicting force. In addition to state surveillance, our paper indicates that there has been a growing possibility of capital surveillance.

The ambiguity of the technology or telecommunication providers in conducting extensive data collection is the key. Will those providers collect

data for the common good or private interest? Or are they tasked, presumably by the government, to collect data for the common good *but ending in* private interests? If digital democracy refers to an open and transparent government at a conceptual level, this request goes both ways. It will also demand that civil society is open and transparent. The dilemma is, how much is the government willing to be open, and how far are citizens willing to accept compromises to their privacy? Moreover, what information should be defined as 'privacy'? Although Yang and Tsai's paper (2020) indicated that a majority of Taiwanese study participants consented to the government using digital means to trace their movements in order to combat COVID-19, does that mean that Taiwanese society also consents to this data being used for commercial purposes? More importantly, if the answer is no, how does a democratic society maintain a balance between open data and government and state and capital surveillance, not only during the COVID-19 crisis but at any time? As we have argued in this paper, the understanding of the 'common good' or public interest is constructed differently at various times. We, therefore, lean more towards a more constructionist perspective in conceptualising digital democracy in Taiwan.

Two concerns are raised here. The first is about the 'state of exception' that allowed the state to extend the reach of its power as far as possible during the COVID-19 pandemic. Agamben (2020) writes, 'Why do the media and the authorities do their utmost to spread a state of panic, thus provoking an authentic state of exception with serious limitations on movement and a suspension of daily life in entire regions?' As a hyper-libertarian, Agamben's perspective needs to be measured with how states face a crisis, such as the COVID pandemic—and the possibility of the state protecting citizens by accessing health and travel data—and on the other hand, not invading citizens' privacy.

The second concern is about social justice. The idea of TOCC has significantly contributed to preventing and monitoring the spread of COVID-19. Yet some of its applications sparked public criticism (Yang, 2021). Around May 2021, with the help of network service providers, the Taiwan CDC identified 150,0000 individuals as high-risk cases and registered their travelling history on their NHI cards. This caused criticism, and not only because of general concerns about big surveillance and privacy. It also caused concerns about what Lyon characterised as 'social sorting' (2003: 1). Writing two decades ago, Lyon's observation that surveillance 'sorts people into categories, assigning worth or

risk, in ways that have real effects on their life-chances' still holds true today. The real concern for these 150,0000 individuals is that 'deep discrimination occurs, thus making surveillance not merely a matter of personal privacy but of social justice' (ibid.).

As the *Economist* (2020b) suggests,

> [T]his vast increase in state power has taken place with almost no time for debate .... For believers in limited government and open markets, COVID-19 poses a problem. The state must act decisively. But history suggests that after crises the state does not give up all the ground it has taken. Today that has implications not just for the economy, but also for the surveillance of individuals.

In January 2021, during the pandemic, the Taiwanese government announced the Taiwan Open Parliament Action Plan for 2021 to 2024 to enhance the openness and transparency of public services while widening citizen participation and collaboration in policymaking. We can only hope that Taiwan can establish itself as an exception to the historical pattern identified in the *Economist* article.

Locating this research in the context of debates on electronic surveillance and other digital dilemmas, our discussion suggests that it is more likely than not that digital democracy will remain a contested concept in terms of both conceptualisation and practical applications. Nevertheless, as members of the digital civil society, we may witness digital governance in the post-pandemic era. How we might rethink the concept of an 'algorithmic society', an idea shaped by digital technology—especially regarding the various restrictions on privacy, equality, freedom of speech, and freedom of movement, and whether they conform to regulatory frameworks and due process of law—will be what preoccupies our work in the immediate future.

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