Volume 28 of the TOGI scientific series examines the development of capable GovTech ecosystems, using Taiwan as a democratic, digitally advanced and CivicTech-driven case. The paper focuses on identifying actors, collaboration mechanisms, success factors as well as approaches to bridging the "valley of death". It draws on GovTech and ecosystem literature, qualitative expert interviews and a complementary document analysis.

Background:
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Monograph at
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Volume 28 of the scientific series of
The Open Government Institute |TOGI
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Fabian T. Poppeck

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Volume 28

Editor of Volume 28

Univ.-Prof. Dr. Jörn von Lucke
TOGI | Zeppelin University, Friedrichshafen
joern.vonlucke@zu.de

Editor of the TOGI Scientific Series

Univ.-Prof. Dr. Jörn von Lucke
TOGI | Zeppelin University, Friedrichshafen
joern.vonlucke@zu.de

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Preface

Occasionally, academic programs give rise to scholarly works that far exceed the requirements of a course project in terms of intellectual depth, analytical rigor, and practical relevance. In my view, Fabian Poppeck's study of the GovTech ecosystem in Taiwan undoubtedly belongs to this category of exceptional work.

During my research trips on e-government, open government, and smart government, I was repeatedly encouraged to take a closer look at Taiwan. In 2018, I attended the Smart City Summit & Expo in Taipei. Conversations with representatives from government, academia, industry, and civil society, as well as the solutions presented there, had a lasting impact on my understanding of the digital transformation of the public sector. At the same time, it became evident that digitalization and innovation must always be considered within their specific societal, cultural, and legal contexts. From a German or European perspective, some approaches initially appeared unfamiliar, particularly regarding the balance between privacy, security, and individual freedom, as well as the use of data-driven technologies and artificial intelligence in public administration. It was precisely these differences that made the professional exchange especially insightful. During a subsequent visit to Taiwan in 2019, I was able to gain a broader perspective on the country. Travels to Kaohsiung, Tainan, Hualien, Taipei, and Taichung demonstrated that innovative capacity depends not only on technological capabilities but also on civic engagement, investments in education, and a strong willingness to embrace change. Taiwan occupies a distinctive position in this regard. The island is deeply integrated into global innovation and economic networks and maintains a wide range of international partnerships. Regardless of ongoing discussions concerning its political status, Taiwan offers numerous compelling examples of the use of digital technologies and innovative forms of collaboration among government, industry, and society.

For a long time, I approached the term GovTech with a certain degree of skepticism. Initially, I questioned its added value compared to established concepts such as electronic government, open government, or smart government. However, with increasing engagement in the topic, it became clear that terminological distinctions are ultimately of secondary importance. What matters is how technological and organizational innovations can contribute to delivering public services more effectively, efficiently, sustainably, and citizen-centeredly. I therefore understand GovTech primarily as an innovation-oriented ecosystem that generates and supports the implementation of new solutions to public challenges. In Germany, GovTech has also gained considerable prominence in recent years. Initiatives such as GovTech

Deutschland demonstrate that the discussion extends far beyond questions of terminology. At its core, it concerns the future viability of the state and its ability to actively shape and implement societal, economic, and technological change in collaboration with partners.

I have known Fabian Poppeck since September 2025, when he began his Master's studies in Public Management at Zeppelin University. It quickly became apparent that his interests extended well beyond individual courses. He possesses an exceptional understanding of the challenges facing modern public administration and of the digital transformation of the public sector. During his second semester, I supervised Mr. Poppeck's Elinor Ostrom project on the GovTech ecosystem in Taiwan. The project was conceived independently, developed conceptually, and carried out with strong academic rigor. The choice of topic alone reflects both intellectual curiosity and strategic foresight. At the same time, the study is academically demanding and highly relevant in practice, particularly for the further development of the German GovTech ecosystem. Today, Taiwan is widely regarded as one of the most remarkable examples of the integration of technological innovation, digital government, CivicTech, and civic participation. His subsequent research semester in Taiwan provides ideal conditions for deepening this line of research.

The present study was conducted during the winter and spring of 2026. Based on a comprehensive review of the academic and policy literature, supplemented by nine expert interviews, Mr. Poppeck examines the structures, actors, and success factors of Taiwan’s GovTech ecosystem. Starting from the questions of which factors shape the emergence of technological innovation and which policy recommendations can be derived for Germany, he develops a scientifically rigorous analysis of considerable practical relevance. The study’s empirical foundation is particularly valuable. The expert interviews provide deep insights into the functioning of the Taiwanese GovTech ecosystem. Taiwan is not portrayed merely as a successful GovTech nation but rather as a complex innovation ecosystem in which public institutions, academia, industry, and civil society interact closely. The study not only identifies success factors but also examines challenges, limitations, and issues of transferability. It is precisely this balanced perspective that makes the analysis especially interesting from an academic standpoint. The findings are translated into concrete and practical recommendations for Germany. Moreover, the study makes an original contribution to GovTech scholarship. It addresses research gaps concerning the role of CivicTech within GovTech ecosystems and broadens a discourse that has thus far been strongly shaped by Western perspectives through the inclusion of important insights from Taiwan.

For an Elinor Ostrom project completed during the second semester of a master's program, this study achieves an exceptionally high academic standard. Owing to its strong theoretical foundation, empirical depth, analytical quality, and substantial practical value, I am particularly pleased to publish it in the TOGI Scientific Series. The study will appear in German as Volume 27 and in English as Volume 28. Through this publication, I hope to further promote international exchange on GovTech, digital government, and public-sector innovation capacity.

This work provides a nuanced perspective on the distinctive features of the Taiwanese approach while simultaneously inviting readers to critically reflect on its transferability to the German context. GovTech should not be viewed as an end in itself. Rather, the focus should remain on the potential of technological innovation to support an effective, citizen-oriented, and public value-driven administration. The digital transformation of government is not merely a technical undertaking but a broader societal challenge of governance and institutional change. Addressing this challenge requires scientifically grounded analysis, international perspectives, and a willingness to critically assess and further develop successful approaches.

In my view, Fabian Poppeck combines academic excellence, civic commitment, and a strong interest in international knowledge transfer. His objective of making insights from Taiwan applicable to the further development of the German GovTech ecosystem is both professionally compelling and worthy of explicit support. I wish him every success in his future academic endeavors and in his forthcoming research semester in Taiwan.

Friedrichshafen, August 2026

Jörn von Lucke

Abstract

Building a capable GovTech ecosystem is a central lever for strengthening state capacity and public sector innovation in Germany. This paper examines Taiwan as a democratic, digitally advanced and CivicTech-driven case. Based on GovTech and ecosystem theory, qualitative expert interviews and complementary document analysis, it analyses actors, collaboration mechanisms, success factors and approaches to bridging the "valley of death" between prototypes and wider adoption. The findings show that Taiwan's GovTech ecosystem is shaped less by central strategy than by CivicTech culture, open data, trust, bridge-builders and state absorptive capacity. From this, transferable principles for Germany are derived. The German-language version of this paper is published as Volume 27 of the TOGI Scientific Series.

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List of Abbreviations

ACM	Association for Computing Machinery
AI	Artificial Intelligence
API	Application Programming Interface
AWS	Amazon Web Services
BMDS	Federal Ministry for Digital Transformation and Government Modernisation
Civic AI	Civic Artificial Intelligence
CivicTech	Civic Technology
Computex	Taipei International Information Technology Show
COSCUP	Conference for Open Source Coders, Users, and Promoters
COVID-19	Coronavirus Disease 2019
DefTech	Defense Technology
DGO	Digital Government Research
DIGI+	Digital Nation and Innovative Economic Development Program
DigitalGov	Digital Government
eGov	Electronic Government
et al.	et alia
et seq.	et sequentes
FNF	Friedrich Naumann Foundation for Freedom
Fraunhofer IESE	Fraunhofer Institute for Experimental Software Engineering IESE
GI	German Informatics Society (Gesellschaft für Informatik e.V.)
g0v	“gov zero”; Taiwanese CivicTech community
GovTech	Government Technology
GovTecHH	GovTech Hamburg
GTMI	GovTech Maturity Index

