

Negotiating Silicon Valley Ideologies, Contesting “American” Civic Hacking: The Early Civic Hackers in South Korea and Their Struggle

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Drawing from interviews and textual analysis of civic hacking in South Korea, I examine how civic hackers attempted to make alternative forms of tech-oriented civic action while reconfiguring their relationship with the global hegemonic discourse of civic hacking. I found that Korean civic hackers’ struggle and desire as precarious IT workers in hierarchical civic culture, authoritarian politics, and socioeconomic inequalities led them to negotiate American tech culture and contest Silicon Valley entrepreneurialism. I argue that Korean civic hackers rearticulated the dominant narrative of civic tech in Korea away from technology for government efficiency and toward a practice of open and equitable participation through their efforts to make civic hacking democratic. This study contributes to critical inquiries on more citizen-centered technology development evolving outside the West.

Keywords: civic tech, civic hacking, open government, open data, hackathon, Silicon Valley ideologies

Civic tech refers to tech-oriented civic initiatives led by tech communities and entrepreneurs emerging to “improve community life by creating and modifying digital infrastructure itself” (Hunsinger & Schrock, 2016, p. 537). Civic tech was rapidly spread worldwide in the 2010s by global nonprofit foundations, such as Knight Foundation and Code for America, celebrating individual citizens’ capacity and creativity to solve public problems (Patel, Sotsky, Gourley, & Houghton, 2013). Communication scholars have paid attention to new forms of civic engagement evolving from civic tech, such as open government and civic hacking and their democratic impacts. Studies of open government movements examine how open-source technologists’ interventions in public data infrastructures promote transparency and accountability of governments and facilitate civic engagement (Baack, 2015, 2018; Schrock & Schaffer, 2017). Studies of civic hacking and hackathons have examined how the practice of opening and sharing, as well as problem-solving approaches, enhances public services and city governance for inefficient and opaque governments (Currie, 2018; Johnson & Robinson, 2014; Schrock, 2016).

Critical technology scholars have pointed out that what undergirds the global acceptance of civic tech by local governments and technologists is the ethos of openness, techno-solutionism, and the libertarian ideal of self-fulfillment, which originated from technologists in the San Francisco Bay Area, or the

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so-called Silicon Valley. Civic hackathons and makerspaces around the world have become sites for young technologists to learn methodologies of software development and design as the most effective way to innovate their communities and governments (Avle, Lindtner, & Williams, 2017; Irani, 2015; Lodato & DiSalvo, 2016). In this context, there has been increasing attention paid to how technologists in the non-Western world translate and rearticulate Silicon Valley methods and entrepreneurialism (Irani, 2019; Lindtner, 2020). These studies examine how the global hegemonic discourse of civic tech is decentralized through alternative meanings and practices of tech development emerging in particular political and socio-technical constellations.

This study adds to this strand of research by focusing on civic hackers who acted in the early scene of civic tech in South Korea (hereafter, Korea), which emerged in the late 2000s as a new vision for collaboration between the public and the private. As pioneer communities of new forms of tech-oriented civic engagement (Hepp, 2016), their interpretations and experiences of civic tech influenced later technologists' notions and approaches to tech-based social intervention in Korea. Drawing on interviews with 23 civic hackers in Seoul from 2017 to 2019 and textual analysis of policy documents and civil society organizations' reports, I examine how civic hackers resisted the government-led discourse of civic tech while reconfiguring their relationship with global hegemonic methods of civic hacking. I found that Korean civic hackers' struggle and desire as precarious IT workers in hierarchical civic culture and socioeconomic inequalities shaped their negotiation of American tech culture and contestation of Silicon Valley entrepreneurialism. I argue that Korean civic hackers, through their efforts to make civic hacking democratic and democratizing, rearticulated the dominant narrative of civic tech in Korea from technology for government efficiency to the practice of open and equitable participation. I conclude by discussing the implications of Korean civic hackers' alternative forms of civic hacking in critical inquiries and new epistemologies on tech-mediated civic engagement evolving outside the West (Chan, 2013; Milan & Treré, 2019).

"Silicon Valley" Ideologies and Civic Tech in the Non-Western World

In the 2000s, as the value of "openness" in network culture and the politics of technology were transferred to the realm of politics and government (Schrock, 2016; Tkacz, 2012), various forms of tech-mediated collaboration between government and citizens evolved in the public sector. Since the Obama administration announced its commitment to government transparency through the Open Government Directives in 2009, the concept of openness has been extended to imply new values of efficiency and effectiveness in government brought by data infrastructure (Yu & Robinson, 2012). As technological experts and successful IT entrepreneurs joined municipal governments or nonprofit foundations for tech-based city innovation, the tech culture and practices of openness, sharing, and participation were implemented into new architectures of government, or the new civic virtue, in the age of open government data (Levitas, 2013; Nath, 2011).

