Ministry of Digital Affairs

Civic Technology and Its Role in Digital Democracy:

Case Studies of Taiwan, Japan, and South Korea

Wikimedia Taiwan

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Executive Summary

I. Background

Digital governance and the digital transformation of public services are key priorities for democracies worldwide. This approach enhances governance efficiency and strengthens responses to global challenges such as climate change, extreme weather, and geopolitical conflicts. By promoting civic technology and open data, democratic nations empower citizens, optimize policymaking, and protect civil rights. East Asian countries like Taiwan, Japan, and South Korea have shown distinctive development of civic tech communities, with governments leveraging public-private partnerships and bottom-up approaches to build digital infrastructure. These citizen-driven initiatives have influenced digital policy and governance, advanced democratic participation and digital rights, and become a foundation for safeguarding the valuable consensus of digital democracy. (Chapter 1)

This study examines the digital transformation of governments in East Asia since the 1980s, focusing on how highly proactive civic tech communities leverage ICT to enhance the "digital democracy" elements of existing democratic systems and processes—widening citizen participation, increasing government oversight, and building public-private partnerships. Beyond a literature review, the research draws upon fieldwork and interviews with 9 civic tech communities across 3 countries. By comparing and analyzing how these communities engage with governments and influence digital democracy, the study offers policy recommendations for deepening digital transformation, building service-oriented smart governments, and optimizing public-private partnerships, serving as valuable insights for global democratic advancements. (Chapter 2)

II. Case Studies

1. **g0v (gov-zero) (Taiwan)** is a polycentric civic tech community, driven by transparency and open collaboration, engages citizens from diverse backgrounds through regular hackathons. While significantly contributing to Taiwan's digital democracy, their volunteer-based, loosely structured nature presents challenges. Public sector should acknowledge their distributed nature and independent operation, focusing on small-scale, in-depth partnerships, integrating civic tech participation processes into

policy planning, and leveraging hackathons for cross-sector collaboration. (Section 3.1.1)

2. **Open Parliament Action Plan (Taiwan)** established an innovative model of equal collaboration among civil society, legislators, and civil servants via multi-stakeholder forum (MSF) mechanism. With the initiative facing continuity challenges, cross-departmental incentives and cross-party consensus are essential to ensure steady progress in parliamentary transparency and digitalization. (Section 3.1.2)
3. **LASS (Location Aware Sensing System) (Taiwan)** has gradually built partnerships with the public sector via collaborative meetings– partnerships set to improve water resource metadata and promote new models of river basin governance. Key to their success is the shift from confrontation to collaboration, facilitating public-private dialogues through strategic setting of achievable short-term goals and pilot projects. (Section 3.1.3)
4. **Cofacts (Taiwan)** has become the largest platform combating misinformation in the Mandarin-speaking world, with its influence extending to Thailand. Combining fact-checking chatbots with a collaborative platform, Cofacts provides automated tools and encourages proactive actions against rumors, as well as engaged public discourse. For the public sector, Cofacts offers an accessible opportunity for collaboration. (Section 3.1.4)
5. **Code for Japan** collaborates with 67 local communities nationwide by a core team of 20 part-time members, maintaining various civic tech projects. Through hackathons, national conferences, and dedicated projects, C4J facilitates cross-sector exchange and partners with the public sector to empower civil servants. (Section 3.2.1)
6. **Decidim** is an open-source digital participation platform promoted by Code for Japan. It enables organizations ranging from local governments, educational institutions, to businesses to gather input and encourages reflection on the nature of digital democracy, with hope to become part of the governance norm in the future. (Section 3.2.2)
7. **Proj-Inclusive (Japan)** helps vulnerable citizens gain access to social support information via digital tools. It collaborates with multiple

organizations and stakeholders to advocate for digital public services on poverty prevention. (Section 3.2.3)

8. **NullFull (Korea)** is a loosely-organized, volunteer-based civic tech community that prioritizes long-term engagement with public issues over short-term project outcomes. They are well-versed in leveraging technology to advocate for social causes. (Section 3.3.1)
9. **Code for Korea** is a loosely-organized group of volunteers that promotes civic tech and open data across South Korea. Engaging in cross-sector collaboration with businesses, international organizations, civil society groups, and schools, they build communities via hackathons and in-person events. (Section 3.3.2)

III. Findings & Policy Recommendations

Since the 2010s, civic tech communities in the East Asian countries of Taiwan, Japan, and South Korea have played a vital role in advancing digital democracy. Beyond providing public services during crises, they make crucial contributions to political discourse, digital service development, and policy advocacy, acting as catalysts for digital service reform within governments via public-private partnerships. However, three common challenges are identified in this research:

1. **Policy Continuity**: Public-private partnerships are vulnerable to shifting political wills, and a lack of societal consensus may disrupt any ongoing cooperation.
2. **Evolving Civic Participation**: Civic engagement needs to evolve from one-way transparency towards two-way communication and co-creation, and the public sector needs to reconfigure and adapt to these new expectations.
3. **Preconditions for Co-creation**: Collaboration with civic tech communities faces challenges on regulatory compliance and evaluation standards. Efforts need to be made to achieve equal and effective partnerships.

For public-private partnerships with the civic tech sector, preserving the independence of civic tech communities and ensuring the adaptability and generalizability of collaborative frameworks and operational models are crucial considerations. To deepen digital transformation, build smart governments, and

optimize public-private partnerships, we propose the following policy recommendations: (Chapter 4)

(1) Short-term

- Establish communication channels between government and civic tech communities to facilitate collaboration.
- Develop flexible performance indicators for public-private partnerships, adaptable to diverse project needs.
- Enhance the quality of open data to stimulate innovative public services.

(2) Mid-term

- Implement comprehensive digital literacy training for civil servants to bridge knowledge gaps and foster cross-departmental consensus.
- Invest in research to deepen understanding of digital democracy and inform policy development.
- Promote open data and digital democracy concepts to create a supportive policy environment.

(3) Long-term

- Adopt an open and supportive approach towards loosely-structured civic tech communities, encouraging collaboration and innovation across multiple stakeholders.
- Integrate civic tech into modern education to cultivate active citizenship, enhance digital literacy, and strengthen democratic participation.

Contents

Chapter 1: Introduction

As digital tools and the internet continue to spread, democratic nations are prioritizing digital governance and the transformation of public services as key policies. Whether addressing global challenges including climate change, extreme weather, or geopolitical conflicts, or tackling internal issues related to democracy and diversity, all democratic nations face the challenge of using digital methods to improve government efficiency while upholding values such as openness, inclusivity, equality, and human rights.

Although digital governance tools are often seen as beneficial, they can also be misused to enhance surveillance, potentially violating human rights. In East Asia, some totalitarian regimes have clearly demonstrated the dangers of using digital methods to consolidate power, and they are even seeking to promote these technologies and values globally through their economic influence. Therefore, when it comes to digital governance, advanced democracies in this region must not focus solely on economic factors; they must also incorporate the perspective of civic technology and foster civic tech communities to combat the threat of authoritarianism. One effective strategy is to collaborate with digitally literate citizens to enhance civic participation and policy-making, as well as to strengthen public services and civil rights. For instance, Taiwan's Ministry of Digital Affairs has launched two initiatives: the Public Code Platform, and the Civic Tech Experimental Field. Similarly, local governments in Japan have been working with civic tech communities to implement digitalization projects.

In Taiwan and Japan, the public-private partnerships, policy-making processes, and civic participation tools are notably unique among Asian nations, reflecting the distinctive features of East Asian democracies. Therefore, it is essential to

explore the civic tech communities and their movements in Taiwan, Japan, and South Korea, all of which are advanced democracies in East Asia. This study explores how public-private partnerships and bottom-up approaches help these countries develop their ICT software, hardware, and services. Furthermore, it investigates how these strategies influence their digital policies and governance. Additionally, the research looks into democratic participation, civic awareness, and the advocacy of digital rights in these countries. We believe that the value of this research extends beyond Asia and can contribute to the global effort to unite in defending digital democracy.

According to a report by the UN High Commissioner for Human Rights in May 2023,[1] digital technologies have become crucial for protecting civic space in Southeast Asia. Meanwhile, the Civic Tech Field Guide,[2] the largest online catalog of civic tech projects and tools, has identified over 8,000 civic tech projects and tools worldwide. The focus of these projects and tools varies based on each country's democratic development, covering civic engagement, political transparency, digitalization of public services, IT infrastructure hardening, and government accountability. This indicates that the development of civic technology is strongly influenced by regional and local factors. By delving into the information environment, democratic development, and civic literacy in different nations and regions, we can create better and more effective policies. This research examines how three East Asian countries have developed their digital democracy, offering insights that can be shared with the global community to advance the field.

[1] UN High Commissioner for Human Rights, *Human rights impacts of new technologies on civic space in South-East Asia* (May 30, 2023), https://www.ohchr.org/en/press-briefing-notes/2023/05/ohchrs-report-digital-tech-and-civic-space-south-east-asia.

[2] CIVIC TECH FIELD GUIDE, https://directory.civictech.guide (last visited Dec. 1, 2024).

Chapter 2: Literature Review and Research Methods

2.1 Literature Review

2.1.1 Taiwan's Digital Development

This research intends to clarify the fundamental concepts of digital democracy and provide policy recommendations by analyzing interviews and data from civic tech communities and projects in Taiwan, Japan, and South Korea. It focuses on how collaboration between the public and private sectors can strengthen digital democracy, with particular emphasis on the establishment of public-private partnerships in Taiwan that aim to enhance the effectiveness of information services related to digital democracy. In this context, the chapter reviews how digital democracy has evolved in Taiwan, examining changes in the government and public services regarding democratization and digitalization, providing insights into the fundamentals of digital democracy.

Marked by a surge in social movements, Taiwan began its democratization in the 1980s, and underwent a rapid transformation in the following two decades, including the lifting of martial law, the abolition of the Temporary Provisions Effective During the Period of National Mobilization for Suppression of the Communist Rebellion, and the re-election of the National Assembly, leading up to the first direct presidential election in 1996. From 2010 onwards, with the expanding reach of the internet and the new generation gaining voting rights, public interest in politics has significantly increased. This growing interest has been further fueled by the internet, which has fostered more diverse and cross-generational public discussions. Furthermore, the enhancement of civic education and awareness has given rise to various social movements addressing political, economic, and environmental issues, along with equality and other related topics. As different issues have captured public attention, technological

innovations have led to a wider variety of tools for civic engagement. In 2014, during the 318 Movement, also known as the Sunflower Movement, activists and tech communities effectively utilized social media for collaboration, which established a new model for civic participation.

Taiwan also began the digitalization of its government and public services in the 1980s, gradually laying the foundation for an online government. This effort included the establishment of the Government Service Network (GSN) in the 1990s, the implementation of convenient online services, and the introduction of electronic certification and cybersecurity measures. Notably, the e-government policy, initiated in 1998 and thrived in the 2000s, has ensured comprehensive internet access for government agencies and employees, promoted electronic document exchanges, moved services online, enhanced the flow of government information, and reduced paper use.[3] As a result of these endeavors, Taiwan aligns its e-government goals with other democratic countries by enhancing service convenience, improving decision-making processes, and increasing governance efficiency through digital tools.

However, modern digital governance encompasses more than the implementation of e-government. As the administration pursues technology and convenience, it must also uphold principles such as openness, transparency, accountability, and the protection of fundamental rights. Neglecting these principles can result in increased surveillance and authoritarian control under the guise of "smart governance" or "data-driven decision-making," ultimately infringing on human rights. Alternatively, if the government shifts its focus from unilaterally addressing public needs to fostering meaningful interactions

[3] Chang Chun-Ping, 我國推動政府數位轉型之研析 [Analyzing the Digital Transformation of Taiwan Government] 5–7, LEGISLATIVE YUAN (2021) (Taiwan), https://www.ly.gov.tw/Pages/List.aspx?nodeid=45059.

with citizens, it can actively defend and expand digital rights,[4] contributing to a more robust digital democracy.

Inspired by Taiwan's progress in democratization and digitalization, this study will conduct interviews with civic tech communities in advanced East Asian democracies, and provide in-depth analyses of their practices. The goal is to explore how these communities work with the government to defend and expand the core values of digital democracy and address the challenges posed by digital authoritarianism.