HealthTech	Health Technology
ibid.	ibidem
IBM	International Business Machines Corporation
ICT	Information and Communication Technologies
IFG	Freedom of Information Act (Informationsfreiheitsgesetz)
III	Institute for Information Industry
Inc.	Incorporated
InnoLab_bw	Innovationslabor Baden-Württemberg
IPAI	Innovation Park Artificial Intelligence
ISSN	International Standard Serial Number
IT	Information Technology
ITRI	Industrial Technology Research Institute
KGSt	Kommunale Gemeinschaftsstelle für Verwaltungsmanagement
LegalTech	Legal Technology
Ltd.	Limited
MODA	Ministry of Digital Affairs
MOEA	Ministry of Economic Affairs
MOPCON	Mobile/Open/Platform Conference
NASA	National Aeronautics and Space Administration
NCCU	National Chengchi University
n.d.	no date
NDC	National Development Council
NEGZ	Nationales E-Government Kompetenzzentrum
NGO	Non-Governmental Organization
NSTC	National Science and Technology Council
NTU	National Taiwan University
OCF	Open Culture Foundation
OECD	Organisation for Economic Co-operation and Development

OSM	OpenStreetMap
PDF	Portable Document Format
PDIS	Public Digital Innovation Space
PFI	Private Finance Initiative
PoC	Proof of Concept
PPP	Public-Private Partnership
PwC	PricewaterhouseCoopers
RegTech	Regulatory Technology
RVI	Rechts- und Verwaltungsinformatik
SCSE	Smart City Summit & Expo
SME	Small and Medium-Sized Enterprise
SPRIND	Federal Agency for Breakthrough Innovation
SQ	Guiding Research Subquestion
SupTech	Supervisory Technology
TCA	Taiwan Computer Association
Tech	Technology
TIER	Taiwan Institute of Economic Research
TOGI	The Open Government Institute
TRL	Technology Readiness Level
TryAI	Government AI Trial Platform
TSMC	Taiwan Semiconductor Manufacturing Company
USD	United States Dollar
UX	User Experience
VC	Venture Capital
WEF	World Economic Forum

List of Symbols

M	Mean
n	Number of experts who provided an analyzable response for the respective factor
SD	Standard deviations

1 Introduction

1.1 Relevance and Problem Statement

In an era of global polycrises, ranging from an aging society to the global security situation, modern states stand at a critical turning point (Hoekstra et al. 2023, p. 280). They must radically increase their performance while their own resources and capacities are diminishing (OECD 2025, p. 3). While citizens and businesses experience the efficiency of the platform economy in their everyday lives (Wiesche & Heimburg 2024, p. 117 et seq.), the public sector in Germany often still operates within analog administrative structures dating back to the 18th century (Habbel 2025, p. 3). Bureaucratic structures, political decision-making processes, and regulatory requirements for digital technologies create tensions in public organizations between existing organizational logics and digital innovation (Guggenberger et al. 2026, p. 4). In international comparison, Germany uses the potential of digitalization less effectively and, as a result, also loses innovative capacity (Ahrend et al. 2024, p. 1).

The consequences are not limited to efficiency losses within public administration but affect the very core of democratic legitimacy. When public services are slow, difficult to understand, or hard to access (Graf von Koenigsmarck & Jünger 2022), the state is experienced not as an enabling institution but as an obstacle. In Germany, this diagnosis is also supported by empirical evidence: The eGovernment MONITOR 2024 shows that only 19 percent of respondents consider public authorities to be as efficient as private-sector companies, and only 16 percent feel that the state makes their lives easier (Initiative D21 & Technical University of Munich 2024, p. 13).

In the context of global systemic competition with authoritarian governance models (Riedel 2023, pp. 4–5), Germany must demonstrate that digital innovation under democratic, federal, and rule-of-law conditions can not only be regulated but also effectively shaped. Against this background, the question arises as to how the state's problem-solving capacity can be reorganized in order to perform public tasks more quickly and effectively with the help of digital innovations.

With regard to this question, Government Technology (GovTech) is gaining increasing importance in both research and practice. GovTech refers to technological innovations for the public sector that emerge within GovTech ecosystems through collaboration between public institutions and external actors such as startups, established companies, academia, and civil society (Hoekstra et al. 2023, p. 280).

GovTech can strengthen state capacity, contribute to digital sovereignty, and promote democratic participation and transparency (Hoekstra et al. 2023, p. 284; OECD 2024a, p. 21). The World Economic Forum (WEF) also underscores this relevance from an economic perspective: The global GovTech market is projected to grow from approximately USD 660 billion in 2025 to about USD 1.42 trillion in 2034 (World Economic Forum 2025, p. 9). At the same time, a potential public value[1] of USD 9.8 trillion is projected by 2034, encompassing cost reductions in the areas of efficiency, transparency, and sustainability (ibid., p. 12).

In Germany, too, the relevance of GovTech is increasingly being recognized. Since the question of how to reorganize state innovation and problem-solving capacity is relevant to modern states more broadly, an international perspective offers the opportunity to gain additional insights into the success factors of high-performing GovTech ecosystems and to learn from them. Taiwan provides a particularly suitable case for such an analysis. In the World Bank's GovTech Maturity Index (GTMI), the country is assigned to the highest maturity group and has a democratic system of government (World Bank 2025, p. 7). In addition, Taiwan exhibits particularly strong collaboration between the state and civil society through CivicTech initiatives such as g0v, while CivicTech approaches[2] continue to lag behind other GovTech areas internationally (Ho 2022, p. 6; World Bank 2025, p. 4). With approximately 10 percent of Germany's land area and about 28 percent of its population, Taiwan is considerably smaller[3]. This lower level of spatial and demographic complexity makes the country particularly suitable from an analytical perspective for examining GovTech not only through individual projects but as an interconnected ecosystem.

This paper does not aim to directly transfer Taiwanese structures, but rather to identify mechanisms and conditions for success whose applicability to the further development of the German GovTech ecosystem is critically examined. This leads to the following research question:

> Which success factors shape the emergence of technological innovations in Taiwan's GovTech ecosystem, and to what extent can recommendations for the further development of the German GovTech ecosystem be derived from them?

---

1 The potential of GovTech is often measured primarily in terms of market size or returns on investment. Public value additionally captures the broader economic and societal returns of a comprehensive GovTech transformation (WEF 2025, p. 12).

2 CivicTech approaches include, for example, participation platforms, feedback mechanisms, open data portals, and open government portals (World Bank, 2025 pp. 4, 15).

3 Author's own calculation based on data from the Ministry of Foreign Affairs, Republic of China (Taiwan), 2024; National Statistics, Republic of China (Taiwan), 2026; Federal Statistical Office, 2025a, 2025b.

Given the thematic breadth and conceptual complexity of the research topic, the research question is addressed through three guiding research subquestions (SQs).

SQ1 Which actors shape Taiwan's GovTech ecosystem, and how are their collaborations organized?

SQ2 Which success factors foster the development and scaling of GovTech innovations in Taiwan's GovTech ecosystem?

SQ3 To what extent are the identified mechanisms and success factors applicable to the further development of the German GovTech ecosystem?

1.2 Structure of the Paper

Following the introduction, Chapter 2 provides the theoretical grounding of key concepts and derives a working definition of GovTech ecosystems. Chapter 3 outlines current initiatives within the German GovTech ecosystem as a reference context. Chapter 4 explains the scientific methodology. Chapter 5 discusses the empirical findings on Taiwan's GovTech ecosystem: Chapter 5.1 clarifies the understanding of GovTech in Taiwan, while Chapters 5.2 and 5.3 address SQ1 through actor mapping and an analysis of collaboration mechanisms. Chapters 5.4 and 5.5 address SQ2 by identifying success factors and mechanisms for bridging the "valley of death." Chapter 5.6 examines strategic options for state action and thereby prepares the ground for Chapter 6, which addresses SQ3 by deriving recommendations for Germany. Chapter 7 summarizes the findings, reflects on the limitations, and provides an outlook.

2 Theoretical Foundations

Since a widely accepted definition of GovTech has yet to emerge, this chapter first provides an overview of key definitional approaches and, on this basis, establishes the understanding of GovTech adopted in this paper. In addition, it introduces a practice-oriented perspective on GovTech and explains further concepts that are central to the analysis. GovTech ecosystems are then theoretically contextualized to derive the working definition of GovTech ecosystems used in this paper.

2.1 Key Concepts

2.1.1 GovTech

In a survey conducted by PUBLIC (2021, p. 7), only 12 percent of respondents from the public sector were able to provide a definition of GovTech. Although various definitional approaches have since emerged, a widely accepted definition of GovTech is still lacking (Niehaves et al. 2025, p. 7). Consequently, a consistent delineation from related concepts such as Electronic Government (eGov) and Digital Government (DigitalGov) also remains unresolved.