However, concerns about the reproduction of neoliberal social orders and inequalities in civic tech movements have also increased, as costs of innovation are transferred to individual technologists and communities and governments and corporations accumulate capital and monopolize profits (Davies, 2018; DiSalvo, Gregg, & Lodato, 2014; Gregg, 2015; Johnson & Robinson, 2014). Critical technology scholars

point out that this post-Fordist neoliberalism in the information economy (Barbrook, 2007) is backed by Californian Ideology and ethos of peer production, which originated in the Silicon Valley tech industry (Barbrook & Cameron, 1996; Irani, 2015; Turner, 2009). Barbrook and Cameron (1996) described Californian Ideology as a “new faith” emerging “from a bizarre fusion of the cultural bohemianism of San Francisco in the 1980s with the hi-tech industries of Silicon Valley” (pp. 44–45) to explain the tradition of pervasive countercultural and libertarian politics in leading IT companies in the Silicon Valley area. Californian Ideology is the techno-utopian and market-fetishizing ideology of an information society centered on the value of free competition and limited governmental control (Barbrook, 2007).

Turner (2009) examined how this bohemian ethos of technologists ideologically underpins the open-source method of peer production, a new form of technology production emerging in Silicon Valley. He claims that prominent entrepreneurs in the hi-tech industry, such as Google leaders, have sought to infuse the company’s commercial activities with the ideology of social benevolence. In the ethos of peer production, workers pursue collective missions that go beyond profit, such as “making a better world,” and imagine themselves as equal social and ethical peers despite the hierarchy and unequal treatment within a company. Throughout the last few decades, the “Silicon Valley model” of project-based commercial labor, open-source culture, and techno-optimism has legitimated the global power of IT companies on the West Coast of the United States and spread to the entire world (Barbrook, 2007).

Empirical studies on tech-oriented civic initiatives and tech communities have pointed out the valorization of the culture and ideology of Silicon Valley technologists in civic hackathons and makerspaces (Davies, 2018; DiSalvo et al., 2014; Gregg, 2015; Irani, 2015). They show that young technologists prepare themselves for the creative industry’s high-pressured, fast-paced, and risk-taking work environment while learning and practicing design methods and engineering processes for software production (Irani, 2015). Learning how to solve various public problems quickly and efficiently, hackathon participants constitute themselves as entrepreneurial citizens who are technologically literate and ready to contribute to society (Gregg, 2015).

Studies on the rise of civic tech in non-Western countries have also shown the constitution and enactment of techno-entrepreneurial citizenship by drawing on the history of Western-oriented modernization and the postcolonial politics of technology (Avle et al., 2017; Irani, 2019; Lindtner, 2020). For example, Irani (2019) shows how India’s state and corporate elites appropriate various imaginaries and methodologies of innovation from India’s own past to cultivate entrepreneurial citizens who not only produce value for their own benefit but also contribute to development as India’s national project (Irani, 2019). Lindtner (2020) examined Chinese makers’ self-transformation into entrepreneurial agents in China’s national rebranding as an equal player in the global political economy. These studies reveal how the democratic potential of civic tech is differently understood and practiced depending on the relationship between states and citizens, socio-technical systems, and the politics of technology development and social change. In this study, I analyze how civic hackers in Korea reconfigured their relationship with American tech culture and Silicon Valley ideologies and why they sought to find more democratic forms of civic tech in the erosion of developmental citizenship and the sociopolitical upheaval of the 2010s.

As shown in recent efforts to de-Westernize the studies of various forms of techno-political practices (Chan, 2013; Milan & Treré, 2019; Nguyen, 2016; Sun & Yan, 2020), context-specific values and meanings of civic tech evolving from the non-Western world can provide new epistemologies on technology development and the practice of citizenship. Alacovska and Gill (2019) suggested that an ex-centric perspective should not aim to simply multiply non-West empirical case studies, but to destabilize, decenter, and provincialize the taken-for-grantedness of some entrenched notions. Milan and Treré (2019) argue that the agency of citizens should be relocated to the center of data activism study to examine diverse ways in which citizens participate in exchanging and negotiating multiple meanings (Martín-Barbero, 1993) while resisting a datafication process that magnifies oppression and inequality (Milan & Treré, 2019, pp. 327–328). Employing this perspective, this study examines how Korean civic hackers' agency to reinterpret hegemonic meanings of openness and participation emerges and how it manifests in their attempts to find alternative forms of civic tech as precarious IT workers.

Methods

To capture the lived dynamics of civic tech evolving in Korea, this study draws on in-depth interviews conducted from 2017 to 2019 in Seoul, South Korea. I interviewed 23 civic technologists who had participated in social innovation, open government, or civic hacking movements since the late 2000s. Using a snowballing strategy that started with those who were founding members of Codenamu (2011–current) and Code for Seoul (2014–current), I recruited interviewees of diverse backgrounds, such as civil servants, activists, data or social start-up entrepreneurs, developers, and designers. All interviewees received IRB-approved interview questions and consent forms. Before the interviews, I described the research focus, compensation (\$20), audio recording, and their rights to confidentiality and security. Interviews were mostly conducted in person at the time and place chosen by the interviewee and took approximately 1–2.5 hours on average.