2.1.2 From E-Government to Digital Democracy

In the 2010s, Taiwan, stimulated by the concept of Web 2.0, began developing information services to improve public services, enhance information accessibility, and increase online connectivity. This shift led to the implementation of digital and smart government policies that employed data-driven strategies, public-private partnerships, and big data analysis to address citizens' needs, aiming to improve transparency through open data and make effective use of personal data for the public good.[5]

By sharing government data with the public and offering application programming interfaces (APIs) for data integration, the Taiwanese government invited citizens and businesses to explore creative ways to utilize its data. It also

[4] Pan Kuo-Tsai & Yang Keng-Yu, 我國智慧政府發展藍圖 [*Development Blueprint of Digital Government in Taiwan*], 6 PUB. GOV'CE Q., no. 4, 86–93 (2018) (Taiwan).

[5] 數位發展規劃：數位政府發展 [*Digital Development Plan: Digital Government Development*], NAT'L DEV. COUNCIL (Jun. 20, 2022) (Taiwan), https://www.ndc.gov.tw/Content_List.aspx?n=E0C48B7F39ACB61F [https://web.archive.org/web/20220620132318/https://www.ndc.gov.tw/Content_List.aspx?n=E0C48B7F39ACB61F].

partnered with communities and companies in various events, such as the annual Presidential Hackathon, to promote innovative solutions.

Starting in 2016, the Taiwanese government prioritized citizen participation as a foundation of its digital government policy, which eventually consolidated under the concept of digital democracy.[6] For instance, it set up online platforms to make it easier for citizens to discuss public issues and provide feedback to policymakers. It also continued to bolster partnerships between the public and private sectors through initiatives such as the Public Code Platform and Civic Tech Experimental Field.

Throughout its journey, Taiwan has developed its own distinctive public-private partnerships, policy-making processes, and tools for citizen engagement, which stand out in Asia and showcase the features of East Asian democracies. Moreover, the cooperation between civic tech communities and the government has made public discourse richer and more dynamic within the public sphere.

2.1.3 Digital Democracy and Civic Technology

While there is no official definition of digital democracy in Taiwan, Audrey Tang, former Minister of Digital Affairs, has provided insights in an article, stating that the internet and democracy in Taiwan has developed and spread in tandem. From Tang's perspective, the government should transform from top-down policy-making to a more participatory approach and avoid dictating how citizens access public services. It must create an ecosystem that prioritizes

[6] Press Release,「第五階段電子化政府計畫」（106 年—109 年）[*"E-government Plan Stage 5": 2017–2020*], NAT'L DEV. COUNCIL (Dec. 21, 2015) (Taiwan), https://www.ndc.gov.tw/nc_8456_25196.

public needs and addresses issues through public-private-people partnerships,[7] a model that embodies a digital democracy rooted in online community culture.

When it comes to defining digital democracy, early literature presents highly divided views. The perspective most aligned with current research comes from a statement by Hacker and van Dijk[8] in 2000: "Digital democracy is the use of information and communication technology (ICT) and computer-mediated communication (CMC) in all kinds of media (e.g., the Internet, interactive broadcasting and digital telephony) for purposes of enhancing political democracy or the participation of citizens in democratic communication." In Hacker and van Dijk's opinion, digital democracy exists "without the limits of time, space and other physical conditions," and is "not a replacement for traditional 'analogue' political practices." This definition was further elaborated by van Dijk in 2012, indicating that it applies to the pursuit and the practices of democracy in not only online but also offline political communication.[9]

Notably, the Committee of Ministers of the Council of Europe has provided its member states with recommendations on digital democracy.[10] The Council refers to digital democracy as e-democracy, presenting 80 principles and 102 guidelines. The first two principles are:

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[7] Audrey Tang & Frances Feng, Digital Democracy in Taiwan, PUB. DIGITAL INNOVATION SPACE (Dec. 1, 2021), https://pdis.nat.gov.tw/en/blog/%E6%95%B8%E4%BD%8D%E6%B0%91%E4%B8%BB%E5%9C%A8%E8%87%BA%E7%81%A3/ (Taiwan).

[8] KENNETH L. HACKER & JAN VAN DIJK, DIGITAL DEMOCRACY: ISSUES OF THEORY AND PRACTICE (2000), https://doi.org/10.4135/9781446218891.

[9] Jan A.G.M. van Dijk (2012), Digital Democracy: Vision and Reality, in PUBLIC ADMINISTRATION IN THE INFORMATION AGE: REVISITED (Ig Snellen, Marcel Thaens & Wim van de Donk eds.), 49–62, at 51. https://doi.org/10.3233/978-1-61499-137-3-49.

[10] Council of Europe Committee of Ministers, *Recommendation CM/Rec(2009)1 of the Committee of Ministers to member states on electronic democracy (e-democracy) (Adopted by the Committee of Ministers on 18 February 2009 at the 1049th meeting of the Ministers' Deputies)*, https://search.coe.int/cm?i=09000016805d1b01.

1. E-democracy, as the support and enhancement of democracy, democratic institutions and democratic processes by means of ICT, is above all about democracy. Its main objective is the electronic support of democracy.

2. E-democracy is one of several strategies for supporting democracy, democratic institutions and democratic processes and spreading democratic values. It is additional, complementary to, and interlinked with traditional processes of democracy. Each process has its merits: none is universally applicable.

In addition, Linder and Aichholzer's study classifies e-participation, or digital participation—which refers to democratic engagement using information tools—into a structured framework that includes the function of citizen involvement, types of e-participation, and the tools employed, organized in the following table.[11] This table shows that digital democracy encompasses a variety of potential forms that extend beyond mere opinion collection or voting to encompass the exercise of public participation and citizenship rights at different stages.

Function of Citizen Involvement	Type of E-participation	Tools
Monitoring	• E-information • E-deliberation • E-complaints	Tools for monitoring, questioning and advising political representatives

[11] Ralf Lindner & Georg Aichholzer, *E-Democracy: Conceptual Foundations and Recent Trends*, in EUROPEAN E-DEMOCRACY IN PRACTICE 11–45 (Leonhard Hennen et al. eds., 2020), at 23, https://doi.org/10.1007/978-3-030-27184-8.

Agenda setting	• E-petitions • E-initiatives • E-campaigning	• Citizen initiatives • E-petition
Decision-making	• E-consultations • E-participatory budgeting • E-voting	• Crowdsourcing for law proposals • Crowdsourcing for policymaking • Internet consultation, collaborative decision-making within political parties • Consultative participatory budgeting • Participatory budgeting • E-voting

Based on the aforementioned literature, it can be understood that digital democracy, or e-democracy, is essentially an umbrella term encompassing a series of means to improve democratic systems and processes through the use of information and communication technology. It aims to expand participation, facilitate public oversight of the government, and promote public-private collaboration. Drawing on this definition, the following chapters will refer to such policy goals as “digital democracy” and will explore various civic tech communities that utilize digital tools, adopt bottom-up approaches, and exhibit the dynamic features of online community culture.

2.2 Research Methods

In addition to the literature review, this research will collect and study data, and conduct firsthand case interviews to compare and examine how the governments of Taiwan, Japan, and South Korea establish partnerships with civic tech communities. Furthermore, the research will assess how civic tech initiatives in these countries impact the development of digital democracy. It aims to provide policy recommendations to enhance the effectiveness of

information services related to digital democracy through case studies,[12] regional comparisons, and discussions within cross-national communities. The focus will be on key areas such as digital transformation, the development of a service-oriented smart government, and the optimization of public-private partnerships.

Based on the earlier defined concept of digital democracy, this research will examine how various civic tech initiatives promote and implement such vision, with a special focus on enhancing digital resilience as democracies face global challenges. The findings aim to provide meaningful contributions to democracies worldwide.

Digital resilience, as defined by Taiwan's Ministry of Digital Affairs, refers to the capacity for swift recovery and adaptive responses to adverse impacts through the implementation of digital tools, allowing the nation to learn from these experiences and strengthen its digital framework.[13] However, relevant literature indicates that technological means do not necessarily result in a more effective democracy, as authoritarian regimes may leverage them for surveillance and control over their populations. Furthermore, simply promoting and participating in democratic processes at a superficial level does not contribute to meaningful democratic development.[14] Civic tech projects must consider the state of digital resilience in society and should actively promote it to strengthen digital democracy.

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[12] *E.g.*, Roberta Fischli & James Muldoon, *Empowering Digital Democracy*, 22 PERSP. ON POL. 819 (2024), https://doi.org/10.1017/S1537592724000409.

[13] Press Release, MINISTRY OF DIGITAL AFF., 數位發展部的核心理念是「強化全民數位韌性」，什麼是「數位韌性」？ [The core concept of moda is to "strengthen public digital resilience," but what is "digital resilience?"] (Sep. 21, 2022) (Taiwan), https://moda.gov.tw/press/clarification/2512.

[14] Carolyn J. Lukensmeyer, *Civic Tech and Public Policy Decision Making*. 50 PS 764, 764–71 (2017), https://doi.org/10.1017/S1049096517000567.

Specifically, this research will gather data on the development of civic tech communities in Taiwan, Japan, and South Korea, review academic theories and policy evolution, and conduct interviews with participants in at least eight civic tech projects. The case studies will examine the following points:

I. The defining features of each civic tech community or project.
II. The contributions of each community or project to digital democracy and digital public services.
III. The promotion of digital resilience by each civic tech community or project.
IV. The role of public-private partnerships in achieving these goals and sustaining the outcomes, as well as the potential policy recommendations derived from these partnerships.

Chapter 3: Case Studies of Civic Tech Communities and Projects

3.1 Taiwan

3.1.1 g0v

I. Features

a. Polycentrism

In 2012, a diverse group of citizens—mainly from Taiwan's open source movement, including engineers, designers, journalists, and activists—came together, united by their shared goals of "forking the government" and "coding to refactor society."[15] This collaboration led to the establishment of g0v, a community that initially focused on program development but gradually

[15] G0V MANIFESTO, https://g0v.tw/intl/en/manifesto/en/ (last updated Oct. 20, 2019).

evolved into a decentralized civic tech group[16] as more participants from non-technical backgrounds joined. The emphasis shifted towards transparency and open collaboration, culminating in the motto, "Don't ask why nobody did this; admit you are the nobody first."

Through regular hackathons and various independent projects, g0v has fostered collaboration and encouraged wider participation. Today, it serves as a polycentralized platform for citizens to discuss and address issues such as open data, internet governance, language preservation, artificial intelligence, housing justice, and youth education. Numerous projects have thrived within this network and have consistently encouraged civic engagement.[17]

The polycentralized structure of the g0v community offers several advantages. It prevents single points of failure, ensuring the community's survival even when politically threatened or when individual members leave. It also allows g0v to stay updated with new technological trends such as fact-checking, web3, generative AI, and other emerging areas. This structure guarantees that the g0v community stays in tune with the topics that matter to society. The variety of projects attracts participants from different backgrounds, which ultimately enhances the community's diversity and improves the quality of public discussions.

However, the decentralized nature also presents challenges, including an overly loose organization and a lack of cohesion among projects. Decision-making

[16] Mei-Chun Lee, The "Nobody" Movement: Digital Activism and the Uprising of Civic Hackers in Taiwan 50–54 (2020) (Ph.D. dissertation, University of California, Davis) (book forthcoming), PQDT 2504296566.

[17] G0V JOTHON, G0V CIVIC TECH PROJECT & COMMUNITY HANDBOOK 7–14 (2024), https://g0v.hackmd.io/@jothon/ctpbook_en/.

processes may become time-consuming, and the group may struggle to reach consensus or establish effective lateral communication among members.

b. Voluntary Participation and Non-Profit Nature

g0v is a civic engagement platform that is not registered as a legal entity. While a few projects receive support through non-profit partnerships with foundations or the government, most participants contribute voluntarily and without compensation.

This volunteer-based model attracts individuals who are purely motivated by their interest in public issues and who focus on project outcomes and social impact. Their shared purpose fosters a sense of identity and belonging within the community. However, the lack of financial incentives and a formal structure makes it challenging to retain long-term contributors, even though it lowers barriers to participation. Additionally, the flexibility of volunteer involvement can lead to imbalances in some projects, such as shortages of experienced members or limited commitment from newcomers. When prominent contributors take breaks or leave, it inevitably affects the community.

c. Regular Hackathons

Centering on internet technology, g0v is primarily driven by its regular in-person activities. The bi-monthly “grand” hackathons and smaller, issue-focused ones are key for members to strengthen connections, maintain motivation, and attract new participants, fostering collaboration across sectors and issues.