Part of the literature adopts a narrow conception of GovTech. Filer (2019, p. 7) identifies the central objective of GovTech as making the public sector more innovative, efficient, and responsive through digital and emerging technologies, with these technologies being provided primarily by startups and innovative small and medium-sized enterprises (SMEs), including scale-ups. Bharosa (2022, p. 1) defines GovTech as "socio-technical solutions – that are developed and operated by private organisations – intertwined with public sector components for facilitating processes in the public sector." Niehaves and Bauer (2025, p. 5) likewise adopt a narrow definition of GovTech, focusing on startups that develop and provide digital solutions for public administrations.

For this paper, however, such a narrow understanding appears too limited, as it excludes GovTech solutions developed, for example, by established technology companies or civil society initiatives. By contrast, international policy and practice-oriented contributions adopt a broader understanding of the concept. The World Bank (2025, p. 2) understands GovTech as a whole-of-government modernization approach aimed at simple, efficient, and transparent public administration as well as citizen-centricity. The OECD (2024b, p. 10) emphasizes the collaborative nature of GovTech and, in addition to startups, includes innovators, intrapreneurs within public administration, and academia in the development of digital solutions for government and public administration. In a study published by the European

Parliament, Hoekstra et al. (2022, p. 15) emphasize that GovTech products can be developed not only by private companies but also by public administrations, citizens, and nonprofit organizations. The World Economic Forum and Capgemini (2025, p. 28) place greater emphasis on the impact dimension and understand GovTech as the use of technology-based products and services to enhance the efficiency, effectiveness, and accessibility of public institutions, as well as to develop and scale solutions within public-sector ecosystems.

To systematize the different definitional approaches, Niehaves and Bauer (2025, p. 14) distinguish between three levels of definition (see Table 1).

Level 1 Definitions	General technology in government as a continuation of Electronic Government and digitalization, encompassing all provider groups, including public actors, private companies, startups, and incumbent providers.
Level 2 Definitions	Technology in the public sector that is developed or provided with the involvement of external partners.
Level 3 Definitions	Technology in the public sector that is developed or provided by external partners, particularly startups.

Table 1: Overview of Key GovTech Definitional Approaches
Source: Author's own illustration based on Niehaves & Bauer (2025, p. 14)

To define GovTech as precisely as possible from an analytical perspective without restricting it to startups, this paper adopts a working definition based on Level 2. Accordingly, GovTech refers to technological innovations for the public sector that often emerge through collaboration between government institutions and external actors. Table 2 provides a practice-oriented overview of potential GovTech application areas.

Category	Examples of GovTech Applications
Digital Citizen Services & Electronic Government	Administrative portals, digital application processes, online citizen services
Administrative Automation & Process Optimization	Document management, AI-based assistance systems, workflow automation, workforce management
Data Management, Analytics & Decision Support	Open data platforms, smart data, registry and data management, monitoring systems, decision-support systems
Digital Infrastructure & Cloud Solutions	Cloud infrastructure for public administrations, interoperability platforms, open APIs, digital public infrastructure, open source/public code
Participation, Transparency & CivicTech	Participation platforms, citizen feedback systems, CivicTech, open government platforms, digital communication and consultation formats
Security & Identity Management	Digital identity, authentication, cybersecurity, data security, protection of public registers
Smart City & Infrastructure	Traffic management, public transport planning, energy and grid management, environmental monitoring, waste management, infrastructure planning
Defense, Public Safety & Crisis Management	DefTech, civil protection systems, deployment and resource planning, crisis information systems, security-related data analytics
Health & Social Services	HealthTech, infectious disease control systems, public health dashboards, digital care applications
Regulation, Supervision & Compliance	RegTech, SupTech, LegalTech, compliance systems, digital supervisory tools

Table 2: GovTech Application Areas[4]
Source: Author's own illustration based on GovTech Analytics (2024, p. 12) and Bharosa (2022, p. 3)

2.1.2 CivicTech

Civic Technology (CivicTech) refers to a form of citizen participation in which information and communication technologies (ICT) are designed, critically reflected upon, and applied to address political issues and to improve community life and the digital infrastructures of public administration (Schrock 2016, p. 583; Lee 2026, p. 9). In doing so, CivicTech challenges the notion that citizens' political participation is limited to elections and that the provision of public services is subsequently left entirely to the state. Instead, accessible and practically usable ICT tools are intended to foster participation in public affairs.

[4] This overview is not intended as an exhaustive taxonomy. The application areas may overlap and are considered relevant to GovTech when they involve technological innovations for the public sector.

CivicTech innovations address a wide range of issues, including anti-corruption, political supervision, social welfare, human rights, disaster management, cultural preservation, sustainable development, and environmental protection (Lee 2026, p. 9). A key potential of CivicTech lies in establishing open collaboration between civil society and government, which can challenge hierarchical-bureaucratic modes of public service delivery (Lee 2026, p. 10). The form this interaction takes can vary, ranging from a mere flow of information between government agencies and CivicTech communities to fully enabling public administrations to jointly implement innovative projects and institutionalize them on a lasting basis (Chou 2026, p. 7). In this sense, CivicTech is often understood as a bottom-up movement that, through the use of open-source solutions[5] and technological optimism, translates societal problems into solvable technical challenges (Ho 2022, pp. 5–6).

CivicTech and GovTech are not synonymous, but they do overlap. In this paper, CivicTech is considered part of GovTech when technological solutions developed by civil society address public-sector tasks and are co-developed, adopted, or used by public institutions. By contrast, purely civil society–driven technology projects without a connection to public institutions remain CivicTech but are not automatically considered GovTech. This classification is consistent with broader understandings of GovTech that also recognize citizens and nonprofit organizations as potential developers of GovTech solutions (Hoekstra et al. 2022, p. 14).

2.1.3 Innovation

The understanding of innovation adopted in this paper is defined along both organizational and substantive dimensions. From an organizational perspective, the focus is on externally organized innovation processes in which innovation emerges through the involvement of different partners (Davila et al. 2006, p. 100). Substantively, the paper is limited to technological innovations for the public sector. GovTech innovations include both entirely new ideas, products, and services and those whose broader introduction or specific application in the public sector is novel (Filer 2019, p. 8). In this paper, the further development of existing technological solutions in the public sector is also considered innovation.

[5] Open source refers to a type of software whose source code is made publicly available (Fraunhofer Institute for Experimental Software Engineering IESE 2025).

2.2 GovTech Ecosystems as a Theoretical Concept

This paper follows the approach of Hoekstra et al. (2023, p. 281) and conceptualizes GovTech ecosystems by drawing on the literature on Digital Governance and Innovation Ecosystems. This conceptual framework is complemented by the "Valley of Death" concept in the context of the Technology Readiness Level model, as the transition from experimentation to scaling and widespread adoption in the public sector is also relevant to the analysis of GovTech ecosystems. Building on this theoretical grounding, a working definition of GovTech ecosystems is derived.

2.2.1 Digital Governance

Digital Governance can be defined as the use of information technology to improve government operations and enhance interaction with citizens (Lindgren & van Veenstra 2018, p. 1). Its primary objective is to transform public administration toward more responsive public services and processes (Milakovich 2012, p. 15 et seq.). While Digital Governance focuses on how the public sector uses digital technologies to address societal challenges or improve political decision-making (Poel et al. 2018, p. 347 et seq.), the related concept of GovTech focuses more specifically on the actual development, provision, and maintenance of technology by different actors. A key element of this governance perspective is the recognition of underlying interdependencies, through which ecosystems emerge in which multiple organizations must collaborate to establish specific technologies on a lasting basis (Zang 2021, pp. 16–17; Bharosa 2022, pp. 2–3).

2.2.2 Innovation Ecosystems

An innovation ecosystem describes the collaborative efforts of a diverse group of actors toward innovation, with suppliers providing components, organizations offering complementary services, and customers generating the necessary demand and capabilities (Dedehayir et al. 2018, p. 18). A central characteristic of such ecosystems is the interdependence among participants, as the success of innovative firms is significantly influenced by the efforts of other innovators in their immediate environment (Adner & Kapoor 2010, p. 310). Within these systems, the state plays an active role by fostering their development through policy frameworks and innovative public procurement mechanisms (Hoekstra et al. 2023, p. 281). A coordinating actor is often crucial to the initiation and governance of such networks (Susha et al. 2023, p. 14).

2.2.3 Technology Readiness Levels & Valley of Death

The Technology Readiness Level (TRL) framework describes the maturity of technological innovations from the observation of basic principles (TRL 1) to deployment in an operational environment (TRL 9) (Mankins 1995, p. 3; Neves Voltan et al. 2024, pp. 3–4). Although the framework was originally developed by NASA, it is now also widely used in the public sector (Héder 2017, pp. 18–19). Table 3 provides an overview of the nine levels of the TRL framework.