I selected a narrative interview, which focuses on the narrator's retrospective meaning-making of their past through the shaping and ordering of their experience (Lindlof & Taylor, 2011, pp. 180–181). Each interview began with a brief conversation about the interviewee's life history to allow them to situate their experience of civic tech in their life context. Then, I asked concrete questions about how they were led to the scene of civic tech, how they made sense of their activities, and what sustained or ceased their activities. I also asked about their vision and hope for their civic hacking communities or the scene of civic tech in Korea.

To complement the interviews, I also conducted a textual analysis of policy documents of Government 3.0 and the Act on Promotion of the Provision and Use of Public Data, as well as civil society organizations' reports about social innovation, open government and data, and hackathons, such as Creative Commons Korea's (CCK) reports on Codenamu hackathons and Code for Seoul (Codenamu, 2013, 2014). These documents show the definition and value of open government, open data, and civic hacking in the institutional discourse to which civic tech participants attempted to generate methodological or discursive alternatives.

Following a grounded theory (Glaser & Strauss, 2017), I coded interviews and other printed documents to deconstruct the meanings of civic tech translated, enacted, or counteracted by civic hackers in Korea. While clustering civic hackers' experiences and activities by particular incidents, such as specific hackathons, civic hacking communities, or other projects or events, I identified keywords and created and integrated categories to develop broader themes and conceptual relationships (Strauss & Corbin, 1990). I particularly focused on how civic hackers in Korea made sense of their role and capacity as technologists and set their goals in action for social change based on their experience as young technologists and citizens in 2010's Korea.

Most civic hackers were male developers in their 20s–40s. Some older developers were in their 40s and had worked as programmers in leading IT companies like Cyworld, Daum, or Naver, where they witnessed the enormous sociopolitical impacts of digital services, such as Internet communities, blog journalism, and online messengers, in the early 2000s. They participated in IT-based social innovation initiatives in the late 2000s and organized open government and civic hacking movements with civil society groups hoping to lead a new wave of social change using open-source software and data. However, as the dot-com bubble burst in the 2000s and with the neoliberal social transition after the 1997 financial crisis, the culture of innovation and job security in the IT industries rapidly disappeared. Most civic hackers in their 20s or early 30s worked as contracted employees or interns in IT companies or prepared for their social enterprise or IT start-up in the 2010s. They expressed their strong dislike of the exploitative labor environment and hierarchical corporate culture. They hoped to find the feeling of individual freedom and self-actualization through civic hacking, while working with other like-minded developers to make something fun and meaningful.

Despite their different life trajectories, both younger and older groups of civic hackers began their journey to civic tech in the late 2000s through events and workshops on social innovation led by civil society groups and nonprofit organizations. The next section discusses how their desires and struggles as people in tech and as citizens of Korea intersect with one another and have shaped the early history of civic hacking in Korea.

The Rise of Civic Tech in South Korea and the Role of Technologists

After democratization in the 1990s and the 1997 financial crisis, there was an increased need for social services to cope with emerging social problems, such as the broken social safety net, aging population, and unemployment rate. Leading civil society organizations in Korea, such as People's Solidarity for Participatory Democracy and the Hope Institute, adopted the initiatives of social enterprise and social innovation emerging in Europe and North America (Bidet, 2012, p. 1223). The Korean government promoted social enterprises as an important delivery system of welfare services to transform the standardized approach and top-down administration of public services into a community-based model and provided financial support and professional training with nonprofit organizations (Lee, 2015).

Social innovation initiatives aim to solve various social problems through individual citizens' innovation capabilities to generate new ideas and creative methodologies (Bornstein, 2004; Dees & Anderson, 2006). Digital media workshops and IT conferences for social innovation began evolving in the

late 2000s. The Daum Foundation (presently, Kakao Corp) opened IT CANUS, the IT support center for nonprofit organizations in 2006, and held an annual conference called *Change On* since 2008. Both places nurtured and mobilized human resources for tech-mediated and civic-oriented social change. More IT entrepreneurs established coworking places, incubator programs, and investment companies to provide consultations and seed investment for social start-ups. SI-themed events and programs for IT start-ups in the 2000s led young technologists to the scene of civic hacking in the 2010s. A social entrepreneur (Interviewee 18, founder of Co-Up) who organized many social innovation events in the 2000s said:

After visiting Silicon Valley and learning the startup ecosystem and hackathon there, I came back to Korea in 2008 and opened Co-Up to run accelerator programs for social startups. . . . I visited the social entrepreneurs' meeting and the Social Designer School of the Hope Institute. . . . Building upon the relationship and network through these experiences, people from IT business and nonprofit sector began gathering and worked together at Co-Up.

The initiatives of citizen-led and IT-based social change were accelerated when Park Won Soon, the former head of the Hope Institute, was elected mayor of Seoul in 2011. Throughout his three consecutive terms (2011–2019), Mayor Park's administration established policies for sharing economy, innovative city, and other new institutions, such as the Seoul Innovation Center, the Youth Hub, and the NPO IT Support Center, to promote social startups using digital technology. With the sponsorship of the Seoul Metropolitan Government (hereafter, the Seoul government) and national governmental ministries and financial support from giant IT companies such as Daum, Naver, and Microsoft Korea, the Hope Institute first held the "Social Innovation Camp 36" in 2010. Modeling from Young Foundation's Social Innovation Camp, Social Innovation Camp 36 invited "software developers, designers and social innovators to bring their ideas and digital tools and work for 36 hours to create new businesses for a social goal" (Social Innovation Camp 36, n.d., para. 2).