Unlike hackathons organized by corporations, g0v hackathons are unconventional in their emphasis on openness from proposal to presentation. They rarely set specific goals or impose restrictions; instead, they welcome participants from diverse political backgrounds into open spaces with refreshments available. These events foster friendly discussions among people with different political stances, which is rare and invaluable in a polarized society, often leading to fruitful outcomes.

The smaller hackathons, which focus on specific issues, offer participants with diverse expertise an opportunity to discuss the topics of shared interest with one another. By attending these activities, participants can take collaborative notes, organize reading groups, team up with non-profit organizations, or initiate development sprints to work on projects and maintain their momentum. In an age when issues are easily lost to time, the events provide a space for civic engagement, allowing citizens to deepen their understanding of important topics at a steady and deliberate pace.

II. Contributions to Digital Democracy and Public Services

Following its founding, the g0v community quickly began working to enhance access to government data. It launched projects to visualize the central government budget and digitize political donations. These initiatives transformed large volumes of official documents into machine-readable data, allowing the public to monitor the administration and the funding sources for elected representatives. Notably, when the Control Yuan refused to provide digital formats for the political donations project, the community addressed this challenge by utilizing crowdsourcing for text recognition of scanned documents.[18] This method enabled the conversion of thousands of pages of

[18] Li You-Ru, Chen Yi-Chien, Hsiung Kai-Wen & Chang Chao-Wen, 政治獻金開放了嗎？[*Has Political*

printed political donation records into electronic files, leading to amendments to the Political Donations Act and changes in the disclosure of political contributions.[19]

In terms of data usability, the "MoeDict" (Ministry of Education dictionary) and the "LawEasyRead" project, both initiated by g0v, have organized government data into more reader-friendly formats by combing through various government websites. Importantly, the MoeDict compiles official dictionary corpora across languages, including Mandarin, Taiwanese Hokkien, multiple dialects of Taiwanese Hakka, and character stroke orders. The power-packed integrated dictionary was then packaged into mobile apps and websites, creating a rich resource for language learning. Such projects have not only encouraged further open data advocacy within the g0v community but have also set a benchmark for digital services provided by the public sector, exemplifying a unique model of advocacy achieved through demonstration.

Similarly, in the realm of policy consulting and democracy enhancement, Sch001, an iconic g0v project, promotes digital citizenship education on campus by offering civic literacy courses, camps, and workshops.[20] On the other hand, the vTaiwan platform, which emerged in the early days of the digital participation movement and utilized political backing to "open up" the public sector, has enabled citizens to engage in new forms of deliberation on national policies. For instance, it introduced a series of initiatives known as "Move (Don) Democracy" to experiment with deliberative democracy processes. The

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Contributions Opened Yet?], READR (Nov. 16, 2017) (Taiwan), https://www.readr.tw/project/political-contribution/story4.

[19] Hsieh Li-Hui, 政院通過「政治獻金法」修正 強化資訊公開透明 [*Executive Yuan Passed Amendment to Political Contribution Act to Strengthen Transparency*], NEWTALK (Nov. 30, 2017) (Taiwan), https://newtalk.tw/news/view/2017-11-30/105430.

[20] G0V SCH001, https://sch001.g0v.tw/ (last visited Dec. 1, 2024).

essence of vTaiwan has been adopted by the Executive Yuan's Public Policy Online Participation Network Platform and has also inspired additional initiatives within the g0v community. This has created a lasting impact and served as a vital force in advancing digital democracy.

III. Contributions to Digital Resilience

As a civic tech community that encourages collaboration, g0v has gained significant public support for driving change, fostering digital citizenship, and enhancing democratic engagement. Its polycentralized structure and focus on practical tech solutions enable the community to quickly respond to challenges in the digital landscape. Its "Cyber Civil Defense Project" includes regular "DigiResiTh0n" hackathons that concentrate on digital resilience and strategies to address potential internet shutdowns. Additionally, the project has launched a trial mesh network for disaster emergency communication,[21] which could serve as Taiwan's first line of defense in digital resilience. These initiatives demonstrate how civic tech communities play a crucial role in bolstering Taiwan's digital resilience.

IV. Policy Recommendations for Building Public-Private Partnerships

a. The polycentralized structure of civic tech communities sets them apart from traditional non-governmental organizations, which typically operate through a single main contact. As a result, the public sector often finds it difficult to collaborate directly with civic tech communities through contracts or tendering procedures. However, since the projects within these communities operate independently, government bodies at all levels

[21] *See* g0v Summit 2024, "Digital Resilience: What to Do When the Internet Shuts Down?" https://summit.g0v.tw/2024/agenda/#2024-CT-4.

have the opportunity to address various issues across multiple initiatives, leading to diverse and comprehensive outcomes. To collaborate effectively with civic tech communities, the public sector must recognize the unique features of each project and the expertise of its participants. By selecting suitable projects and engaging in close, small-scale collaborations, they can build partnerships that successfully achieve policy goals.

b. Voluntary participation is a distinguished feature of civic tech communities. While it may create challenges in measuring project outcomes, it also makes it easier for people to get involved and alleviates their pressure, thereby transforming the community into a vital platform for enhancing democratic awareness. By recognizing participation in civic tech communities as a policy goal, the government can harness the grassroots strengths of these groups and reach a wider audience through collaboration between the public and private sectors. Projects such as Cofacts, Sch001, and the g0v Summit demonstrate how these initiatives can educate more people on digital literacy and promote civic technology.[22]

c. In Taiwan, the open collaborative environment fostered by hackathons has led to numerous successful public-private partnerships in the field of civic technology. Hackathons bring together government officials, citizens, legislators, and non-profit organizations to discuss public issues and find solutions. Whether participating in hackathons organized by civic tech communities or hosting its own, the public sector should not only invest resources and foster innovation but also explore ways to

[22] *See* g0v Summit 2024, "Why do civic tech contributors come? Why do they stay? Why do they leave?" https://summit.g0v.tw/2024/agenda/#2024-105.

enhance the collaborative environment to maximize benefits and ensure a lasting impact. Furthermore, the public sector can explore opportunities for cross-departmental and cross-disciplinary collaboration. It is also crucial for the government to recognize that, in order to support civic tech communities while minimizing interference in how they operate, it must remain flexible and prudent in both its policy tools and policy planning.

d. To support public-private partnerships, the government should not only provide resources and implement policies but also focus on being a good "user" of civic tech tools. When public servants effectively utilize tools created by civic tech communities, adopt their technical suggestions, or proactively share data for community projects, the impact of both policies and civic tech tools may increase exponentially. If the hundreds of thousands of public servants in Taiwan are eager to learn about civic technology and open government initiatives, and if they use digital tools to improve administrative processes, they can empower civic tech communities in return. This can be achieved through training, promoting civic tech tools within government agencies, and hosting hackathons for government staff. Such efforts are essential for building effective public-private partnerships and, in the long run, for strengthening Taiwan's digital democracy and fostering trust between the public sector and civic tech communities.

3.1.2 Open Parliament Action Plan

I. Features

Taiwan's Open Parliament Action Plan is a collaborative project involving civil society, legislators, and officials of the Legislative Yuan.[23] It aligns with the guidelines set forth by the Open Government Partnership, and echoes the Declaration on Parliamentary Openness[24] initiated by various parliamentary monitoring organizations worldwide in 2012. This plan was developed through the establishment of the Open Parliament Committee, which consists of representatives from both the Legislative Yuan and civil society, focusing on four main goals: fostering a culture of information openness, improving the transparency of parliamentary records, streamlining access to parliamentary information, and digitizing parliamentary documents.[25]

As one of the few public-private partnership projects of the Legislative Yuan, the uniqueness of the Open Parliament Action Plan lies in its introduction of multi-stakeholder forums[26] as a discussion mechanism. The Legislative Yuan began by consulting civic organizations that had participated in international affairs related to the Open Government Partnership, and from this consultation, the inaugural preparatory committee was formed, consisting of seven members

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[23] Open Parliament Action Plan, LEGISLATIVE YUAN (Taiwan), https://www.ly.gov.tw/Pages/List.aspx?nodeid=43874 (last visited Dec. 1, 2024).

[24] *Declaration on Parliamentary Openness*, OPENINGPARLIAMENT.ORG (Sep. 15, 2012), https://openingparliament.org/declaration/.

[25] Lulu, 立法院的長期工程 － 「開放國會」如何向社會打開更多扇門？[Legislative Yuan's Long-Term Project: How Can "Open Parliament" Open More Doors to the Society?], OCF LAB (Aug. 12, 2020) (Taiwan), https://lab.ocf.tw/2020/08/12/openparliament/.

[26] A Multiple Stakeholder Forum (MSF) is a high-level committee composed of representatives from government and civil society, where stakeholders collaboratively develop governance mechanisms and overarching guidelines for the formulation and implementation of the National Action Plan (NAP) or the Open Parliament Plan (OPP). This collaborative approach is a core strategy for ensuring civil society participation in the Open Government Partnership (OGP) process.

from the Legislative Yuan and 12 members from civil society. Additionally, the Legislative Yuan publicly recruited six civil society representatives, resulting in a total of 25 members for the first Open Parliament Multi-Stakeholder Forum, with meetings held biweekly.

After a series of significant achievements—including drafting the plan through equal public-private partnerships, holding at least 21 in-person and online meetings, and conducting two rounds of drafting and two public reviews[27] — Taiwan's Open Parliament Action Plan was eventually released in both Mandarin Chinese and English, covering five themes and 20 commitments and highlighting Taiwan's determination to meet international standards. Following its release, the Open Parliament Committee maintained regular oversight of open parliament outcomes by implementing the methodology of the Open Government Partnership's Independent Review Mechanism.[28] All of this marks a groundbreaking collaboration between the government and civil society.

II. Contributions to Digital Democracy and Public Services

Thanks to the international guidelines for open parliament, civic organizations have shifted their advocacy tactics from protests to collaborative efforts with the Legislative Yuan, co-creating with it as equals. This shift has significantly enhanced mutual understanding, created opportunities for cooperation, and helped build consensus around the value and goals of collaboration through ongoing discussions.

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[27] *Open Parliament Action Plan Online Consultation Forum*, vTAIWAN (Taiwan), https://talk.vtaiwan.tw/c/op-consultation/ (last visited Dec. 1, 2024).

[28] The Independent Reporting Mechanism (IRM) is an independent third-party review mechanism distinct from the government's self-assessment reports. IRM commissions professional third parties to conduct independent reviews and evaluations during and after the implementation of the NAP or OPP. *See Independent Reporting Mechanism – Action Plan Review*, OPEN GOV'T PARTNERSHIP (Jul. 5, 2021), https://www.opengovpartnership.org/documents/independent-reporting-mechanism-action-plan-review/.

For instance, after both civic organizations and the government reached a mutual understanding of the need to promote an open parliament, the Citizen Congress Watch, an experienced parliamentary monitoring organization in Taiwan, shared its expertise by identifying data that could improve transparency. Meanwhile, officials from various Legislative Yuan departments, such as the Information Technology Department, the Official Gazette Department, the Secretariat's Research and Evaluation Section, and the Department of International Affairs, ensured that the new initiatives complied with laws. This combination of civic creativity and officials' professionalism gave rise to an integrated online system for legislative proceedings and bulletins,[29] which continues to enhance the transparency and accessibility to the legislative process.

Furthermore, given the complexity of the Open Government Partnership's recommendations on openness, collaboration, the composition of multi-stakeholder forums, and their evaluation mechanisms, representatives of both the Legislative Yuan and civic groups needed to employ various methods to thoroughly understand the processes involved in Taiwan's first attempt at implementing these standards. They engaged in reading groups, attended lectures, and participated in online discussions to familiarize themselves with the functioning of the standards. Additionally, the civic actors leveraged their international connections to bring relevant resources into the Legislative Yuan, fostering mutual growth among all participants in the open parliament initiative.

From a democratic perspective, the open parliament functions as a multi-stakeholder committee where citizens and legislators work together on decision-

[29] LEGISLATIVE YUAN PROCEEDINGS & BULLETINS PORTAL, https://ppg.ly.gov.tw/ppg/ (last visited Dec. 1, 2024).

making. Unlike the traditional one-way communication model, this structure encourages equal and direct interactions among various stakeholders, allowing both sides to understand each other's challenges, build trust, and lay a strong foundation for collaboration. This model has the potential to guide Taiwan in developing future policies.