TRL 1	Basic principles observed
TRL 2	Technology concept formulated
TRL 3	Experimental proof of concept
TRL 4	Technology validated in laboratory
TRL 5	Technology validated in relevant environment
TRL 6	Technology demonstrated in relevant environment
TRL 7	System prototype demonstration in operational environment
TRL 8	System complete and qualified
TRL 9	Actual system proven in operational environment

Table 3: Technology Readiness Levels
Source: Author's own illustration based on Héder (2017, p. 11).

A central challenge in this process is the so-called Valley of Death, which is illustrated schematically in Figure 1. The metaphor describes the critical phase between research and development and the transition to a market-ready application. This phase is often characterized by a funding gap: technological solutions are already sufficiently developed to demonstrate their basic functionality, but they still lack the organizational, financial, or market-related conditions required for widespread adoption (Markham et al. 2010, p. 403 et seq.; Niehaves et al. 2026). In terms of the TRL scale, this means that although excellent results are often achieved in basic research at low TRLs, they are not translated to a sufficient extent into market-ready applications at high TRLs (Neves Voltan et al. 2024, pp. 3–4).

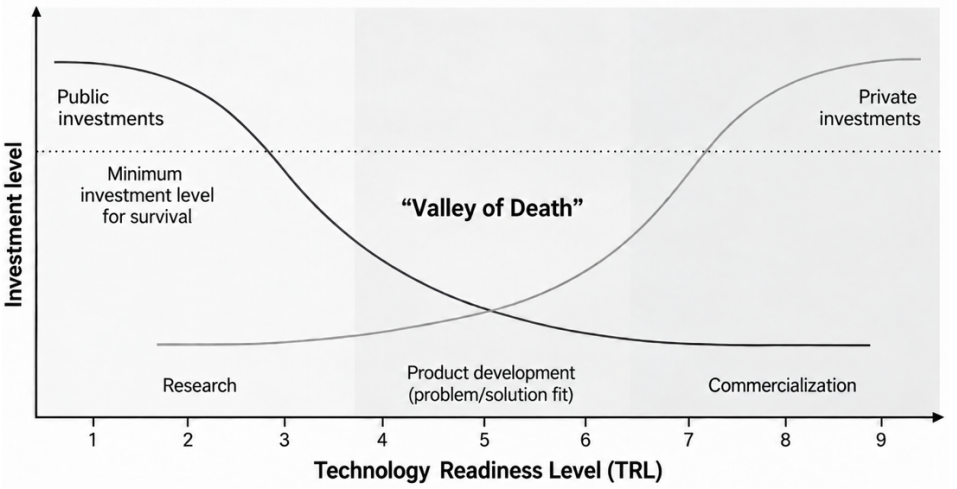


Figure 1: Schematic Illustration of the Valley of Death across the Technology Readiness Levels
Source: Author's own illustration based on Dinnessen et al. (2025, p. 25) and Hensen et al. (2015, p. 59).[6]

For the GovTech sector, this Valley of Death constitutes a major barrier. GovTech startups are typically supported by public funding programs only up to the development of a pilot product. At that stage, a pilot exists, but it has not yet become a commercially viable market product (Daßler et al. 2025, pp. 10–11; Niehaves et al. 2026). This is where the central financing problem arises. For conventional public funding programs, the startup is already considered too advanced because the formal development and testing objectives have been achieved. On the private investment side, venture capital investors[7], by contrast, typically invest only once a company can demonstrate a scalable business model, recurring revenues, and credible growth prospects. GovTech startups often lack precisely these conditions because public-sector demand emerges only through formal procurement procedures, budgetary decisions, and political priority-setting.

The state therefore often procures new solutions only once they are considered low-risk, tested, and market-ready (Niehaves et al. 2026). This creates a contradictory situation: private investors wait for public contracts as evidence of market traction, while public contracting authorities wait for market maturity and references before procuring. Yet GovTech startups can hardly build precisely these references and demonstrate market maturity without

[6] The curves conceptually illustrate typical financing and scaling challenges in the transition from research through product development to commercialization or institutional adoption.

[7] Venture capital (VC) refers to a form of equity financing in which professional investors provide capital to young, innovative companies with high growth potential in order to generate returns from their subsequent increase in value (Drover et al. 2017, p. 4).

securing their first larger public contracts. As a result, promising solutions remain at the pilot stage even though they are substantively relevant and technically viable in principle (Niehaves et al. 2026). The existence of mechanisms to bridge this Valley of Death therefore represents a central functional aspect of GovTech ecosystems.

2.2.4 Working Definition of GovTech Ecosystems

Based on these concepts, a GovTech ecosystem can be understood as a functional network that applies the collaborative logic of an innovation ecosystem to the specific transformation goals of Digital Governance (Hoekstra et al. 2023, p. 282).

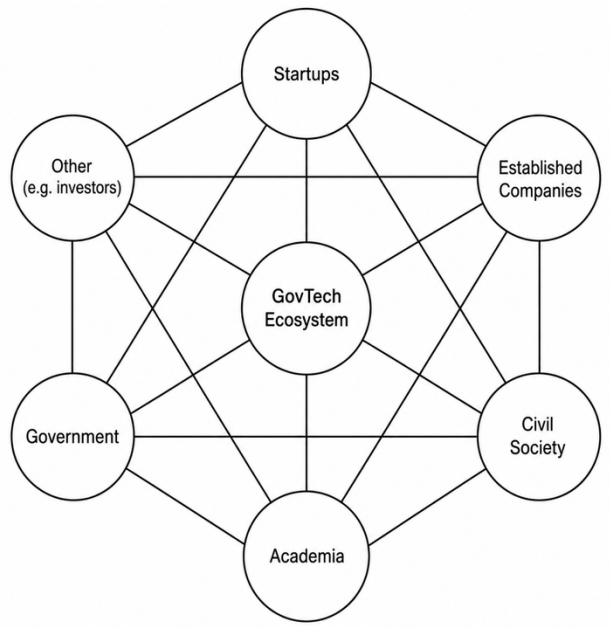


Figure 2: Actor Groups in GovTech Ecosystems
Source: Author's own illustration

In this paper, a GovTech ecosystem is defined as a network of public administrations, startups, established companies, civil society actors, academia, and other actors such as investors that jointly develop technological solutions to governmental and societal challenges (see Figure 2). The core idea of such an ecosystem is that it extends beyond a conventional supplier–customer relationship and is instead based on co-creation and the bridging of structural barriers between the public sector and innovative technology providers (Hoekstra et al. 2023, p. 282). In light of the Valley of Death, a mature GovTech ecosystem must also have the structural capacity to facilitate

the transition from piloting to scaling and widespread adoption in the public sector.

2.3 State of Research and Research Gaps

Although the development of GovTech ecosystems is becoming increasingly important in practice, the topic remains a relatively young field of academic research that has not yet been fully consolidated conceptually. Key contributions have initially sought to structure the field through research agendas (Bharosa 2022; Niehaves et al. 2025; Bauer et al. 2026).

Alongside these contributions, the first empirical case studies of GovTech ecosystems have emerged. Hoekstra et al. (2023), for example, examine success factors and barriers in GovTech ecosystems in the Netherlands and Lithuania. Another relevant ecosystem analysis is provided by the Índice GovTech 2024, which examines GovTech ecosystems in Ibero-America using 30 indicators across the dimensions of innovation, governance, and collaboration (Zapata et al. 2024). In their study Europe's Digital Future, Niehaves and Bauer (2025) analyze GovTech ecosystems with a focus on startups as providers of digital solutions for public administrations.

In addition, insights relevant to GovTech are often not discussed explicitly under the GovTech label but instead emerge in adjacent debates on public-private partnerships (PPPs), digital innovation in public administration, or innovation ecosystems. In this regard, the work of Guggenberger et al. (2026) is particularly relevant, as they examine how digital innovations for the public sector can emerge when no single actor possesses all the resources and capabilities required to develop them. Their concept of digital innovation clusters describes smaller, use-case-driven configurations within broader public-private networks (Guggenberger et al. 2026, p. 9). The study thus addresses key dynamics of GovTech ecosystems without explicitly framing them as such.

In their Delphi-based research agenda on GovTech ecosystems, Bauer et al. (2026, p. 16) distinguish between research gaps related to hard factors concerning institutional structures and soft factors concerning social structures. By examining the Taiwanese GovTech ecosystem, this paper provides relevant insights into several of the research gaps identified in this context. Bharosa (2022, p. 5) further points out that the role of CivicTech actors in GovTech ecosystems has not yet been sufficiently investigated. This paper also provides relevant empirical insights into this research gap.