Of course, the idea of using technology for social change was not new to Korea. As personal computers and the high-speed Internet became popularized in the 1990s, many civil society groups used online messenger services, Internet news media, and online communities to organize social movements and protests. What made social innovation movements in the 2000s distinctive was their focus on cooperation between the public and the private. Civil society and nonprofit organizations altered their relationships with the government and corporations from adversarial to collaborative and professionalized their work for social services (Bidet & Eum, 2011). The vision of social innovation promotes citizens who can diagnose their own or their city's problems and creatively speculate on futures using digital technology (Townsend, 2013). The changing role of the citizen was embodied through open government and civic hacking movements in the 2010s.

It was CCK and its working group Codenamu that led the emergence of open government and civic hacking movements in Korea. In the late 2000s, CCK expanded its main initiative from digital commons to open government by recruiting developers and creating a working group called Codenamu. CCK and Codenamu held the first hackathon in Korea, called "Let's Shake! Public Data Camp" in 2012, with the slogan "Make a better government and society by citizens' hands and through opening government data"

(Codenamu, 2013). They also launched Seoul Open Data Square in 2012, which was the first government data portal site in Korea to provide application program interface (API) access and linked open data. After the success of Codenamu hackathons and the cooperation between the Seoul government and CCK, open government movements and urban hackathons began spreading to provinces with the support of national government agencies and IT corporations.

At the beginning of her inauguration in 2013, President Park Geun-hye (2013–2017) declared Government 3.0 a new paradigm for state administration. Government 3.0 suggested a new vision in which “government provides customized information and individuals create value through the free and unlimited utilization of public data” (Pak, 2011, p. 158). The Park administration enforced the Act on Promotion of the Provision and Use of Public Data (Public Data Act) in October 2013 and ordered every public institution to enable the ready use of public data in a machine-readable form. Then, CCK and Codenamu were pushed to set up a follow-up plan to put the open government into practice. A former member of CCK and Code for Seoul (Interviewee 6) told me that this pressure was the momentum for CCK to initiate the civic hacking movement:

Soon after the Public Data Act came into force, government officials began to contact Codenamu and put a lot of pressure on us, like, “Now we opened data, but why aren't you doing anything?” . . . That’s when CCK found Code for America. We thought that we could make government services like them.

According to a researcher working at the National Information Society Agency (NIA), the collaboration between the public and the private (“minkwanhyupup” in Korean) was one of the main subjects of Government 3.0 and a key criterion of OCED’s Open Government Data Index for which Korea never scored highly. She said, “Public officials in charge of Government 3.0 wanted to achieve actual outputs for ‘minkwanhyupup’ by facilitating citizens’ voluntary actions to make public services or entrepreneurial activities utilizing public data” (Interviewee 12). Presenting themselves as reliable partners for minkwanhyupup, CCK launched Code for Seoul in April 2014 as a brigade group of Code for America. CCK introduced Code for Seoul as “a community where citizens solve their city’s problems using IT and data” (Codenamu, n.d., para. 2). Following the action model of Code for America, CCK recruited developers and designers from open-source communities and hackathons and operated weekly hacknights. A founding member of Code for Seoul (Interviewee 5) told me that CCK tried to lead Code for Seoul’s projects to address the needs of the Seoul government from the very first day:

Before our first meeting, the director of CCK talked with a secretary of Mayor Park and received some ideas about some pending issues of Seoul. During our meeting, people from CCK implicitly encouraged us to pick these ideas for the first Code for Seoul projects. One of the ideas fell off the first vote. But they brought the idea back so that it could compete with other ideas again.

In 2014 and 2015, Code for Seoul members worked on several projects, including an emailing service on the activity of congressmen, a feed service of welfare policies for working parents in Seoul, and a curation service of the city affairs of Seoul. CCK and Code for Seoul participated in global events for civic

hacking like Code Across and Open Data Day with the sponsorship of the Ministry of Security and Public Administration and the NIA (Codename, 2014). However, members of Code for Seoul and other similar civic hacking communities such as Code for Incheon and Code for Eunpyung were soon disappointed with government officials' profit-oriented perspective on public data and the lack of a system institutionalizing civic hackers' participation in governance. A former member of CCK and Code for Seoul (Interviewee 6) told me about how members lost momentum:

The public officials who learned about civic tech through the cases in the U.S. like Adopt a Hydrant tend to think that Code for Seoul is where citizens fill in administrative blanks by making public services. They came to hacknights and said, "Show us what you're working on and tell us how to help you." . . . I asked them, "Why do you keep pushing us? We're not your service providers." They responded, "Oh I thought civic hackers would work for free for public good." After a few more times of similar encounters, many members left Code for Seoul.