III. Contributions to Digital Resilience

The open parliament initiative has supported the Legislative Yuan in promoting digital transformation and enhancing the usability and accessibility of legislative data by implementing action plans and external review mechanisms. Unlike the executive agencies, the civil service of the Legislative Yuan has fewer opportunities to engage with civic organizations and individual citizens, making the open parliament committee a rare platform for such interactions. Through this initiative, officials and citizens collaboratively compiled legislative materials and advanced the digital transformation of the legislature, opening a new chapter for civic digital engagement in legislative processes.

IV. Policy Recommendations for Building Public-Private Partnerships

According to the interviews conducted in this research, fostering equal and trusting cooperation between the public and private sectors requires both sides to acknowledge international open parliament guidelines. There must be a shared understanding of international standards and parliamentary reforms, supported by examples from other countries to align expectations. High-level decision-makers should authorize frontline officials to participate in discussions and implementation. Public officials and decision-makers must recognize that the feedback from citizens is meant to align outcomes with international

standards and foster constructive communication with the public sector, rather than simply finding fault with the government.

Since its inception, the Open Parliament Action Plan has included legislators, government employees, and civic representatives, offering diverse viewpoints to comply with international guidelines. In formulating Taiwan's Action Plan, the insights from the multi-stakeholder forum help create realistic goals that fit the Legislative Yuan's resources, current situation, and reform priorities. This method ensures that the open parliament collaboration was both globally relevant and attuned to Taiwan's specific context, avoiding simple compliance with international norms that neglect local realities. While the outcomes may not satisfy all parties, it effectively prevents a blind pursuit of international recognition that overlooks Taiwan's unique circumstances.

As for the challenges faced by Taiwan's Open Parliament Action Plan, this research draws on interview findings to identify the following points.

a. Sustainability

Taiwan is not a formal member of the international organization Open Government Partnership, and the international standards it sets do not have binding authority over Taiwan. For the Legislative Yuan, whether to continue drafting and implementing the next four-year action plan after the conclusion of Taiwan's Open Parliament Action Plan 2021–2024 depends entirely on the willingness of the Legislative Yuan President and the legislators to participate. Taiwan's unique international situation and its status as a non-member of international organizations make it difficult for advocates to cite international standards as a legitimate basis for encouraging or pressuring politicians through institutional channels to continue promoting parliamentary reform.

b. Social Polarization

Social polarization is a common challenge and an unavoidable trend faced by democracies worldwide. A key stakeholder in the Open Parliament Action Plan is legislators, who not only directly represent public opinion but also serve as an indicator of social changes through their composition. Encouraging legislators to engage in dialogue at multi-stakeholder forums in a polarized society will be a challenge for the open parliament movement.

c. Advocacy Obstacles

In Taiwan, citizens generally place great importance on the issue of parliamentary reform; however, the Open Parliament Action Plan, which provides an opportunity for civic engagement, has not garnered sufficient attention. Given the difficulties in attracting media coverage, the commitments to an open parliament become especially challenging to monitor and track as they enter a more complex phase. Consequently, legislators have become quite passive in their participation during the later stages of open parliament practices, posing a significant obstacle to promoting the next four-year action plan.[30] Therefore, an important task for open parliament initiatives is to educate more citizens about relevant international standards and global trends as interest in the issue remains high. Enhancing civic participation can increase the diversity of multi-stakeholder forums and expand public support for open parliament initiatives. While this poses a significant challenge, it also offers an opportunity for successful reform.

[30] Cheng Ting-Yu (@chengtingyu), 首屆「開放國會國家行動方案」帶來什麼影響？[*What Kind of Impact Did the First Term of the Open Parliament Action Plan Bring?*], MEDIUM (Feb. 29, 2024) (Taiwan), https://medium.com/@chengtingyu/e107ba452793.

In summary, the policy recommendations based on interviews in this study suggest that the government should establish cross-departmental encouragement legislative, administrative, and supervisory bodies to launch mechanisms to promote action plans or policies that align with open government standards. This would allow the civil service, which is already striving to drive change, to maintain an active role in ensuring that the established public-private partnerships and the mutual trust developed over time continue to flourish, thereby fostering even more positive changes.

3.1.3 Location Aware Sensing System (LASS)

I. Features

In 2015, a group of Taiwanese citizens established the Location Aware Sensing System (LASS), an open-source network for environmental monitoring. This group, known as the LASS community, later collaborated with the public sector on open data initiatives and user experience improvement projects, enhancing communication with the government.

Initially, the LASS community supported the Academia Sinica's AirBox project, a participatory PM2.5 sensing system that utilized a crowdsourcing approach to gather numerous participants.[31] To better monitor local air quality, the LASS community developed open-source AirBox sensors that could be assembled by individuals and created a comprehensive data analysis and display system based on information provided by citizens across Taiwan, allowing participants to upload and share their observations. Within a few months, this collective sensing effort attracted significant public interest, enabling residents

[31] Ku Kuo-Ting, 自己的環境自己救！以空氣盒子監測你家附近的空汙 [Save Your Own Environment! Monitor Air Pollution Near You with an AirBox], ACADEMIA SINICA: RES. YOWU BLOG (Jun. 30, 2020) (Taiwan), https://research.sinica.edu.tw/pm25-air-box-new/.

throughout Taiwan to monitor real-time PM2.5 levels and fill the gaps in observation density and frequency left by official air quality monitoring stations.

Following the success of the AirBox project, the LASS community began partnering with the government to set up monitoring stations in Taipei elementary schools.[32] It collaborated with the Water Resources Agency to improve access to hydrological data, participated in the Presidential Hackathon, and supported the Touqian River Basin Project. The data gathered through LASS's crowdsensing network also contributed to the development of real-time air quality monitoring platforms such as g0v Airmap, the PM2.5 LINE Bot, and the Purbao air pollution monitoring website, all of which have enhanced public access to air quality information.

Currently, the LASS community continues to build connections and share achievements through Facebook, collaborative notes, and GitHub. These team-based efforts not only help the community connect with international partners but also contribute to the government's digital transformation.

II. Contributions to Digital Democracy and Public Services

When it comes to digital public services, the LASS community has not only promoted participatory air quality monitoring through the AirBox project but has also built on years of sensor data, collecting and integrating existing open data sets from public agencies on their own. This has led to the establishment of hydrological analysis models that further integrate government data, such as

[32] 空氣盒子創客教育實證計畫 [*AirBox Maker Education Verification Plan*], TAIPEI SMART CITY PROJECT OFF. (Taiwan), https://smartcity.taipei/News_Content.aspx?n=6986545C4A2C217F&sms=A5A97EC540EAA0BA&s=E239DD4B628027F7 (last visited Dec. 1, 2024).

sewer system data from local governments, population data from the Ministry of the Interior, and information from the Water Resources Agency, the Ministry of Environment, and the National Land Management Agency, along with other relevant graphic records. With the use of new tools, projects such as the "Sourcing Water Map" and "Riverlog" illustrate the potential of data applications for the public good through the lens of civic communities.

Additionally, the LASS community has achieved a notable milestone in public participation by establishing a digital platform that fosters dialogue between the public sector and civil society, enabling discussions on policies through open data. Collaborative meetings with government bodies have enhanced both the quality and quantity of open data, improving the transparency of government information and the visibility of government performance.[33]

For instance, in its collaboration with the Water Resources Agency, the LASS community helped various departments inventory their existing datasets, mobile apps, and online systems, and assisted them in organizing and presenting the digital application outcomes. By doing so, the community identified the deficiencies in existing datasets and encouraged the public sector to release more available data. The community also held meetings with other government bodies to discuss improving the consistency and completeness of data coding.

After forming a public-private partnership with the Water Resources Agency, the LASS community set out to initiate reform across different levels of government, focusing on basin management. One notable initiative was the Touqian River Basin Project,[34] aimed at environmental improvement for the

[33] Presentation, Chang Guang-Chih & Hsu Wu-Long, 水利署與 LASS 社群公私協力經驗分享 [*Public-Private Partnership Experiences from WRA & LASS*], NAT'L DEV. COUNCIL (Aug. 12, 2021) (Taiwan).

[34]頭前溪流域整體改善及調適規劃 [*Toqian River Basin Overall Improvement and Adaptation Planning*],

Touqian River in Hsinchu. Furthermore, in 2019, the Bie River Basin Management Platform was founded to manage the Bie River in eastern Taiwan. This platform has fostered collaboration among various public agencies, civic communities, non-governmental organizations, and non-profit organizations, facilitating data-driven discussions and decisions. More importantly, it has created a novel form of public-private collaboration in river governance.

In retrospect, the LASS community has helped the government save substantial manpower and funds in data organization. It has also set a precedent for dialogue and cooperation among different official agencies and departments, successfully addressing the jurisdictional complexities of river basins and the diversity of stakeholders. Through their communication processes, the LASS community has improved risk communication tools and enhanced the reliability and validity of the results. As a result of these efforts, public servants are now more aware of how valuable and applicable data can be for civic engagement in environmental issues.

Interviews with members of the LASS community reveal the key factors that have gradually led to a successful model of public-private collaboration. The factors are outlined as follows.

a. From Conflict to Partnership

The LASS community initially embraced a strong environmental movement ethos and preferred non-institutional methods to prompt government response, resulting in a confrontational relationship with the public sector, particularly the Environmental Protection Agency. However, as the community expanded and

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WATER RESOURCES AGENCY SECOND RIVER MGMT. BRANCH (Taiwan), https://www.wra02.gov.tw/cl.aspx?n=29195 (last visited Dec. 1, 2024).

attracted the attention of industry, government, and academia, it adopted communicative strategies over confrontational tactics, transitioning from an activist role to that of a partner with the government. By adopting this new approach, the community has been lobbying the government to incorporate the use of micro-sensing systems into policies and working with various public agencies to leverage data as an effective tool in governance projects.

Reflecting on this journey, the LASS community members see every successful collaboration meeting as a milestone for public-private partnerships. They suggest that the main goal of each meeting should be to foster a willingness for future participation, helping to ease pressure on both sides and lowering conflict through the framework of cooperation.

b. Strategic Agenda Setting

Members of the LASS community believe that effective collaboration with public agencies requires strategic agenda setting. The private and public sectors should first reach a consensus on long-term trends and visions, such as their perspectives on the global movement toward open data and the application of micro-sensing technologies in foundational infrastructure. Next, they should establish short-term goals and priorities to reduce obstacles and foster collaboration.

To reduce obstacles, the members have learned from experience that government agencies should utilize existing datasets to initiate collaboration or provide online storage spaces and physical resources to establish partnerships, rather than merely offering financial support. They argue that once a new project is initiated and the bidding and tendering process begins, problems around resource competition, target setting, and risk exclusion may arise.

Procurement processes may also greatly slow down the progress of public-private partnerships.

Furthermore, when setting initial short-term goals, it is advantageous to focus on those that can deliver immediate results, such as organizing and converting data formats. Achieving quick and visible outcomes fosters a sense of accomplishment and allows government partners to envision the potential scale of future projects. Whether the projects are short-term or long-term, feedback to the public sector should be framed positively. Encouragement is more effective than criticism, and contributions should be openly acknowledged.

Another collaborative strategy involves establishing a pilot project, which the LASS community refers to as a "proof of concept." For example, some members selected the Touqian River for their first public-private river management project. They skillfully drew social attention by participating in the Presidential Hackathon, which helped them secure the necessary support for the initiative. Ultimately, the LASS community successfully developed a public-private collaborative governance model through data collaboration, a model that has since been replicated in other river basins throughout Taiwan.

Overall, when setting the agenda for collaboration, the LASS group highlights the importance of civic actors putting themselves in the public sector's shoes. They believe that civic actors should take into account the challenges faced by public agencies when selecting issues. It is also crucial for civic actors to demonstrate their genuine enthusiasm, allowing public servants to feel motivated to work together toward long-term goals. By doing so, civic actors can gradually assist the government in overcoming obstacles.

III. Contributions to Digital Resilience

The contributions made by the LASS community through public-private partnerships extend beyond addressing issues like air pollution and water resource management in Taiwan. Over the years, it has helped the public sector gain a deeper understanding of open data, a more vibrant imagination of digital democracy, and greater trust in public-private collaboration through regular meetings. The partnerships established by this community have involved cooperation and dialogue with at least five public agencies and more than 20 civic groups, leading to the development of various open-source digital tools. These tools assist the government in data collection, application, integration, presentation, and even policy formulation.