3 Current Initiatives in the German GovTech Ecosystem

In this paper, the German case does not serve as a second empirical case but rather as a reference context for critically assessing the applicability of the success factors and mechanisms identified in Taiwan. The following section presents selected key initiatives within the German GovTech ecosystem without claiming to provide a comprehensive mapping of actors or programs.

GovTech Deutschland is designed to serve as a central actor at the operational interface between public administration and the tech ecosystem, with the aim of making digital solutions available for use more quickly across levels of government. To this end, it connects actors from public administration, technology, and research, supports the development and scaling of specific solutions, and provides a shared technological foundation through the GovTech Framework (GovTech Deutschland n.d.). At the federal level, the Federal Ministry for Digital Transformation and Government Modernisation (BMDS) is also using the Agentic AI Hub to pilot collaboration between municipalities and AI startups and is planning a dynamic purchasing system to provide a pathway for scaling vetted AI solutions (Hauptmann 2026).

At the regional level, GovTecHH in Hamburg follows a Venture Clienting model, in which public administration identifies specific needs, searches for suitable startup solutions, and supports pilot projects (Free and Hanseatic City of Hamburg n.d.). In Baden-Württemberg, InnoLab_bw is advancing technological transformation, among other initiatives, through F13, an AI assistant for public administration that was developed as a prototype together with the startup Aleph Alpha and has been available as open-source software for reuse by federal, state, and local governments since July 2025 (State Ministry of Baden-Württemberg 2023, 2025). These approaches are complemented by regional research and innovation ecosystems such as Cyber Valley in Tübingen and Stuttgart and the Innovation Park Artificial Intelligence (IPAI) in Heilbronn, which brings together established large corporations, hidden champions, and AI startups and offers training programs for public administrations (Cyber Valley n.d.; Ministry of Economic Affairs, Labour and Tourism Baden-Württemberg n.d.).

Notably, the currently visible initiatives within the German GovTech ecosystem are primarily focused on research and innovation infrastructure and on collaboration between public administrations and startups. Collaboration between CivicTech and public administration in Germany is described in several sources as still relatively weak. Among the reasons cited are an established administrative culture in which citizen participation is only weakly

institutionalized and a limited open data culture[8] (Bieber et al. 2024, pp. 4–5; g0v Jothon & Contributors n.d., pp. 105–106). At the same time, several initiatives by the BMDS and the Federal Agency for Breakthrough Innovation (SPRIND) are beginning to address this gap (Hauptmann 2026; SPRIND n.d.).

The most recent initiative at the intersection of citizen participation, GovTech, and public-sector modernization is "Deutschland, was geht?" Initially, citizens and businesses were invited to submit their everyday experiences and ideas for modernization. As of July 13, 2026, the initiative is in the voting phase, during which participants prioritize which challenges should be addressed first. This is to be followed by a citizen hackathon in which interdisciplinary teams from technology, academia, public administration, and civil society will develop concrete innovations. The most promising approaches will receive financial support and mentoring, as well as the opportunity to present their solutions in a ministerial pitch. Selected solutions are intended to be put into practice (SPRIND 2026a; SPRIND 2026b; BMDS 2026).

[8] Open data refers to datasets that are made freely accessible to society in the public interest without any restrictions on their use, redistribution, or reuse (von Lucke & Geiger 2010, p. 3).

4 Methodology

4.1 Research Design and Case Selection

The research design follows a qualitative single-case study approach, which is particularly suitable for examining complex, context-dependent, and thus far relatively underexplored phenomena (Gerring 2017, p. 28 et seq.).

Building on the relevance of the case outlined in Chapter 1.1, Taiwan is methodologically classified as a deviant case because it represents an analytically relevant deviation from a general pattern of expectations (Gerring 2017, pp. 105–106). While the CivicTech dimension of GovTech ecosystems is often less developed and the GTMI 2025 identifies "Digital Citizen Engagement" as the least mature GovTech component globally (World Bank 2025, p. 10), this dimension represents a particular strength of Taiwan (Ho 2022, p. 4 et seq.). Both Taiwan and Germany are assigned to the highest level of GovTech maturity in the GTMI 2025 (World Bank 2025, p. 7). The analytical value of the case therefore lies less in complete structural comparability and more in examining a democratic, digitally advanced, yet differently successful GovTech ecosystem from which potential lessons for Germany can be derived.

The empirical data consist of semi-structured expert interviews complemented by a document analysis. The collection and analysis of these data are described in the following sections.

4.2 Expert Interviews

Expert interviews are suitable for studies in which individuals possess specific contextual and experiential knowledge based on their professional function, institutional position, or practical experience (Gläser & Laudel 2010, pp. 12, 105). This method is particularly suitable for the present paper because Taiwan's GovTech ecosystem is characterized by complex institutional, organizational, and actor-related interrelationships that cannot be fully captured through publicly available sources (Gerring 2017, p. 28 et seq.). The research interest therefore lies not in statistical generalizability, but in an in-depth analysis of a specific case and its contextual particularities (Kaiser 2014, p. 71). Following Bogner et al. (2009), the interviews conducted can be classified as systematizing expert interviews. These aim to systematically capture practice-based knowledge of actions and experiences and make it accessible for scientific analysis. Interviewees are understood as holders of specialized knowledge that would not be available in the same way without access to the field (Bogner et al. 2009, pp. 64–65). For the present analysis, the interviews enable a structured examination of different perspectives on

Taiwan's GovTech ecosystem and can be combined with the complementary document analysis (see Chapter 4.4), allowing the interview findings to be placed in a broader context (Bogner et al. 2009, p. 65).

4.3 Conduct and Analysis of the Expert Interviews

4.3.1 Development of the Interview Guide

The interviews were conducted using a semi-structured interview guide. Semi-structured interviews make it possible to gather targeted information on the research topic while ensuring a certain degree of comparability across interviews (Gläser & Laudel 2010, p. 43; Kaiser 2014, p. 30 et seq.). The semi-structured format ensures that key topics are addressed in all interviews while allowing the sequence, specific wording, and follow-up questions to be adapted flexibly to the respective interview situation (Gläser & Laudel 2010, pp. 111, 151). The interview guide was derived from the research question, the guiding research subquestions, and the theoretical foundations of the paper (see Chapter 2). Operationalizing the research question through interview questions makes it empirically researchable (Gläser & Laudel 2010, p. 113; Kaiser 2014, p. 55). Table 4 maps the interview questions to the guiding research subquestions and makes transparent how the research questions were operationalized in the interview guide. The interview guide is provided in Appendices 1 to 3.

Guiding Research Subquestion	Assigned Interview Questions
SQ1: Which actors shape Taiwan's GovTech ecosystem, and how are their collaborations organized?	3.1; 3.2.1-3.2.5; 3.3; 3.4; 3.5
SQ2: Which success factors foster the development and scaling of GovTech innovations in Taiwan's GovTech ecosystem?	4.1; 4.2; 4.3; 4.4; 5.1; 5.2; 6
SQ3: To what extent are the identified mechanisms and success factors applicable to the further development of the German GovTech ecosystem?	4.2; 5.1; 5.2; 6; 7.1; 7.2

Table 4: Operationalization of the Guiding Research Subquestions
Source: Author's own illustration

Because the term GovTech and the understanding of GovTech ecosystems are not used consistently, as discussed in Chapters 2.1.1 and 2.2.4, the working definitions developed there served as the basis for designing the interview guide and for the subsequent analysis. In addition, interviewees' understanding of GovTech was explored to examine how the term is understood and used in the Taiwanese context. The questions were formulated openly to allow interviewees to set their own priorities. Such openness is central to qualitative interviews because it can reveal interviewees' own systems of relevance and incorporate unexpected aspects into the analysis

(Gläser & Laudel 2010, pp. 42, 115; Petersen 2014, p. 64). The interview guide allowed for follow-up questions and adjustments over the course of the interview (Gläser & Laudel 2010, p. 42).

In preparation for data collection, an estimated response time was assigned to each question and aggregated to determine the expected overall duration of the interview. The guide was subsequently pretested in three rounds involving a total of ten individuals. The pretests were used to assess the comprehensibility, clarity, thematic sequence, and time requirements of the questions (Brinkmann & Kvale 2018, p. 39 et seq.). The feedback was evaluated and incorporated into the final version of the interview guide.