In civic hacking communities, the public good was implicitly defined as the creation of public service or enhanced service delivery by tech-mediated, voluntary actions of citizens. Civic hackers were assigned to the role of the ideal citizen, who was technologically literate and willing to invest their time and labor to solve public problems on behalf of the government. Enabling citizens to access and use government data for *minkwanhyupup* became the dominant narrative of civic tech in Korea and was disseminated by civil society organizations, government-sponsored hackathons, and news media. The next section analyzes how civic hackers interpreted and responded to such conceptualization of civic hacking and the figure of ideal citizens imposed on them.

Negotiating the Ideology of Silicon Valley as Precarious IT Workers

Governments and civil society organizations promoted open government and civic hacking movements, drawing on the symbolic power of American tech culture, Silicon Valley pundits, and Western-oriented tech-based civic initiatives. According to the schedule of the hackathon organized by CCK and Codename on July 20–21, 2012 (Codename, 2013), for example, participants gathered on the first day and took a lecture on community mapping tools by Bryan Herbert, the director of Crowdmap at Ushahidi. Participants also learned how to use open API and libraries for government databases and agile development methods. Then, they quickly built a team through ideathons and developed prototypes overnight, with workouts in between. The following day, they worked all day long to create their products. Hackathons ended with the presentation of prototypes and concluding remarks from a civil society leader in the evening. Civic hackathons and civic hacking communities became places where cool jargons from the software industry and maker movements in the United States were mixed with the earnest and passionate calling for citizenship from Korean governments and activists. A former member of CCK (Interviewee 6) described the merit of joining the Code for America's brigade network as follows:

We received toolkits for hosting hackathons and hacknights which were very useful. We also learned their approach and way of troubleshooting while lurking their conversation on Slack. But the really great thing was the promotion effect. "Look, this initiative originated from the U.S. We're the Korean partner of Code for America." . . . Nobody would deny that a lot of people joined Code for Seoul because of the fame of Code for America.

Like many other Asian countries, the United States has been the ultimate reference for technological development, advanced economy, and democratic society in Korea throughout the 20th century (Cho, 2008). With state-led industrialization in the 1960s–1980s, the will for economic development intertwined with the construction of national identity (Chang, 2012). However, Korean civic hackers did not incorporate the entrepreneurial vision of development into their civic identity, as explained in many past studies on civic tech in non-Western developing countries (Avle et al., 2017; Irani, 2019). The following quote is from a conversation with two former members of Code for Seoul (Interviewees 1 and 10) who actively participated in hackathons in the early 2010s but stopped their participation a few years later.

Me: What made you go to a hackathon in the first place?

Interviewee 1: Developers always do the same thing in workplace. There is no time for doing something good or meaningful. At hackathons, however, you can do something good which is not allowed at your work. That's why people came there.

Me: But you guys said you haven't been to hackathons since 2015. Why?

Interviewee 10: The organizers kept looking for projects with certain business potential. . . . But you need to approach civic hacking with a developer's mindset. Software keeps evolving like a living thing. It doesn't come out perfect from the beginning. But if you look at the government's grant opportunities, only projects with clear business possibilities win.

As seen in the above quote, what developers sought from civic hacking was to "do something good" with a "developers' mindset." When I asked civic hackers why they chose civic hacking communities organized by civil society organizations instead of many other developers' communities, they explained that the developer's mindset was unavailable in existing programming communities at the time (Interviewee 2, founding member of Nullfull). They described that most members of these communities were "those who came into the IT business in the 2000s after only about six months of training to learn what they needed to work at the company immediately" (Interviewee 1). Civic hackers wanted to differentiate themselves from "the occupational group of developers and designers" who "thought of programming as only a job without any philosophy of computer or software" (Interviewee 1). Many civic hackers, instead, longed for communities of early PC users and hackers in Korea who opened BBS services or cracked games for other people in the 1980s (Interviewee 11, founder of Good Apps). The developer's mindset meant the pure pleasure of technical play and community-based software creation for mutual benefit, which was not allowed for contracted IT employees or freelancers in IT companies in the 2010s.

I found that civic hackers' refusal of hackathons was associated with the historical experience of computing and network technologists in Korea, who had become precarious IT workers in the neoliberal transition of the IT industry in the 2000s. In response to the 1997 financial crisis, the Kim Dae-jung (1998–2002) and Roh Moo-hyun (2003–2007) regimes pushed ahead economic revitalization by aggressively constructing ICT infrastructures and providing government-funded programs to mass-produce low-skilled workers in a short time. The government allowed significant levels of deregulation and labor market flexibility in favor of large corporations, all of which burst the dot-com bubble and destroyed venture companies (Pak, 2011). Although Korea became an IT powerhouse through national investments in the 2000s, many IT employees struggled with low pay and poor working conditions (Han & Ju, 2015). The entrepreneurial ethos and start-up culture celebrated in hackathons that encouraged the intensive work of technology production, therefore, were not appealing to Korean civic hackers who were already exhausted by the competitive job market and exploitative work environment.