The LASS community views the communication channels established through public-private collaboration as a platform for interested civic groups to participate. This creates a space for public agencies to engage with civil society, enabling them to collaborate with advocates for open data and environmental issues to drive change together. For instance, after meeting with the Wikidata Taiwan community, the Water Resources Agency readily took the advice to incorporate corresponding Wikidata IDs into the basic river data, allowing the river database to be used in conjunction with international data sources.

IV. Policy Recommendations for Building Public-Private Partnerships

Based on its experiences collaborating with various government bodies, the LASS community has proposed comprehensive policy recommendations, which include five main areas: the continuous integration of public and private datasets, the development of data analysis tools, the creation of a common FAQ resource within public agencies, collaboration with more communities and

educational institutions to offer open courses, and the enrichment of public discourse on civic data.

Among the recommendations, empowering government employees is a top priority. While the support of agency leaders significantly influences the success of public-private collaborations, the LASS community emphasizes the importance of grassroots staff. Frontline civil servants must understand the reasons behind their leaders' initiatives and possess the skills and knowledge needed to meet relevant expectations. When advocating for civic technology and open data, the focus should shift from targeting political leaders to empowering all civil servants.

Using the Executive Yuan as an example, the LASS community recommends that government bodies at all levels adopt a broader implementation of the public-private collaboration model it has established. If each body were to hold public-private partnership meetings every two months, with open invitations and discussions, and if all content were recorded and shared, it could create more successful cases like that of the Water Resources Agency, ultimately promoting open data across various sectors of the government.

Finally, regular discussions and collaborations enable civic tech communities to provide sustained support for the public sector. For example, after establishing a mutual trust, many participants in the LASS community have voluntarily served as unpaid advisors to the public sector. These citizens guide contractors and assist in developing data inspection processes and system design specifications. Their assistance with system design specifications is particularly beneficial for developing digital tools for public services, as it helps the government find suitable contractors and mitigates issues related to inappropriate system specifications or data transfer failures, which could lead to bid rigging and

maintenance difficulties in the future. In summary, the LASS community illustrates the potential for a shift from merely overseeing public affairs to actively participating in them.

3.1.4 Cofacts

I. Features

Cofacts is one of the projects initiated by g0v, one of Taiwan's most prominent civic tech communities. It combines an original information verification chatbot with an online collaboration platform.[35] Users can report suspicious messages to the chatbot, which automatically compares them against an online database and provides corresponding verification reports.

The Cofacts project maintains an online fact-checking database through crowd collaboration, encourages public participation, and implements a reward system for various types of volunteers. In-person events for fact-checking training and social networking within the community are held every two months. The open collaboration platform of Cofacts allows the public sector, media outlets, and other fact-checking organizations to upload relevant information for users to utilize when reporting suspicious messages.

Since its establishment in 2016, Cofacts has aimed to maintain its database and develop new functions. As an open-source project, it allows the public to use the code creatively, making it the largest platform for checking misinformation in Mandarin Chinese today. The database currently contains over 45,600 rumors, with more than 98% having been verified. The website receives over 10 million visits annually, and the number of chatbot's replies exceeds 200,000

[35]「Cofacts 真的假的」集群體之力線上闢謠 [*"Cofacts" Draws the Power of the Crowd to Debunk Rumors*], UDN VISION PROJECT (Feb. 21, 2019) (Taiwan), https://vision.udn.com/vision/story/12425/3657252.

each year. There are about ten regularly active volunteer editors in the community, who collectively verify over 15,000 messages each year.

II. Contributions to Digital Democracy and Public Services

Cofacts, through open-source collaboration, inclusive community management, and rich international resources, serves as a platform for cooperation and interaction among the public sector, international actors, scholars, media, fact-checkers, and the general public. It embodies a grassroots approach to fact-checking and information inquiry services. It contributes to digital democracy mainly by establishing public-private partnerships and directly providing essential information services that a democratic society needs in an era of rampant misinformation.

Building on its information services, Cofacts has built a complete ecosystem and continues to collaborate to optimize public services. Since 2016, Cofacts has introduced chatbot technology to the field of fact-checking, enabling third-party bots to connect to its database and providing a valuable reference for other professional fact-checking organizations. As for its functions, Cofacts has developed various application interfaces tailored for users such as researchers, fact-checkers, and journalists, encouraging them to engage with the database of suspicious messages and fact-checked information. This fosters interaction and collaboration between the public and private sectors, enabling diverse participants to contribute data. The collected information, along with responses from volunteer editors and statistics on message popularity, will be shared with the community as open data.

Lastly, Cofacts has fostered international partnerships. Not only does it create public value in Taiwan, but it also offers training and free consulting to

international partners, guiding developers in creating their own fact-checking chatbots to help strengthen the open-source community. These efforts have benefited the Cofact team in Thailand,[36] which utilized Cofacts' open-source program to establish a fact-checking community in 2019. This community enables various civic organizations, media literacy educators, technology companies, central and local governments, and schools in Thailand to collaborate on an open platform by promoting applications, reporting rumors, and fact-checking information. The Cofact team even offers relevant courses and hosts competitions to enhance media literacy. Since its establishment, the Cofact platform in Thailand has gained over 400,000 followers on social media and has built a database of more than 10,000 rumors and fact-check reports, largely due to its role in helping the government disseminate accurate health information during the pandemic.

III. Contributions to Digital Resilience

a. Enhancing Digital Literacy

The Cofacts team operates under the principle of openness, managing the community and developing code based on collective intelligence and collaboration. This defining feature presented significant challenges in the early stages. There was considerable discussion regarding whether a volunteer-based verification team with a completely transparent database could establish credibility. Due to these doubts, Cofacts faced criticism and even became a target of rumors in a polarized atmosphere.[37]

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[36] Ho Hui-An, 【數位素養新點子】用手機遊戲玩查核 民眾接種「不實訊息疫苗」 [*New Idea of Digital Literacy: Fact-checking Mobile Games Vaccinate Public from Misinformation*], TFC BLOG (Jan. 28, 2021) (Taiwan), https://tfc-taiwan.org.tw/articles/5005.

[37] 【錯誤】網傳「請檢查組員中有沒有下列七個假好友...它們其實都是假藉要幫你分辨真的假的訊息，設計好埋伏在你的網路中，監控羣組每個人的對話」？ [*False: Online Rumor Claims "Check if Your Group Has These Seven Fake Friends… They Pretend to Help You Distinguish Real and Fake Information, But*

However, over the past eight years, the Cofacts community has remained committed to openness, continuously cultivating a stronger community and fostering collaboration. Participants patiently answer various questions about "openness," "open source," "chatbot technology," or "fact verification," through online and offline channels. Today, Cofacts has become the most experienced and longest-running educational programs that combat misinformation in Taiwan. The debates around its structure and operation have provided both the public and private sectors with profound insights into the spirit of open source and collaborative community culture.

b. Creating Diverse Participation Channels to Enhance Civic Engagement

Cofacts aims to offer citizens new ways to engage with topics through automated tools. By becoming users or volunteer fact-checkers, individuals can take part in training, explore different types of misinformation, and develop skills to assess information and identify potential issues. The reporting mechanism encourages vigilance against misinformation and empowers people to actively combat rumors, leading to more robust participation in public discussions and democratic processes.

IV. Policy Recommendations for Building Public-Private Partnerships

With an open dataset and its system fully open-sourced, Cofacts has low barriers for the public sector to collaborate with citizens. By participating and providing accurate, timely information, the public sector can effectively serve the public. However, to engage in this collaboration, the public sector must

Are Designed to Lurk in Your Network and Monitor Everyone's Conversations"], TFC BLOG (Jul. 2, 2021) (Taiwan), https://tfc-taiwan.org.tw/articles/5930.

understand and respect the independence and collaborative culture of the open-source community and participate as equal partners. Government bodies, as key holders of accurate information, can help ensure its swift dissemination by leveraging open platforms and collaborating with civic tech communities, since accurate information is the foundation of digital democracy.

3.1.5 Summary

This chapter explores four civic tech initiatives in Taiwan, each playing a crucial role in the development of digital democracy and digital public services. The projects illustrate the diverse nature of public-private partnerships, highlighting how the public sector not only assists in organizing events and promoting applications but also collaborates with civic tech communities to advocate for cross-departmental coordination. These efforts foster internal changes within the public sector, prompting government bodies to release data and work with citizens to develop digital solutions and improve public services.

These four cases highlight the importance of the public sector's willingness and flexibility to cooperate. The success of public-private partnerships relies on how well the public sector understands civic technology and the functioning of civic tech communities. For the public sector to effectively engage with these communities in promoting digital democracy and delivering quality services, it must first strengthen its own capacity. This involves fostering a collaborative culture within the civil service and enhancing the digital literacy of government staff. Only then can effective public-private partnerships and sustainable policies be achieved.

3.2 Japan

Following the Great East Japan Earthquake of March 11, 2011, there was a growing need for regional reconstruction and disaster relief. In response to this and alongside the Japanese government's promotion of open data initiatives starting in 2012, civic tech communities utilizing open data—led primarily by Code for Japan (hereafter C4J)—emerged across Japan as volunteer-based initiatives. Community members assist local governments by developing applications, organizing and curating open data, and creating online engagement tools. In the aftermath of widespread devastation, they provide public services digitally and encourage government agencies to embrace digital transformation.

This research report presents findings from interviews with numerous members of C4J and its community. It introduces the distinctive features of three major projects within the community, examining their contributions to Japanese digital democracy and digital public services, as well as their positive impact on strengthening digital resilience. This section also synthesizes insights from the interviews on the three projects to propose policy recommendations for building public-private partnerships to enhance digital democracy.

3.2.1 Code for Japan

As Japan's most prominent open data community, C4J consists of 20 full-time or part-time members who work no more than four days a week. C4J operates as the primary organization supporting the community, with three core missions: community building and maintenance, agenda setting, and organizing nationwide events. Community members manage 20 to 25 civic tech projects simultaneously, with each member contributing to different projects and collaborating with external volunteers and civic tech communities from other cities. Among these projects, approximately 10 to 15 are paid partnerships,

where C4J staff work on a contractual basis with the Japanese public sector, providing a primary source of income for the community.

C4J organizes monthly hackathons, both online and in-person, alongside an annual national conference. They also hold youth hackathons occasionally, which are specifically designed for students. These events not only foster continuous innovation in civic technology and open data but also facilitate cross-sector collaboration (among civil society, government, and business) and intergenerational exchange (between professionals and students). Over time, this has established a resilient network that enhances Japan's digital democracy and digital public services.

One notable initiative is the Local Field Labs project, where C4J successfully facilitated public-private partnerships enabling corporate employees to work within local government offices for one to two days per week over a three-month period. These mixed teams of business professionals and civil servants developed innovative solutions utilizing government open data and digital public services. Their work concluded with presentations to local mayors. Another significant program is the Data Academy, which conducts data utilization workshops for local governments. This initiative provides civil servants with training in open data utilization and equips local governments with comprehensive guidelines and tools for open data implementation. In 2017 alone, the Data Academy trained 180 civil servants across 11 local governments.

The COVID-19 pandemic was another pivotal moment demonstrating the strength of C4J’s network. The large-scale public health crisis brought with it numerous public issues, including financial hardships, isolation of elderly individuals with disabilities, and disruptions in education. During this time, over

200 community members joined C4J, volunteering to develop open-source applications and create real-time information platforms for the Japanese government, helping to address the nation's need for timely information and to ease public anxieties.

Despite Japan's vast landmass, C4J remains connected and actively engaged with the nationwide civic tech and open data network through collaborative projects. At its peak, the network includes over 80 regional communities across Japan dedicated to civic tech and open government initiatives.[38] In 2024, 67 of these regional communities remain active across Japan, responding flexibly and autonomously to local needs. For example, after an earthquake struck Ishikawa Prefecture this year, local communities, government, and civic organizations collaborated on disaster relief and reconstruction efforts. These groups meet every few months, with only a fifth of members being engineers; the majority are non-professionals who are passionate about local affairs.

Leveraging its regional networks, C4J functions as both an advocacy platform and resource coordinator, exemplified by its role in Toyooka City's smart city initiative in Hyogo Prefecture. This project, aimed at developing a small application to aggregate childcare-related information, brings together local civil servants, C4J staff, and residents. As a sprawling rural city with a dispersed population, Toyooka City faces challenges in providing accessible local information. Working closely with city councilors and government officials, residents identify and catalog essential resources for caregivers, including child-friendly restaurants and public restroom facilities. Funded by Toyota Motor, the project demonstrates collaboration among public institutions, civic tech communities, and local residents.