The original interview guide was prepared in English, as English was intended to serve as the common language between the author and the interviewees and the author does not use Mandarin as a working language (see Appendix 1). In one case, a German-language version of the interview guide was used (see Appendix 2). For interviewees who felt more comfortable expressing themselves in Mandarin, an additional Mandarin version of the interview guide was prepared (see Appendix 3). This version was intended to facilitate comprehension of the questions and enable responses to be as precise as possible. The actual conduct of the interviews is described in Chapter 4.3.2. The Mandarin version was created using DeepL in Guóyǔ (國語), the form of Standard Mandarin used in Taiwan, and in traditional Chinese characters (繁體中文). It was subsequently cross-checked using additional AI-based language models, particularly ChatGPT and Claude, to reduce linguistic and terminological ambiguities.

4.3.2 Selection of Interviewees and Conduct of the Interviews

Interviewees were selected through a combination of targeted preliminary research and snowball sampling (Neumann et al. 2024, p. 3698). Initially, 15 potential interviewees were identified. This selection was based on a systematic LinkedIn search (Bauer et al. 2025, p. 17) and an analysis of publicly available documents, programs, and contributions from the Smart City Summit & Expo Taipei. Selection was guided by three criteria: affiliation with relevant actor groups within the GovTech ecosystem (see Chapter 2.2.4), the broadest possible regional and institutional diversity within Taiwan, and the expected ability of the respective individuals to provide overarching assessments of the research topic.

Potential interviewees were contacted by email, LinkedIn, and online contact forms where no direct contact information was available. To facilitate access to the field, selected individuals were initially contacted by Prof. Dr. Jörn von Lucke, Professor at Zeppelin University in Friedrichshafen and Director of The Open Government Institute (TOGI). This initial contact briefly outlined the research project, its relevance, and the request for support. The author

subsequently contacted the respective experts directly to arrange an interview of approximately one hour.

At the end of each interview, participants were asked, in line with the snowball sampling approach, to recommend other relevant experts from their networks (Neumann et al. 2024, p. 3698). The recommended individuals were either contacted using the same procedure or contact was established directly by the person who had made the recommendation. In total, 34 individuals were contacted, resulting in nine expert interviews. Given the limited number of cases, the sample does not claim to provide a comprehensive representation of Taiwan's GovTech ecosystem but rather serves to facilitate an in-depth analysis of selected expert perspectives.

Table 5 shows the assignment of interviewees to different expert categories. Individual interviewees may be assigned to more than one category. This multiple assignment is methodologically appropriate because relevant actors frequently operate at the interfaces between politics, public administration, business, academia, and civil society and can therefore assess the research topic from different perspectives. The final sample thus covers key actor groups within Taiwan's GovTech ecosystem and enables a multidimensional analysis of the research topic (Brinkmann & Kvale 2018, p. 152).

Expert Category	E1	E2	E3	E4	E5	E6	E7	E8	E9
CivicTech	•			•	•			•	•
Startups				•					•
Public Administration					•	•			
Government	•								
Academia	•	•							
Intermediaries[9]	•		•		•		•		

Table 5: Distribution of Interviewees by Expert Category
Source: Author's own illustration

Data collection was conducted on the basis of the interview guide described above. Due to the geographical distance between Germany and Taiwan, the oral interviews were conducted online. Written expert interviews were additionally used when a synchronous interview was not practical for scheduling, organizational, or language-related reasons. This format provided greater flexibility for the participation of high-ranking key actors in particular and was also used in cases where written responses were expected to enable more precise professional expression.

[9] Intermediaries are defined in this paper as mediating actors or structures that facilitate collaboration between different actor groups.

For written interviews, follow-up questions were clarified in writing or by telephone. This approach was intended to preserve, as far as possible, the opportunity to clarify and explore individual statements in greater depth that is characteristic of oral interviews (Brinkmann & Kvale 2018, p. 57 et seq.). Initial contact was generally made in English. The interviews or written responses were then conducted in the language in which the respective interviewee felt most confident expressing themselves professionally. In one case, an attempt was initially made to conduct an online interview in Mandarin using AI-based real-time translation software. As the software proved insufficiently reliable, particularly for technical terminology and complex contexts, the interview was discontinued and subsequently conducted in writing in Mandarin.

The expert interviews were conducted between March 21, 2026, and May 8, 2026 (see Appendix 4). Before the interviews began, participants were informed about the purpose of the study, the use of the data, and the procedures for anonymization and confidentiality. The online interviews were recorded with the consent of the interviewees and subsequently transcribed.

4.3.3 Transcription and Preparation of the Material

The dataset comprises a total of nine expert interviews, five conducted online and four in writing. The recorded interviews have a total duration of 5 hours and 56 minutes. For the subsequent analysis, they were first transcribed verbatim using the transcription software Speechmind[10] so that they could be analyzed as part of the qualitative content analysis (see Chapter 4.3.4) (Brinkmann & Kvale 2018, p. 105 et seq.). During subsequent preparation of the material, linguistic irregularities, filler words, and minor grammatical disruptions were edited to improve readability, provided that these changes did not alter the meaning of the statements (Bogner et al. 2014, p. 92 et seq.).[11] The written interviews were included in the material corpus in their original form and analyzed together with the transcripts of the oral interviews.[12] Responses from Mandarin-language interviews were translated into German for the analysis. In total, the empirical material comprises 170

[10] Speechmind was developed as a GovTech solution for public administration and is specifically designed to comply with data protection requirements.

[11] The audio files accompany this paper. To enable objective verification, the presentation of the results refers to the corresponding interview sequences using timestamps. All interviewees consented to the audio recording.

[12] The interview forms are included with this paper in their original, unaltered form. Supporting evidence is cited by page number; for responses provided in Mandarin, these references correspond to the accompanying German translation.

pages and was included in full in the qualitative analysis. All interviews were assigned the identifiers E1 to E9 during the analysis process.[13]

4.3.4 Qualitative Content Analysis

The interviews were analyzed using qualitative content analysis because this method enables qualitative material to be systematically condensed in a transparent and traceable manner (Mayring 2022, p. 22 et seq.). The analysis was structured around substantive thematic areas (codes) in order to identify comparable patterns, differences, and mechanisms across the material (Meuser & Nagel 1991, p. 451 et seq.).

Codes were developed through a combination of deductive and inductive approaches. Deductive codes were derived from the research questions, the theoretical working definition of GovTech ecosystems, and the interview guide. Inductive codes were added during the analysis of the material when recurring, theoretically relevant patterns emerged from the data (Mayring 2022, p. 60 et seq.). Selected passages were summarized in terms of their core meaning, abstracted, and assigned to the corresponding codes (Meuser & Nagel 1991, pp. 458–459). MAXQDA was used as a supporting tool to code relevant passages, structure the codes, and transparently document comparisons across interviews (Kuckartz 2007, p. 19).

In addition to the qualitative content analysis, two assessment questions concerning success factors of Taiwan's GovTech ecosystem were analyzed descriptively. Means (M) and standard deviations (SD) were used to illustrate relative prioritizations and levels of agreement among the experts (Bortz & Schuster 2010, p. 25 et seq.). This analysis complements the qualitative analysis without making any claim to statistical representativeness.

4.4 Document Analysis

In addition to the expert interviews, a document analysis was conducted. It serves the purpose of methodological triangulation by combining different data sources to provide a broader understanding of the research topic (Lamnek 2010, pp. 141–142). First, the analysis supports the exploration of the GovTech research field and the reconstruction of Taiwan's GovTech ecosystem. Second, it supports the identification of relevant actors, institutions, and initiatives as well as the development of the interview guide. Third, the written sources are used in Chapter 5 to contextualize, complement, and critically assess statements from the interviews. This reduces dependence on individual subjective assessments. The analysis primarily

[13] The corresponding assignments are provided in Appendix 4. Interviewees are identified by name or in a manner that unambiguously identifies their institution only with their explicit consent.

included Mandarin-language[14] and English-language documents. Documents are understood as written texts that record or provide evidence of an event or circumstance (Wolff 2008, p. 502), including, for example, academic literature, reports by international organizations, government documents, strategy papers, press releases, publications by civil society actors, and official websites. When evaluating the sources, consideration is given to the actor from which they originate and the purpose they serve.

[14] Mandarin-language sources are cited in the main text using translated short-form citations and are listed in a separate Mandarin-language reference list. Each entry first presents the English translation of the bibliographic information, marked "English translation", followed immediately by the original bibliographic entry in Chinese characters.