Furthermore, civic hackers soon found that government-sponsored civic hackathons, like their companies, also demanded them to pursue short-term outcomes and profitability. The low recognition and authoritarian attitude of public officials in charge of Government 3.0 also increased civic hackers' distrust of the government's capabilities and policy directions for public data. A civil servant who was a founding member of Code for Seoul (Interviewee 1) complained:

Whenever I meet with high-ranking officials, they keep asking me how much profit or how many jobs can be created by opening government data. They have an absurd imagination that as soon as they disclose raw data, start-ups will show up in the hackathon and immediately make money.

Meanwhile, civic hackers' struggles as young and contracted workers in exploitative and hierarchical corporate cultures shaped the way they negotiated the Silicon Valley ideology. Many interviewees said that they envy the atmosphere of tech companies in Silicon Valley, where people can have an equal discussion regardless of their age or rank (Interviewee 18), while complaining that in Korean companies, they only follow what their boss tells them to do (Interviewee 9, founder of Code for Incheon). However, the individual freedom and self-actualization through peer production in the workplace, which they believed were lacking in Korean companies and society, was also an illusion supported by the rhetoric of collective mission and community, which originated in Silicon Valley hi-tech companies (Turner, 2009). In reality, civic hackers had to work with government officials and civil society leaders who tried to supervise their projects. Developing government services or establishing data startups was not an easily aligned mission with civic hackers' personal desires, such as horizontal and creative collaboration.

A civic hackers' community named Team Popong shows how young technologists appropriated the image of American tech experts and the ideal of tech optimism to find a new way of civic actions for social change as technologists in Korea. Team Popong was a group of 5–8 software engineers and programmers in their 20s and 30s. They suggested transforming the self-portrayal of developers from precarious IT workers to technologists who could transform society. The following is part of the keynote that the founder of Team Popong wrote for their kickoff meeting in 2010:

Dear fellow engineers, especially S/W engineers, I believe that we have enough power to change this society with our knowledge and skill of technology. . . . I believe that the real portrait of engineers is Iron Man, not a low wage worker smoking throughout working overnight. . . . Tony Stark's true self was an engineer, an otaku, and a geek. Becoming aware of the social contradiction and the social ill, however, he was reborn as a hero, "Iron Man." The heartfelt concern on the society where we live is the kinetic energy that will transform us to a hero. (Team Popong, 2016, para. 3)

A former member of Team Popong said that they spent a lot of time at the beginning phase prioritizing "finding the aim of their project that all members agree with" over "making output as soon as possible" (Interviewee 23). Unlike civic hacking communities and hackathons, which focused on improving public services for civic purposes, they thought that dysfunctional politics and people's political disengagement were the most significant problems in Korea. Their API-based Web service "Daejungmo" [All about Korean politics] (<http://pokr.kr>) automatically scraped real-time data from National Assembly Bill Information and the Central Election Management Committee and provided information about legislative activities and proposed legislations of each election candidate. Team Popong opened source codes, API, database schemas, and even work processes on GitHub so that anyone could contribute to their project or reuse these resources for their project. The service was designed to update itself automatically using APIs and macros, which reduced significant labor for further maintenance. Many developers I interviewed chose this project as one of the best practices of civic hacking in Korea, as it demonstrated the "technologists' way of social intervention" (Interviewee 9).

Although young technologists' struggle as precarious IT workers made them reject Silicon Valley entrepreneurialism, Team Popong negotiated the fantasy of a horizontal work culture and creative peer production in tech companies in California to organize their own civic hacking group. Team Popong proposed a new position of technologists in the scene of civic tech in Korea, from supporters to organizers, by encouraging "fellow engineers" to become a "hero" who technologically transform politics. The next section discusses how technologists in Korea began finding alternative forms and methods of civic hacking for what they defined as a public good in the mid-2010s.

Questioning American Civic Hacking and Finding New Ways

During interviews, I often heard developers complaining that civil society organizations in Korea tend to "import" concepts and methods for action from Western countries. One of the initial members of Codenamu told me in a sarcastic tone, "Well, they're always very quick to import concepts, whether or not they understand them properly" (Interviewee 4). From the perspective of developers, the practice of open source, sharing, and participation already existed among early PC users in the 1980s (Interviewees 10 and 11). Developers also complained that the government and civil society activists perceived tech-based social innovation as something new or something to be learned from famous foundations in the United States, even though Korea's online culture and digital services in the 2000s already showed Korean technologists' capacities and imaginations for social change. The founder of Co-Up (Interviewee 18) said:

Even before the blog appeared in the US, Cyworld's mini-hompy already came out in the form of social media in Korea. Many social movements and political activities were organized online since the 1990s. Think about how early we got the high-speed Internet, mobile environment, and the Internet streaming service of real-time broadcasting. Korea has always been ahead in terms of the Internet culture. We were always the frontier in terms of the Internet and social change.