[38] ブリゲード [*Brigade*], CODE FOR JAPAN, https://www.code4japan.org/brigade (last visited Dec. 1, 2024).

Based in Tokyo, C4J also strives to make a nationwide impact, advocating for civic technology to accelerate the digital transformation of the Japanese government. The annual Code for Japan Summit is one of the flagship events, convening over 300 participants. This prominent event provides a platform for civic tech communities, open government advocates, civil servants, and technology to share their latest experiences and lessons learned from different regions of Japan. It also invites overseas speakers to share insights on emerging trends from Asia and beyond. Another major event is the hackathon jointly hosted by C4J and Tokyo Metropolitan Government, which is not only a major grant opportunity, but also serves as a prominent platform for civic tech initiatives to gain visibility, secure government partnerships, and find potential collaborators.

As a civic tech organization founded a decade ago, C4J now grapples with the common challenge of sustaining activities, growing its participant base, and amplifying its overall impact. To address this, C4J actively invites other communities, including web3 groups, to collaborate, while staying attuned to technological trends and launching initiatives like smart city projects. In partnership with research teams, C4J assesses the impact of civic tech communities to attract more private sector support and encourage broader involvement. With these efforts, C4J continues to advocate for civic technology and open data, seeking to bolster support.

3.2.2 Decidim

Decidim, an open-source civic engagement platform promoted by C4J across Japan, provides a space for people to discuss public issues, exchange ideas, and for the public sector to connect with citizens. Decidim has facilitated around 450 initiatives on a global scale. With 30 civic engagement or digital democracy

projects in Japan, Decidim has become a valuable tool for the Japanese public sector to advance digital transformation and foster civic participation.

The advancement of such a phenomenon in Japan is partly due to the high level of autonomy among regional governments across Japan, which are responsible for driving digital transformation and fostering online civic participation. However, these local authorities must equip themselves with sufficient human resources and funding to advance these initiatives. At the same time, declining staff numbers in recent years have led to increased workloads, which is further compounded by the pressure on remaining personnel to learn new digital democracy tools. In response, local governments are increasingly turning to digital participatory platforms (DPPs).

Among the many DPP options in Japan, Decidim stands out as a non-commercial, open-source tool with a unique position. Unlike digital tools outsourced by public agencies and awaiting approval, Decidim is a globally accessible platform that encourages public sector and civil society reflection on engagement, fosters civic participation, and drives digital transformation in Japan.

The first Japanese implementation of Decidim was launched in Kakogawa City, Hyogo Prefecture.[39] The platform was utilized to gather public input for the renovation of the area in front of the train station. Among the submissions was a proposal from students advocating for the creation of a recreational space catering to high school students. While Decidim initially facilitated online engagement through the collection of ideas, Higashi Kenjiro, the initiative's

[39] Kakogawa City×Code for Japan, 加古川市市民参加型合意形成プラットフォーム [*Kakogawa City Citizen Participatory Consensus Formation Platform*], DIYCITIES (Japan), https://kakogawa.diycities.jp/ (last visited Dec. 1, 2024).

director, subsequently encouraged local partners to organize in-person events to enrich the discussions and capture a broader range of perspectives.

Higashi Kenjiro observes, “Japanese local governments often express a desire to hear from young people, but without a practical approach, this simply asks youth to generate ideas in a vacuum, which is a highly demanding task. As a young person myself, I find it challenging to be asked to provide ‘youth perspectives’ without context. A more effective approach would be to listen to young people through a mix of online and in-person platforms, equip them with relevant facts and context, and support them in transforming ideas into action. It’s short-sighted to simply ask for input, and I think that’s a serious issue.”

The success of Kakogawa City’s initiative serves as a strong example. Young people’s engagement on the Decidim platform—accounting for nearly 40% of participants—was highly valued. Many young users participated in discussions on policy-making, including recommending a shared bike program, which led to the launch of the service this year.

Other initiatives in Japan have also successfully leveraged Decidim to create platforms for consensus-building. When setting regional sustainable development goals or drafting sustainability manifestos, some cities use Decidim for public discussion and gathering insights. After customizing its features, some local governments also employ Decidim as a tool for internal discussions, including staff training and incorporating employee perspectives.

Higashi Kenjiro started promoting Decidim across the nation back in 2020. According to his observation, Decidim has evolved beyond a simple tool to become an educational resource in several regions, especially after the pandemic.

In some schools where each student is provided with a tablet, students contribute their perspectives on regional development as part of their assignments. In civic studies lessons focused on the digital age, students use Decidim to practice digital citizenship by engaging in online discussions, conducting research, building digital civic literacy, and accessing information on the platform. These lessons culminate with students submitting policy recommendations on the platform, exercising their rights as citizens, and making a meaningful impact on policy-making. With this curriculum design, Decidim serves as a comprehensive educational solution for fostering digital citizenship.

Decidim's impact extends beyond engaging tech-savvy youth in political participation. According to Higashi, the platform has found application among elderly users, as exemplified in Yosano, a village of 500 residents. There, elderly community members have adopted Decidim as their village's online public forum. They share various types of information, with all participants contributing to the editing and updating of community content. This collaborative approach enables elderly residents to access public information and event updates in real time, while the online discussions and collective editing help accumulate valuable community knowledge.

According to Higashi, this is a prime case demonstrating a key advantage of open-source software: even a village with just 500 residents can maintain an online platform where proposals for regional development and public space initiatives can be presented and discussed in a fully digital process.

Higashi highlights an example of private sector involvement with the carbon reduction initiative launched by Matsumoto Yamaga Football Club.

Capitalizing on the large crowds drawn to each game, the club's sponsor uses Decidim to promote local carbon reduction proposals and policies, encouraging fans to engage with sustainability efforts.

With four years of experience promoting Decidim across Japan, Higashi notes that Decidim, as open-source software, offers flexible and freely adaptable usage. This approach requires initiative organizers to consider not only how to use the platform but also the value of adopting an online tool. This reflection encourages organizers to assess the core principles of digital democracy, public service, and civic tech initiatives. At the same time, "capturing residents' perspectives to enhance policy-making" is no longer an ambitious ideal. Local governments with limited resources can adopt open-source applications, enabling digital democracy and fostering civic participation. Consequently, the goal of "ensuring diverse public perspectives are heard" becomes increasingly attainable. Over time, as citizens come to expect their voices to be considered in policy-making, this may become standard practice for authorities.

3.2.3 Proj-Inclusive

Proj-Inclusive, a social initiative born out of a Code for Japan hackathon, is supported by a well-organized team dedicated to turning ideas into action. Shiratori Koichiro, the founder, has dedicated years of research to addressing structural poverty and analyzing policies that support marginalized groups. His vision is to create an application and data center where any citizen in need of social support can easily access relevant information, receive policy-based assistance, and find sufficient resources to regain self-sufficiency before falling below the poverty line.

The initiative was conceived during the pandemic with the idea that, by providing personal data—such as age, medical history, and marital status—citizens could receive tailored, policy-based information through the platform. Since 2022, the initiative has recruited volunteers, and engineers built the platform using OpenFisca, creating a prototype. In 2023, the project was presented at the Tokyo Governor's Cup Open Data Hackathon.[40] After gaining support, it was officially launched. Today, the platform has 4,000 users and has signed a partnership agreement with the city of Fujimi.

After years of research and interviews with different actors, Shiratori has observed that public agencies launching policies to support marginalized groups often expect citizens to stay informed about available grants and policies. However, little effort was made to actively promote them. "Civil servants argue that if they start promoting these welfare policies for people to familiarize with them, city councils will be overwhelmed by public inquiries. They fear this could lead to panic and potentially overwhelm the bureaucratic system with a surge of citizen requests." The Japan National Councils of Social Welfare have been established throughout the country as semi-official organizations. However, these councils face challenges in delivering accurate information and maintaining adequate staffing for citizen consultations. In the Japanese social welfare system, staff typically remain in the same position for only two to three years, and rarely longer than five years, which limits their ability to fully grasp every policy related to social welfare. Additionally, a fundamental challenge within the public sector is its aversion to risk, which hinders its ability to actively develop experimental tools.

[40] Tokyo Metropolitan Government, *2023 Archive*, GOVERNOR'S CUP OPEN DATA HACKATHON (Japan), https://odhackathon.metro.tokyo.lg.jp/collection/2023/ (last visited Dec. 1, 2024).

On the other hand, Shiratori believes that a sense of "shame" around receiving social aid is a significant barrier in Japanese society. "People don't want to feel like a burden to their families or to society, so they tell themselves, 'I'm not that poor; maybe I can manage on my own.' But once they truly hit rock bottom and fall into poverty, it becomes even harder for them to get back on their feet," said Shiratori Koichiro.

Shiratori developed the "Poverty-proof" information platform on his own with the goal to bridge gaps in the public system. Apart from creating the volunteer-based civic tech initiative Proj-Inclusive, he also established the Institute for Poverty Prevention, which is an incorporated association, and formed an academically focused study group. The Institute, founded with an inclusive mindset, is a legal entity that can draft and sign contracts with local governments, receive funding, and channel resources into civic tech initiatives.[41] The study group, on the other hand, conducts large-scale research to support the strategies and roadmaps of Proj-Inclusive. Comprising professors, scholars, and experts from various fields, the study group meets monthly to contribute insights. Each of these three organizations has its unique focus and collaborates with different stakeholders—all aimed at establishing digital public services focused on poverty prevention. Current partners include Mitsubishi Corporation and Habataki Welfare Group, which is dedicated to supporting people with HIV.

It is rare for a civic tech initiative to establish three distinct organizations. With an academic background, Shiratori aims to create a nexus between the academia, the civic tech community, and the public and private sectors to facilitate cross-field collaboration, as well as positioning himself as a

[41] 活動 [*Activities*], 一般社団法人防窮研究所 [INST. OF POVERTY PREVENTION] (Japan), https://www.poverty-prevention.net/%E6%B4%BB%E5%8B%95 (last visited Dec. 1, 2024).

coordinator and collaborator in poverty prevention efforts. For example, by analyzing data from over 4,000 current users on the platform, the team gains preliminary insights into the ages and circumstances of individuals seeking social support. As the user base expands, they aim to identify potential poverty-triggering life moments, such as school dropout, divorce, or transitions into old age. The challenge then becomes determining how to leverage policy tools to intervene earlier or target policy information to specific groups, ultimately reducing poverty incidence.

Collaboration with scholars and educators also help introduce relevant policy tools to campuses. Starting with student grants, the team seeks to remove the stigma associated with applying for support, thereby encouraging more individuals to seek support when needed. Meanwhile, the academically focused study groups attract government officials, offering members and developers the chance to understand public-private partnership dynamics and gain insights into the challenges faced by the public sector.

3.2.4 Policy Recommendations

In its efforts to build public-private partnerships, Code for Japan has encountered obstacles similar to those faced by g0v in Taiwan. As an open, volunteer-based community, how can it effectively collaborate with the public sector across various initiatives, advance digital democracy, and provide digital public services? The three initiatives mentioned above each take unique approaches to engage stakeholders. Both C4J and Proj-Inclusive established separate legal entities to facilitate contract signing, while also establishing clear boundaries to ensure volunteers remain committed for non-profit-driven purposes.

The following policy recommendations are based on collaborative experiences between the three initiatives and various levels of Japanese public agencies. The goal is to foster productive public-private partnerships and enhance both digital democracy and the quality of digital public services.

a. Embedding Democratic Values in the Pursuit of Digital Democracy

When building tools to advance digital democracy, prioritizing democratic principles is essential. Civil servants tend to focus solely on the "digital" aspect, emphasizing platform efficiency without adequately incorporating citizens' perspectives. When assessments focus solely on "the platform" and overlook democratic values like pluralistic participation and human-centered design, participants often feel disregarded, unable to see the impact of their engagement, despite having access to a civic participation tool. This approach risks reducing the tool to a metric for final reports, ultimately failing to enhance democratic engagement and becoming a digital "white elephant."

b. Empowering Local Civil Servants

Local civil servants, as frontline representatives interacting directly with citizens, play a pivotal role in digital democracy. However, they may lack digital literacy or familiarity with open government principles. Often overlooked is the need to empower these civil servants, equipping them with the vision for civic tech initiatives. In Japan, where landmass is extensive but the number of local civil servants declines each year, training these officials to use digital tools—or even better, designing tools specifically for them—will be essential for enhancing the effectiveness of digital democracy and improving public services.

c. Updating Metrics for Public-Private Partnership

For over a decade, the community of Code for Japan has engaged in partnership with various levels of government, from local to central. When public resources and funding enter these initiatives, there is a need to show measurable outcomes in final reports. However, if metrics focus solely on conventional management targets—such as the number of applications developed post-hackathon—without annual updates, this can hinder sustainable partnership growth. Solutions for establishing mutually beneficial metrics that advance digital democracy won't appear out of thin air. Metrics should align with the unique goals and scope of each initiative, while the public sector must invest resources to deepen its understanding of digital democracy and public digital services, moving beyond mere "quantity." Developing research-informed metrics can then provide guidelines and standards for future civic tech initiatives and public-private collaborations. As technology advances, the operation of digital democracy and the forms of digital public services will also continue to evolve. the operation of digital democracy and the forms of digital public services will also continuously evolve. Thus, a sustained understanding of the purpose of these tools, along with the continuous refinement of metrics, will be fundamental skills that any public agency aiming to establish public-private partnerships must develop.

d. Incorporating Innovation into Public Sector Systems

While citizen-led civic tech initiatives can rapidly develop digital tool prototypes, their volunteer-based nature presents inherent limitations, including limited access to funding, the lack of full-time staff and structured organizational experience, all of which hinder the process of scaling and advancing these tools. Consequently, the public value generated by these initiatives often only becomes a flash in the pan.