5 Discussion: Taiwan's GovTech Ecosystem

5.1 Understanding of GovTech in Taiwan

To contextualize the following analysis, this section first examines how the interviewed experts understand GovTech in the Taiwanese context, how they distinguish it from eGov and DigitalGov, how they conceptualize the GovTech ecosystem, and what potential they associate with GovTech.

5.1.1 GovTech as a Term

In the interviews, GovTech in Taiwan is not described as a clearly established or consistently used term. Instead, it is predominantly understood as an approach to technological innovation in the public sector that goes beyond merely digitizing existing public services. Central to this understanding is the assumption that public problems are no longer addressed by government alone but can be solved in collaboration with external actors such as startups, research institutions, companies, citizens, and, in particular, CivicTech communities (E1, p. 2; E6, p. 1; E3, 0:06:33; E2, 0:02:32).

A distinctive feature of Taiwan is that GovTech appears to be less of a primarily market- or startup-driven field of innovation and is instead strongly shaped by the historically evolved collaboration between the public sector and the CivicTech community, particularly g0v (E9, pp. 3–4). GovTech therefore describes less a specific technology than an active, strategic, and collaborative innovation process in which technological solutions to public problems are developed, tested, and integrated into government structures (E2, 0:03:02; E9, pp. 3–4).

A contrasting perspective, however, points out that GovTech can also be understood in part as a new term for already familiar phenomena such as the use of technology by government, innovation in public administration, or public-private collaboration (E5, 0:05:50).

5.1.2 Distinction from eGov and DigitalGov

In Taiwan, eGov is often defined as the mere transfer of analog services to the Internet or the digitization of existing procedures (E1, p. 2; E6, p. 1; E4, p. 1). DigitalGov, by contrast, describes the fundamental internal transformation of public administration and its processes according to a digital logic (E1, p. 2; E6, p. 1). The key distinction of GovTech lies in the state's recognition that it is no longer the sole problem solver, which is why GovTech describes the intensity of collaboration between the public sector and an external ecosystem in solving public problems (E9, p. 4; E6, p. 1). While eGov is often viewed as a passive process of technological adaptation, GovTech represents an active, strategic innovation process (E2, 0:03:02). While some

Western countries, according to one expert, have often followed a linear development path from eGov through DigitalGov to GovTech, Taiwan was able to partially skip this sequence through the early establishment of the g0v CivicTech community (see Chapter 5.2.2) and develop GovTech to a greater extent from civil society initiatives (E9, pp. 4–5).

5.1.3 GovTech Ecosystem as a Term

In the interviews, the term GovTech ecosystem is understood as a multi-actor innovation network that addresses public problems from their identification through the testing to the scaling of technological solutions. Central to this understanding is not only the presence of individual actors but their ability to collaborate: ministries, local administrations, startups, established providers, research institutions, CivicTech communities, and the public must be connected through appropriate interfaces, procurement channels, data infrastructures, and collaboration formats (E1, pp. 2–3; E3, 0:09:11; E9, pp. 5–6).

Several experts explicitly distinguish this understanding from a linear client-contractor logic: GovTech emerges not only through public procurement and private-sector implementation but through repeated negotiation of needs, capabilities, and solutions between the public sector and external actors (E6, p. 1; E2, 0:04:03).

Three patterns in particular can be distilled from the interviews as key functional conditions: first, bridging actors between public administration and the external ecosystem; second, open and machine-readable data as a technological foundation; and third, experimentation and scaling formats such as sandboxes, competitions, or long-term collaborative spaces (E4, pp. 1–2; E2, 0:04:03; E9, pp. 5–6). One expert describes the interconnection of these ecosystem components as a key prerequisite for ensuring that GovTech initiatives do not remain isolated pilot projects but can be transformed into lasting public-sector innovations (E1, pp. 2–3).

5.1.4 Potential of GovTech

Figure 3 presents the potential of GovTech in Taiwan identified in the expert interviews.

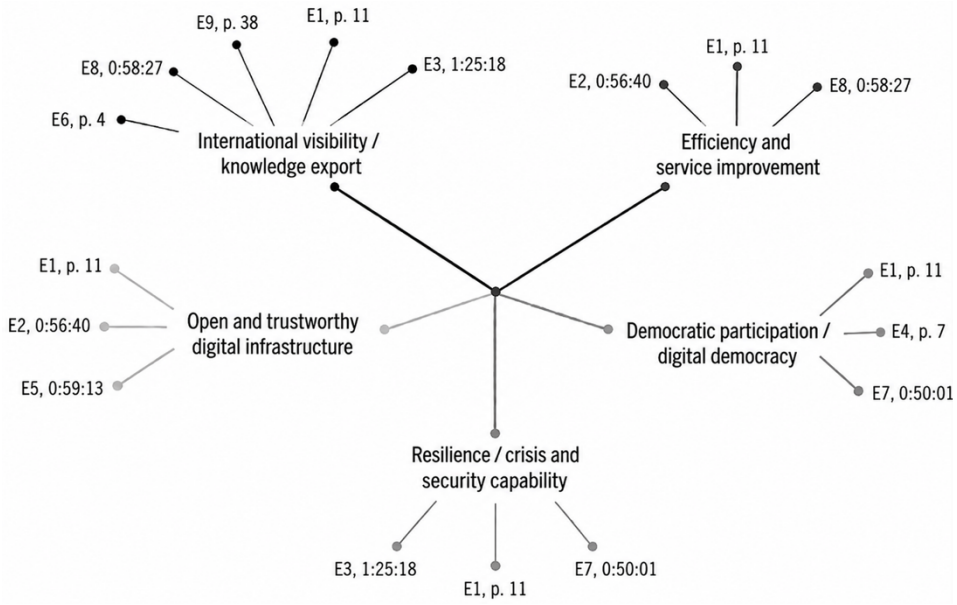


Figure 3: Potential of GovTech in Taiwan
Source: Author's own illustration based on the expert interviews

Notably, CivicTech-related aspects of this potential, such as "democratic participation/digital democracy[15]" and "open and trustworthy digital infrastructure," are emphasized in particular. The strong emphasis on international standing further suggests that Taiwan also views GovTech as an opportunity to build partnerships with other democratic states and expand its international scope for action. This appears particularly relevant given Taiwan's limited formal diplomatic recognition and Chinese pressure on Taiwan's international participation (Kastner et al. 2022, p. 15).

[15] Digital democracy refers to the use of digital technologies to strengthen democratic participation, collective will formation, social coordination, and transparency. It thus describes the connection between technological innovation and democratic capacity for action (Weyl et al. 2023, p. 53).

5.2 Actor Constellation in Taiwan's GovTech Ecosystem

Chapters 5.2 and 5.3 jointly address SQ1 by first mapping the key actors in Taiwan's GovTech ecosystem and subsequently analyzing their collaboration mechanisms.

5.2.1 Actor Mapping and Structural Characteristics

Figure 4 systematizes the key actors mentioned in the expert interviews according to the actor groups of GovTech ecosystems underlying this paper (Figure 2).

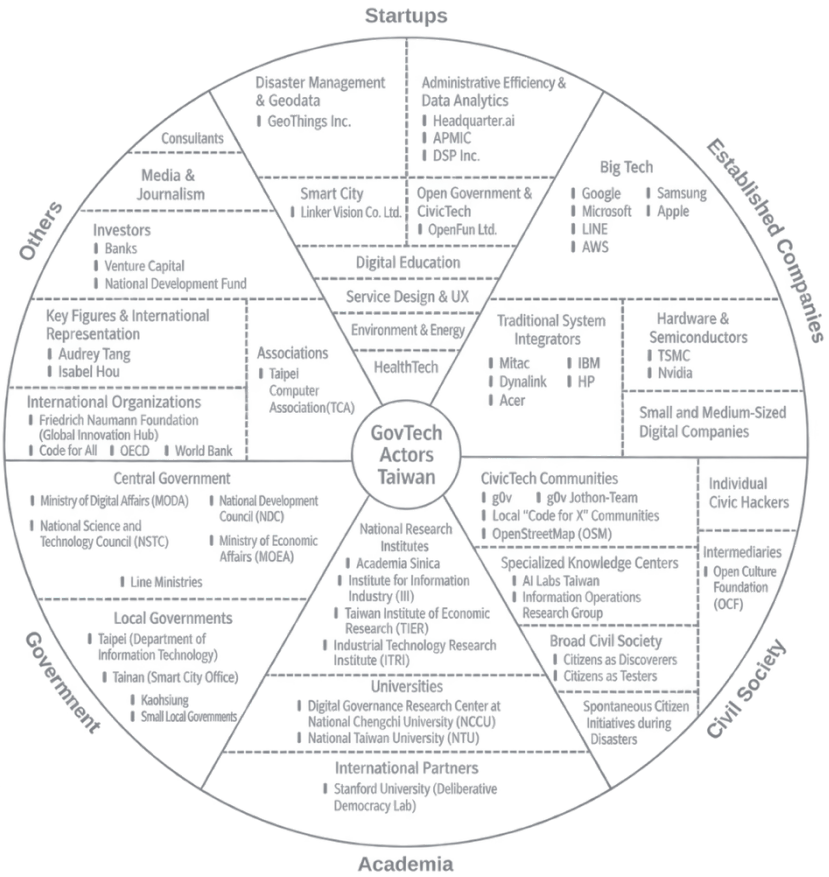


Figure 4: Actor Constellation in Taiwan's GovTech Ecosystem
Source: Author's own illustration based on the expert interviews