The skepticism about adopting and following the action model of Code for America increased among developers. Interviewee 6 (a former member of CCK and Code for Seoul) described to me the instance when he first noticed that the Code for America's way of civic hacking might not be as great as he thought:

I was really upset when I met people from Code for America at the Code for All Summit 2014 in Berlin, in a session with activists from various countries discussing who we are and what we do as civic hackers. . . . One of the activists said, "You guys value cooperation with the government, but my government is an authoritarian dictatorship. I don't want to work with them. What should I do?" . . . Shockingly, Code for America responded that "Civic hacking cannot exist without a democratic government." What they means was that civic hacking is the collaboration between citizens and a government with democratic legitimacy and procedures, not a revolutionary action against an undemocratic regime. For this reason, they said, they rejected any request for a license from such a country. We were all bummed.

What made Korean civic hackers upset was, borrowing the expression of the civic hacker I quoted above, Code for America seemed to "define or evaluate civic hacking communities and activities in other countries." The conservative regime in the 2010s of Presidents Lee Myung-bak (2008–2012) and Park Geun-hye (2013–2017) was a period of social division and political crisis. Governments and ruling parties oppressed progressive parties, labor unions, and news media in favor of the interests of large corporations and the wealthy. Civic hackers were increasingly interested in an adversarial mode of action against the incompetency and irresponsibility of President Park's government. During the endemic of the Middle East Respiratory Syndrome (MERS) in 2015, for example, some developers made smartphone applications to provide reliable information about affected hospitals, despite the government's control of information and threats to punish rumors. From their perspective, therefore, Code for America's limited definition of civic hacking, which focused on cooperation with the government, conflicted with Korean civic hackers' increasing antipathy toward authoritarian politics under Park's regime and increasing inequalities and social injustices.

Early civic hackers' questioning of the authority and effectiveness of the Code for America's action model also led them to critically reflect on civic tech in Korea. Some developers asserted that the current civic tech movement in Korea was not "civic" because of the techno-solutionism underlying hackathons or other data initiatives led by municipal governments (Interviewee 4). They said that Code for Seoul's civic hacking activities and increasing hackathons in Seoul put too much emphasis on coding and data, which spread misconceptions that "civic hackers need to know programming language" (Interviewee 6) or "a new software or service can come out in a day or two" (Interviewee 2). A developer who diligently worked with CCK and Code for Seoul in the early 2010s (Interviewee 20, founder of Code for Eunpyung) told me:

For example, I don't like the current approach to community mapping. The key to community mapping is that citizens explore and learn about their own town and neighbors. . . . Mapping through the Internet is not the point . . . the Seoul government says in community mapping hackathons, "Let's solve community problems using technology!" But participants have no idea of which problem to tackle for their town. How could we call it civic hacking?

To find alternative forms of action that work better in Korea, many early civic hackers left existing civic hacking groups and hackathons and organized their own groups. Developers and designers of Code for Seoul, for example, separated themselves from CCK and Codenamu in March 2017 and renamed their group Nullfull. The word "null," which means in computer programming an uninitialized, undefined, or meaningless value, sounds like the Korean word "널" [neol] meaning "you." Through their new group name, Nullfull members expressed their hope of creating a place where anyone could find something meaningful to fill themselves with instead of filling administrative blanks. "Separating our group from Code for Seoul and CCK, we decided not to use the words "Code" and "Seoul" for a new group name," a developer who was a founding member of Code for Seoul but later led the separation process told me (Interviewee 1). He explained that members did not want to restrict their group identity and activities to the common conception of civic hacking in Korea, which was "developers' gathering to volunteer to improve government services."

Nullfull used to introduce their group as "a point organization for civic hacking," as they did not have any leadership positions in their group to ensure a decentralized governance structure and horizontal group culture (Interviewee 2). Members volunteered for group management roles as the need arose, such as reserving a space for hacknight or archiving a meeting log each week. They called each other by their Slack ID and used the honorific form of language, regardless of their age differences. Any member could suggest an idea for a group project as long as there was a clear contribution to the public good broadly defined and the proposer was willing to lead the project. Their emphasis on self-fulfillment and self-determination, instead of rapid and intensive work to accomplish the collective mission, came from their unpleasant past experiences of being supervised by government officials and feeling pressure in outcome-oriented hackathons (Interviewee 1). A female member told me, "Without the pressure for timeline, and with no limitation of topic, you can ask questions and have discussions in Nullfull. Or you can just do what you want, if you don't want to participate in a group project" (Interviewee 3).

Nullfull's horizontal group culture and decision-making process enabled them to do various projects, from creating public services for the Seoul government to organizing critical data projects targeting politicians, news media, and large corporations. For example, Yeonam News is an ongoing project since September 2018 that Nullfull members continuously update weekly to criticize the gender bias in news media. They made a Web crawler to scrape the titles of all news articles released by Yonhap News, a major news agency in Korea, and auto-extracted every news title that included any gendered suffix. At weekly hacknights, they pick about 5–10 most gender-discriminatory titles and post them with their satirizing comments on their Twitter account "Yeonam News" (https://twitter.com/___ynnews___) to put pressure on journalists to change their practices (Interviewee 21, member of Nullfull). Yeonam News needs various kinds of expertise beyond coding and data, such as knowledge of gender inequality and social media, which enable the active participation of female members and members with no technological background (Interviewee

19, member of Nullfull). This project reflects Nullfull's efforts to align the value of openness and inclusivity with action repertoire and group governance.