The government could consider grants, incubation programs, and procurement-based integration as ways to incorporate these initiatives into the public system and take over their operations. This approach enables the continued development of civic tech tools, fostering meaningful impact, while also transferring innovation into public services and ultimately enhancing the quality of digital democracy.

3.3 South Korea

South Korea's government digitalization policies were established relatively early within Asia. Since 2001, South Korea has established various online government services, ranked 4th among Asia Pacific countries in the United Nations' E-government Index[42] and tailing just behind Australia, New Zealand, and Singapore. As for transparency policies, South Korea enacted the Official Information Disclosure Act[43] in 1996. Came into effect in 1998, the act protects the public's right to know by regulating the disclosure process of governmental information.

In 2013, the Park Geun-hye administration officially declared Government 3.0 as the new mode of e-government operation, setting three major categories and ten objectives[44] to promote transparent, efficient, and service-oriented governance. The Public Data Act[45] was also enacted by the National Assembly of Korea around this time, fostering life quality improvements and economic growth by encouraging private sectors to utilize governmental data.

In tandem with this policy shift, the South Korean civil society saw its emergence of civic tech and open data communities. Established in 2010 by members from Creative Commons Korea, CodeNamu[46] held in-person

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[42] U.N. DESA & ASPA, BENCHMARKING E-GOVERNMENT: A GLOBAL PERSPECTIVE 2001, at 43, https://publicadministration.un.org/egovkb/en-us/Reports/Benchmarking-E-Government-2001.

[43] 공공기관의정보공개에관한법률 [Official Information Disclosure Act], Act No. 5242, Dec. 31, 1996 (S. Kor.), https://www.law.go.kr/법령/공공기관의정보공개에관한법률/(05242,19961231).

[44] B. Shine Cho & Sangoh Yun, *Citizen Participation for Open Government: A Typology of Civic Hacking*, 26(1) KOR. ASSOC. POL'Y STUD. 177, at 181 (2017) (S. Kor.).

[45] 공공데이터의 제공 및 이용 활성화에 관한 법률 [Act on Promotion of the Provision and Use of Public Data], Act No. 11956, Jul. 30, 2013 (S. Kor.), https://www.law.go.kr/법령/공공데이터의 제공 및 이용 활성화에 관한 법률/(11956,20130730).

[46] 코드나무는? [*About CodeNamu*], CODENAMU (S. Kor.), https://codenamu.org/about/codenamu/ (last visited Dec. 1, 2024).

gatherings, public data camps,[47] and hackathons under the motto "programming as a solution for creating a better world." Throughout its history, CodeNamu advocated for civic participation and open data, leading to the formation of spin-off communities like Code for Seoul and Code for Incheon.

As core members changed, the Korean community space branched out further, giving rise to newer civic tech communities like NullFull, Code for Korea, and the Sluggish Hackers; through the decade, some members have also elected to found social enterprises like Parti,[48] forging distinctive partnerships with the public sector.

This research report shares insights from interviews with six members of this Korean civic tech community—entrepreneurs, volunteers, and scholars—highlighting the efforts and contributions of civic tech to South Korea's digital democracy and services. Drawing on their experiences, the interviewees offer policy recommendations for strengthening public-private partnerships to support digital democracy.

3.3.1 Nullfull

NullFull is a loose volunteer-driven organization that holds weekly meetups within the City of Seoul. Through prioritizing relationships and enjoyment, NullFull has attracted individuals passionate about social and political issues, including engineers, designers, and journalists. The group has embraced French fries as their emblem, a nod to their tradition of ending gatherings at local French fry spots—a playful reflection of their "play hard" ethos.

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[47] 첫번째 공공데이타 캠프가 열립니다 [*First Public Data Camp Launched*], CODENAMU (Jul. 4, 2012) (S. Kor.), http://codenamu.org/549 [https://web.archive.org/web/20120723075652/http://codenamu.org/549].

[48] 사회적협동조합 빠띠 [SOC. COOP. PARTI] (S. Kor.), https://parti.coop/ (last visited Dec. 1, 2024).

While some founding members of NullFull came from CodeNamu and Code for Seoul, they were far from being outcome-focused, even describing themselves as “a group of fried potato lovers who occasionally solve social problems with technology.” NullFull members emphasize that their non-result oriented and non-goal specific culture stemmed from the recognition that creating lasting social impact and becoming politically influential are long-term goals, not quickly achieved; fostering a community where people with a shared commitment to public issues can connect and contribute over time is far more crucial. Reflecting on negative experiences with performance-obsessed organizational culture and past disputes over taking community achievements as personal credentials, NullFull has stood their ground on maintaining a loosely-coupled structure since formation,focusing more on building bonds and consensus.

When it comes to projects, NullFull effectively leverages technology to advocate for public issues, helping citizens understand the status of relevant bills and issues, while using digital tools to provide a platform for public expression, gather support, and push for responses from the government and politicians.

For example, the website “CALL21ST”[49] (“Call the 21st National Assembly”) is a project advocating for the National Assembly to revise the legal definition of sexual assault. Before the parliamentary election, NullFull emailed survey links to each candidate for their stance on amending the law and published the responses real-time on the website. The website also listed all related amendments proposed by the current MPs, providing a platform for supporters to leave signatures and messages in favor of the amendment and monitor their

[49] 21 대 국회의원 후보자에게 묻습니다 [CALL THE 21ST NAT’L ASSEMBLY] (S. Kor.), https://call21st.works/ (last visited Dec. 1, 2024).

MPs' actions across different parliamentary terms. NullFull members stated that "CALL22ND," the next iteration of the website, has already been done and this project will not stop until a future National Assembly makes the change.

Another initiative advocating for revising the definition of sexual assault is "wonderful-law.korea.wtf."[50] In collaboration with the feminist advocacy group Korea Women's Hotline, the project sourced from 90 publicly available court verdicts and transformed them into interactive scenario-based simulation games. On the website, players will assume the role of a judge, reviewing testimonies and evidence within each case to render their own verdict on the suspect's guiltiness. The game then reveals the actual verdict, highlighting the necessity of amending the legal definition of rape. By leveraging technology, this initiative has successfully fostered communication between traditional social organizations and the public and garner support for their cause.

Beyond gender issues, NullFull excels at creating infographics to help public oversight of politicians. For instance, the project "Jonmat Gukhoe"[51] utilizes data on officials' donation expenditures to create a restaurant map. This cleverly aligns with contemporary habits of finding dining options through online maps and reviews, drawing public attention to the spending habits of politicians and introducing citizens to the concepts of open data and public accountability. This application gained significant traction, becoming a model for effective data use, and turning government oversight into an engaging experience, inspiring other media to follow suit.

[50] 이상한 나라의 강간죄. 당신의 선택과 판결은? [RAPE LAW IN WONDERLAND. WHAT'S YOUR CHOICE & VERDICT?] (S. Kor.), https://wonderful-law.korea.wtf/ (last visited Dec. 1, 2024).

[51] 존맛국회 [DAMN-TASTY NAT'L ASSEMBLY] (S. Kor.), http://jonmat.nullfull.kr (last visited Dec. 1, 2024).

Another notable NullFull project "IsNamyang"[52] empowers consumers to identify products affiliated with Namyang Dairy in stores by scanning barcodes. Following news reports of the company intimidating suppliers, Namyang Dairy has been boycotted by the customers since 2013. As a consequence, Namyang frequently altered its packaging to obscure its brand name. The project helps consumers make informed purchasing decisions by identifying products produced by problematic companies, pressuring businesses to take responsibility to improve labor conditions, address misconducts, and reduce pollution.[53] This initiative has also become a model example for other organizations to look upon.

Since its founding, NullFull has organized over 200 events and attracted 500 to 600 members, including some civil servants who provide strategic insights on pressuring the government and advocating open data. Beyond the aforementioned projects, NullFull also engages with various other public issues, such as establishing new mechanisms for congressional oversight, protecting migrant workers' rights, ensuring fair food pricing, and improving public transportation accessibility for people with disabilities.

3.3.2 Code for Korea

From the establishment of CodeNamu in early 2010 to Code for Seoul's release of the Open Government Report in 2014—which introduced global trends like Code for America—the concept of open government and civic technology in South Korea has gained momentum.

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[52] 남양유없 [NO NAMYANG DAIRY] (S. Kor.), https://isnamyang.nullfull.kr/ (last visited Dec. 1, 2024).

[53] Wu Hui-Jhen, 南韓財閥 面臨茉莉花革命 [*South Korea Chaebol Faces Jasmine Revolution*], COM. TIMES (Jul. 17, 2023) (Taiwan), https://www.chinatimes.com/newspapers/20130717000100-260203.

This movement has been driven both by government policies, such as the Public Data Act and the "Government 3.0" initiative, and by civil society, which has launched projects that explore the potential for public-private collaboration. For instance, a website turning PDF data on high-ranking government officials' assets and income into visualized form aims to improve the quality and accessibility of public information. Another example is Code for Seoul's "Where Does My Money Go?"[54] project, which adapts OpenSpending from the UK to help taxpayers better understand government spending. Another service, "Finding of Alddle Seoul"[55], allows citizens to access tailored information on government services and benefits: by inputting details like "male, 40 years old, married, have children, and address," users can find relevant public resources available to them.

Another significant project was the Seoul MERS Map in 2015. During the MERS outbreak, the South Korean government tightly controlled information about the epidemic. In response, citizens began gathering information online and collecting fragmented news reports, collaboratively posting the infection cases and locations on a map to track the disease. This visualization became the first large-scale demonstration of how the civic tech community could leverage government data for public benefit.

Code for Korea was later formalized during another public health crisis: the COVID-19 pandemic. As the virus spread rapidly in Korea, the country faced a severe shortage of medical supplies, especially masks, which were essential for the general public. With supply shortages and distribution issues, citizens

[54] 내가 낸 세금은 어디에 쓰일까? [WHERE DOES MY MONEY GO?] (S. Kor.), http://wheredoesmymoneygo.kr/ [https://web.archive.org/web/20140823114943/http://wheredoesmymoneygo.kr/].
[55] 알뜰 서울의 발견 [FINDING OF ALDDLE SEOUL] (S. Kor.), http://welfare4u.com/ [https://web.archive.org/web/20160112112836/http://welfare4u.com/].

struggled to obtain masks, leading to mounting public frustration. In response, the civic tech community proposed a solution to the government: using real-time data on mask distribution, they developed an application for the government free of charge, enabling people to locate available supplies. Under public pressure, government officials uncharacteristically accepted the civic group's proposal, resulting in a Korean version of a mask map that quickly addressed this urgent issue.

The success of the mask map helped reduce the government's wariness about an epidemic information platform proposed by the civic tech community. At that time, the community presented a proposal to Korea's Personal Information Protection Committee to replace contact tracing records at public venues with unique QR Codes, aiming to create an alternative system to address privacy concerns and the complications caused by requiring people to leave behind their personal information. With the prior success of the mask map and the pressing governance challenges posed by the pandemic, the public-private partnership was able to materialize: with nearly 300 people collaborating online to build an application serving the entire nation. This project became a landmark example of public-private collaborations in Korean digital services.