Nullfull members' critical reflection on the "American" way of civic hacking and their desire for a more equitable civic culture drove them to imagine alternative forms of civic hacking in Korea's sociopolitical context. Nullfull's projects extended the notion of public good, which had been limitedly defined as cooperation between governments and citizens to imply citizen empowerment against oppression and inequalities reinforced by political and economic elites in Korea. They rearticulated the hegemonic meaning of public good and the tech-oriented notion of openness in civic hacking to mean democratic values, such as inclusive and equitable participation and transparent decision making.

Discussion and Conclusion

Since the 2000s, civic tech in Korea has evolved to solve various socioeconomic problems in the neoliberal turn of society by facilitating the participation of tech-skilled and engaged citizens. Civil society and nonprofit organizations led the establishment of the early scene of civic tech with sponsorship and funding from governments and corporations. The dominant narrative of civic tech in Korea was underpinned by a data ideology (Schrock & Shaffer, 2017) that public data should be used for citizens' volunteer activities to create government services and entrepreneurial actions to revitalize the national economy. Hackathons and civic hacking communities were promoted as idealized commons for peer production, backed by technoutopianism and the ideology of social benevolence. However, civic hackers in Korea refused to align their personal desire with the collective goal of the public good defined in the government-led discourse and soon left the civic hacking scene.

What shaped Korean civic hackers' responses to the government-led discourse of civic tech and Silicon Valley ideologies was the way they located themselves as technologists and citizens in the changing politics of citizenship in Korea. Korea's traditional civic identity based on nationalism and developmental citizenship began to disintegrate in the 2000s, as the welfare state model collapsed after the financial crisis in 1997, and the link between the country's economic growth and individual well-being was cut off (Lim, 1999). The sinking of the Sewol ferry in 2014 and the MERS epidemic in 2015 were perceived as the most tragic but clear signs of the failure of the developmental state, which prioritized market logic and economic profit over any other values (Fiori & Kim, 2018). In this situation, civic hackers of the 2010s refused to accept the responsibility of techno-entrepreneurial citizens who invested themselves as human capital for the national initiatives of Government 3.0 and Creative Economy.

Civic hackers' desire for community feeling and creative work led them to organize their own group for civic hacking through negotiations with Silicon Valley ideologies of peer production and social benevolence. In California's software companies of the 1980s, "this fusion of the social and the professional, of personal growth and product development, was the driving force for manufacture" (Turner, 2009, p. 80). However, as seen in Team Popong, the collective mission and communal ethos that Korean civic hackers set up for their actions resonated with public anger toward authoritarian politics and increasing inequalities in the 2010s, rather than being articulated into the promise of self-actualization through technology production. As citizens who were frustrated with the democratic crisis under President Park's conservative regime, civic hackers' political

projects extended the limited notion of public good in civic hacking to involve more diverse values in the social and political realm, such as social justice, political transformation, and gender equality.

Civic tech in Korea was shifted by individual civic hackers' agony and desire as precarious IT workers struggling in the exploitative corporate culture and as young citizens trying to overcome the developmental notion of citizenship. This process shows that the collective agency of Korean civic hackers to find alternative forms of civic hacking emerged in their collective efforts to democratize civic hacking. On the one hand, Korean civic hackers rejected what they thought was the American way of civic hacking as a tech-centered and apolitical discourse of citizen participation. Instead, they recentered the democratic implications of concepts that undergird civic tech, such as participation and openness, into their principles for organization and action. For example, rather than limiting the meaning of openness and transparency to the technical issues of source code and data, Nullfull reoriented these conceptions to imply horizontal communication and accountable decision making and tried to incorporate these values into the principles that underpin their organization and actions. On the other hand, drawing their agency for social change from past Korean technologists' cultures of openness, innovative digital services, and Internet-based social movements, civic hackers in the 2010s challenged political, social, and cultural inequalities in Korea. They experimented with various ways of incorporating open-source culture, technology, and data into the new form of civic tech that they envisioned for Korea. By doing so, they became a pioneer community, creating the culture and tradition for technologists' way of social intervention with later technologists in Korea.

In conclusion, Korean civic hackers rearticulated the dominant narrative of civic tech in Korea from technology for government efficiency to the practice of open and equitable participation. Toward building non-Western-centric research on civic tech, we need to pay more attention to grassroots civic technologists' agency to engage in data practices as forms of intervention and transformation of the established order (Milan & Treré, 2019) and to decentralize the technological future imagined in the mainstream centers of technological entrepreneurship (Chan, 2013, p. 324). By providing contextualized and empirically informed explanations on how Korean civic hackers act on democratic values and construct visions for alternative futures toward a more citizen-centered form of tech-based social change, this study contributes to examining alternative imaginaries on technology development and citizen empowerment evolving outside the West.

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