These 300 volunteers, along with members of existing communities, later founded Code for Korea. Meeting monthly, this volunteer-based group was formed to advance civic technology and open data across Korea. As a loosely organized community, they focus on experience sharing, knowledge accumulation, and cross-sector collaboration, working with multiple stakeholders including corporations, international organizations, civic groups, and schools. Through hackathons, in-person events, and other activities, Code for Korea continues to foster a nationwide network dedicated to civic innovation.

3.3.3 Policy Recommendations

Reflecting on the development of Korea's civic technology and open information community over the past decade or so, this flexible network includes the nonprofit tech serial entrepreneur who founded the social enterprise Parti, volunteer engineers who assist with digitizing established nonprofit organizations, and teams that have collaborated with government bodies on an ad-hoc basis through different administrations.

While the Korean government has spearheaded digitalization initiatives, what it also needs to face is a digitalized civic movement. South Korea so far has achieved impressive international rankings through top-down reforms, but it has overlooked the fact that the success of "Government 3.0" requires not only technological innovation but also bottom-up citizen participation mechanisms. The evolution of the internet has driven Korea's democratic engagement online, as millions took to online platforms to voice opinions and promote political agendas as early as 2008. When political and chaebol (corporate) scandals repeatedly surface socioeconomic inequalities worsen, a digitalization policy that fails to meet citizens' democratic expectations risks further alienating them from the established political system0.

Interviews conducted for this study reveal that civic tech communities have become targets of political retaliation precisely because of their ability to mobilize, collect, and amplify public opinion to drive policy changes. South Korea has experienced over a decade of political upheavals, including several recalls and citizen uprisings. Since 2008, there have been instances where politicians manipulating online discourse to generate negative sentiment toward civic tech activists, falsely accusing them as foreign agitators. Politicians have even pressured tech platform providers to remove online petition features and

penalized corporations providing civic tech communities with bounty or computational resources support. Furthermore, NullFull's application to incorporate as a non-profit organization was rejected, hindering its ability to accept donations. In some cases, project leaders even faced legal harassment from newly empowered administrations due to their collaboration with previous governments.

The trajectory of Korea's digital policies over the past decade, coupled with political challenges, shapes how civic technology and open data communities approach public-private partnerships. The following policy recommendations summarize insights from the six respondents interviewed in this study.

a. Embracing and Fostering Motivation for Civic Technology

The civic tech community has demonstrated significant impact in crisis response and citizens' needs, creating tools like the mask map and epidemic information integration platform for the government free of charge. The motivation behind these efforts is not monetary; rather, civic tech participants are driven by a commitment to public interest, social innovation, and self-realization.

The interviewees believe that the government likely lacks the financial resources to adequately compensate civic tech developers and that the current legal framework makes it difficult for public agencies to provide payments or enter into contracts with unregistered volunteer groups that are loosely organized. However, the vast public data held by the government, its policy influence, and its real-time insight into social conditions are key resources that the civic tech and open data communities are eager to leverage for meaningful change.

The public sector should consider how to use these three resources—while safeguarding citizens' rights and ensuring social fairness—to create motivation within the civic tech and open data communities to initiate proposals and actively engage in public-private partnerships.

b. Supporting Loosely Organized Communities with Concrete Actions for Collective Benefit

Formally established following the COVID-19 outbreak, Code for Korea's monthly gatherings and flexible operating structure create opportunities for government officials to engage proactively. The success of the mask map and outbreak information platform demonstrates the public value of an open, trust-based communication channel between the public sector and the civic tech and open data community.

Byungwoo Cho, an assistant professor from the Department of Public Administration at Konkuk University who specializes in digital policy and civic hacking community development in Korea, suggests that junior and mid-level public sector officials should initiate contact and even participate in community activities with a "co-creativity" mindset. This involvement from the public sector can amplify community actions, establish key milestones for community existence, attract more participants, and build momentum for further development. In the long term, this would provide a sustainable foundation for the civic tech community to function as a flexible network hub for multi-stakeholder co-creation. Beyond direct participation, the government could further support the community by initiating multi-dimensional research, connecting international resources to the community, and promoting media coverage. These efforts would contribute to the civic tech and open data

community, ultimately advancing the digital democracy and public services of the nation.

c. Using Civic Tech Projects to Promote Civic Education and Foster Engaged Citizens

Take, for example, Parti, an app and online platform launched in 2015, which provides a multi-functional space for online discussions, public opinion collection during policy development, and organizing in-person events. This platform offers Korean citizens a way to participate in and initiate various social movements, and has attracted partnerships with local governments, including the Seoul Metropolitan Government, for a series of civic dialogue activities. Through these efforts, citizens gain an understanding of how democratic politics operates, while the app collects public opinions that can lead to concrete policy proposals, thereby making a real impact and contribution to policy decisions. This process cultivates informed and proactive citizens who can provide substantial policy recommendations.

The collaboration has extended to the Seoul Metropolitan Office of Education, where Parti serves not only in educational policy-making but also as a tool for civic education.[56] Additionally, Parti has been used by partner governments to gather insights from disadvantaged groups, such as single mothers, and to expand the scope of public opinion gathering through initiatives like in-person workshops with teenagers.

[56] Kim Eunchae, [후기] 서울교육 소통광장 토론회 : 2024 년 제 1 회 정책상상 아이디어톤 [*Epilogue — Seoul Education Communication Plaza Discussion Meeting: 2024 1st Policy Imagination Ideathon*], 서울교육소통광장 [SEOUL EDUC. COMMC'N PLAZA] (Jul. 3, 2024) (S. Kor.), https://edu-policy.sen.go.kr/web/news/noti/bordContDetail.do?mode=W&brd_no=1&post_no=1C5168477C04035CE063C0A8C82FF767.

This policy-backed approach, in the long term, utilizes civic tech tools to foster a "participatory culture," making citizen involvement a societal norm. For future citizens who have yet to enter society, civic tech and civic hacking should be regarded as foundational skills in the educational system, akin to physical education or health education. These skills encourage innovative thinking and problem-solving while also building an understanding of governmental processes and limitations.

d. Supporting and Strengthening Civic Space and Public Discourse

Cho further notes that between 1997 and 1998, the South Korean government was committed to the development of civil society by providing funding and infrastructure, recognizing a robust civil society as a pillar of a healthy democracy. A critical aspect was ensuring citizen participation.

By the same token, in the 21st century, democratic governments, especially amidst global democratic setbacks, should invest resources in strengthening civil society and safeguarding spaces for public discourse. As digital policies advance, governments need to understand the role of citizens in the Web 3.0 era, committing resources to building the "infrastructure" for contemporary democracy. This includes open data, civic participation, digital services, and valuing the civic tech and open data communities. Cho suggests that a straightforward first step would be using Korea's volunteer time management system to recognize the contributions made within civic tech communities.

Chapter 4: Conclusions and Policy Recommendations

4.1 Conclusion

This study examines the development of digital democracy and digital public services in Taiwan, incorporating data research, field interviews, and insights from international experts. Through real-world examples from nine prominent civic projects across Taiwan, Japan, and Korea, the report illustrates how civic technology advances digital democracy. It highlights how public-private digital collaboration enhances information service effectiveness and generates various applications within digital democracy.

Since the early 2010s, changes in the internet landscape in Taiwan, Japan, and Korea—along with the Web 3.0 wave and open data trends originating in the West—have spurred the rise of civic technology and open data communities in these three nations in East Asia. During times of social tension or large-scale public crises, the rapid development of digital tools has offered essential public services, prompting government agencies to acknowledge the importance of these tools and, in some cases, adapt their policies in response.

This report traces the development of civic technology and open data communities in Taiwan, Japan, and South Korea, underscoring three main functions that these communities serve in modern society: engaging cross-sector and cross-disciplinary talent in political dialogue, developing digital public services, and advocating for policy reform. Public-private partnerships have been established through various initiatives, and in some cases, have driven government innovations in digital services and data governance. In several instances, civil servants and government officials are empowered to continue launching new digital services.

Nevertheless, findings from interviews across nine projects in three countries also reveal common challenges.

I. Policy Continuity

Partnerships between civic tech and open data communities and the public sector are often directly influenced by political will. There is no guarantee that one administration's initiatives will be continued by the next. Without a social consensus on the value of open data and the role of civic tech communities for government, projects frequently halt when the terms of office end for policymakers and power brokers.

II. Adapting Civic Participation to a Changing Online Environment

As technology advances, modern civic participation needs to evolve beyond top-down, one-way information-sharing toward transparent, accessible information. The aim is to foster two-way communication, and even co-creation. However, how government officials adapt their mindsets and roles, and how civil servants across levels are equipped with the necessary knowledge and skills to meet contemporary expectations for civic engagement and digital habits, remains a widespread challenge.

III. Preconditions for "Co-Creation"

Collaboration between governments and civic tech communities frequently challenges existing frameworks on multiple fronts—from procurement regulations, evaluation metrics, to the legal status of civic tech communities. Based on the previous introduction of communities across the three countries, it is evident that public-private partnerships in the civic tech domain differ

significantly from those in other public infrastructure projects such as land development. Furthermore, civic tech communities are distinct from typical outsourced vendors.

In the civic tech sphere, when communities and governments collaborate to work on digital democracy and improve information services, their relation resembles more of a mutual “co-creation” partnership. However, to actually realize the co-creation of digital services between governments and civil society, several common hurdles need to be addressed. Whether the legal framework and the community structure allow such collaboration, whether the equality of status between both sides has properly balanced, and whether the set project goal is realistic are all deterministic to the success of the project.

Furthermore, Questions remain regarding how a partnership that allows civic tech communities to maintain independence can function, whether such collaboration can operate consistently across government departments, and if standardized contracts for precedented collaborations are feasible. These are key considerations in discussions about public-private partnerships, both inside and outside the public institution.

4.2 Policy Recommendations

Based on interviews from three countries and nine civic tech projects, the following policy recommendations are provided to deepen Taiwan’s digital transformation, build a service-oriented smart government, and enhance public-private partnerships to improve the effectiveness of information services for digital democracy. These recommendations are divided into short-term, medium-term, and long-term strategies respectively:

I. Short-Term

- Governments should proactively establish communication channels with civic tech and open data communities. This approach will facilitate public-private partnerships in areas such as open data initiatives, digital policy-making, and response efforts during large-scale emergencies.
- Develop flexible metrics for partnerships: Performance indicators for public-private partnerships shall be flexibly tailored for each project as some of the social impacts may be difficult to measure in traditional means. Rigid metrics can impede collaboration and limit project adaptability.
- Improve the quality and accessibility of government open data, enabling civic tech and open data communities to propose innovative solutions that enhance and optimize public services.

II. Medium-Term

- Implement digital literacy training for civil servants across all levels and build cross-department policy consensus. Comprehensive internal training helps bridge knowledge and skills gaps between urban and rural areas and between central and local government agencies. Additionally, encouraging discussions on open government within each ministry can foster consensus, which in turn supports policy continuity.
- Invest in research to deepen understanding of digital democracy and inform policy development. Interviews in this report show that civic tech community development and engagement are emerging trends no earlier than the 2010s. The government should invest in research to explore different aspects of these topics, providing a basis for future metrics and policy formulation.
- Increase public awareness of open data and digital democracy. The government can allocate resources to encourage media coverage and

public education on open data and digital democracy. This not only promotes the adoption of digital applications but also builds public support for relevant policies.

III. Long-Term

- Adopt an open and supportive attitude towards loosely-structured civic tech and open data communities, without manual intervention, goal setting, or forcing them into formal organizations. Loosely-organized communities are a common feature among Taiwan, Japan, and Korea, which foster openness and collaboration among diverse stakeholders, ensuring opportunities for broad civic participation. Sustained operation of these communities allows them to act as hubs where knowledge, expertise, and skills from multiple stakeholders may freely connect and flow, creating a repository of experiences that strengthens digital democracy projects over time. A performance-driven or centralized approach with fixed goals risks disrupting community sustainability and public accessibility, especially with project completions or personnel changes.
- Integrate civic tech into contemporary education to better nurture active citizenship, enhance digital literacy, practice civic engagement, and help rebuild confidence in democratic governance. Civic technology goes beyond tools. Initiatives like Taiwan's Cofacts, Japan's Decidim, and Korea's Parti demonstrate how citizens, including civil servants, gain digital literacy and self-empowerment by using digital tools to make a difference. This is crucial for the sustained advancement of democratic values, especially as global democracy faces ongoing challenges and even deficits. Civic tech not only provides digital tools but also contributes immense value as a vehicle for civic education.

Chapter 5: Appendices

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