On the government side, the Ministry of Digital Affairs (MODA) in particular appears as a central hub within the ecosystem. Local administrations are highlighted as key settings in which concrete administrative problems arise and GovTech solutions are tested in practice (E1, p. 2; E9, p. 19; E6, p. 2). Universities and research centers are visible as sources of knowledge and talent, but their capacity to translate this into administrative practice is described as limited (E2, 0:09:09; E7, 0:12:40; E9, p. 16; E6, p. 2). The startup sector within the GovTech ecosystem appears to be weakly developed (E9, p. 7; E6, p. 2). In 2024, only 0.04 percent of Taiwanese startups were explicitly classified as belonging to the government sector. At the same time, it should be taken into account that startups from adjacent fields such as Digital Applications, Hardware, Information Technology, or Health Care, in which Taiwan is strongly positioned, may also develop GovTech-relevant solutions (Ministry of Economic Affairs 2025, p. 32 et seq.). Notably, civil society CivicTech actors occupy a prominent position. In particular, g0v is described in the interviews as the most representative force in the field of CivicTech and thus stands out as a distinct component of the GovTech ecosystem (E9, p. 16; E8, 0:32:42; E4, p. 1). To appropriately contextualize this role, the following chapter briefly introduces g0v.

5.2.2 g0v

g0v (pronounced "gov zero") is a decentralized CivicTech community founded in 2012 and one of the key actors shaping Taiwan's GovTech ecosystem. It emerged from dissatisfaction with inadequate government digital services and limited data transparency. The name replaces the "o" in "gov" with a "0" and reflects the ambition to rethink government "from zero" (Weyl et al. 2023, p. 66 et seq.; Lee 2026, p. 10; Ho 2022, p. 5 et seq.). g0v's self-understanding is encapsulated in the motto "Don't ask why nobody is doing it. You are that 'nobody'" (Weyl et al. 2023, p. 66 et seq.). g0v gained particular visibility during the 2014 Sunflower Movement, a student-led protest movement against a trade agreement with China, for which g0v actors established the digital communication and coordination infrastructure for the occupation of parliament (Weyl et al. 2023, p. 68; Ho 2022, p. 5 et seq.). In its aftermath, civil society and the government moved closer together. Audrey Tang, for example, who came from the g0v community, was appointed Digital Minister (Weyl et al. 2023, p. 66 et seq.). Projects such as vTaiwan[16], Disfactory [17], and Co-Facts[18] later emerged from the community

[16] vTaiwan is a participation platform for public deliberation on contentious policy issues. A figure illustrating how it works is provided in Appendix 5. Pol.is serves as a tool for opinion gathering, large-scale conversation, and consensus building (Weyl et al. 2023, p. 69 et seq.; vTaiwan 2023). An example is provided in Appendix 6.

[17] Disfactory is a crowdsourcing platform for reporting illegal factories on agricultural land (Lee 2026, p. 10). A corresponding figure is provided in Appendix 7.

[18] Co-Facts is an open-source fact-checking chatbot designed to counter disinformation in messaging services (Open Culture Foundation [OCF] n.d.).

(Weyl et al. 2023, p. 66 et seq.; Lee 2026, p. 10; Ho 2022, p. 5 et seq.). g0v thus represents a distinctly Taiwanese form of CivicTech in which civil society criticism, open technological development, and selective government uptake intersect.

5.3 Collaboration Mechanisms Between GovTech Actor Groups

This chapter examines the mechanisms through which actor groups collaborate within Taiwan's GovTech ecosystem. The analysis is structured along the key actor groups (see Figure 2). While Chapters 5.3.1 to 5.3.4 each examine collaboration between public administration and external actor groups, Chapter 5.3.5 focuses on collaboration mechanisms between non-governmental actor groups.

5.3.1 Public Administration and Academia

Collaboration between government and academia becomes productive when academia does not merely provide expert assessments but is directly involved in problem-solving, evaluation, and implementation. One expert cites the 2024 deliberative citizens' assembly on AI and information integrity as an example of closer collaboration between government and academia, involving, among others, MODA, a university, ITRI, and Stanford University's Deliberative Democracy Lab. What matters is not the individual case itself, but the underlying mechanism: research institutions act as co-designers and evaluators, while government actors provide political uptake and technical partners contribute implementation capacity. In this way, GovTech collaboration combines political legitimacy, scientific methodology, and implementation capacity (E1, p. 3).

A second mechanism is the integration of academic expertise into decision-making and selection processes. Several experts describe how academics are involved in advisory bodies, panels, and procurement committees, where they provide expert assessment, new information, and external legitimacy (E2, 0:12:51; E5, 0:18:28; E9, p. 8). One expert emphasizes that this role is also relevant to procurement because academics serving on committees can influence which providers or projects are selected (E5, 0:18:28).

A third mechanism lies in the strategic steering of research through funding priorities. The National Science and Technology Council (NSTC) is described as a key institution linking research funding with national technology strategies. This is particularly evident in the case of AI models for Traditional Chinese: for reasons of linguistic appropriateness, confidentiality, and digital sovereignty, the government funds research projects that are strategically relevant to public administration and society (E3, 0:19:45). In addition, Taiwan also connects research and innovation more closely with industry

and innovation policy through science parks and government-defined infrastructure frameworks (E7, 0:16:13).

The central weakness lies in the transfer of research into administrative practice. Several experts criticize that research findings often remain confined to reports, final project documents, or academic publications and are too rarely translated into operational GovTech tools or administrative processes (E6, p. 2; E9, p. 8; E4, p. 2). One expert attributes this to three structural problems: research contracts are designed around completion rather than iteration, academic careers reward publications more strongly than policy impact, and academic project cycles often do not align with the short-term needs of public administration (E9, p. 8). One local government expert sees genuine dialogue between academia and policymakers emerging primarily when there is a politically urgent problem (E6, p. 2).

This shows that academia contributes to GovTech innovation primarily when it not only produces knowledge but is also involved in co-design, evaluation, selection decisions, or strategically relevant technology development. The bottleneck lies less in access to academic expertise than in translating that expertise into operational administrative practice.

5.3.2 Public Administration and Startups

Collaboration between the Taiwanese government and startups is characterized by a tension between experimental access formats and traditional procurement barriers. Several experts describe public procurement as structurally unfavorable to startups, as capital requirements, lowest-price logic, reference requirements, long acceptance and payment cycles, and extensive documentation requirements make it difficult for small companies to enter government projects (E6, p. 2; E9, pp. 8–9; E5, 0:20:18; E3, 0:30:02). This benefits established providers that have the administrative, legal, and financial resources to navigate procurement procedures routinely (E3, 0:30:02).

Productive collaboration therefore tends to emerge through challenge, sandbox, and testing formats. One expert cites the Presidential Hackathon, the Government AI Application Sandbox, and the Taiwan Digital Identity Wallet Sandbox as formats in which external actors are connected with administrative problems through mentoring, partner matching, field validation, and "try-before-you-buy" approaches (E1, p. 3). Another expert likewise describes such formats as an alternative to traditional procurement because they enable experimentation, competitions, and testing phases before formal procurement takes place (E2, 0:13:43).

The central mechanism is therefore often not "government as customer" but "government as adopter." One expert explains that GovTech startups in

Taiwan usually do not enter government projects through regular procurement but initially create impact outside formal procurement channels and only subsequently gain access to government adoption. This typically occurs through three alternative pathways: solutions are first developed as CivicTech projects and then seek government adoption, as in the case of the Mask Map (Lee 2021) or the Asbestos Map (Ministry of Environment 2026). Startup members are connected with government projects through communities such as g0v, or international organizations and external funding create conditions under which government agencies are willing to collaborate (E9, pp. 8–9). Examples such as GeoThings in disaster management or DSP in administrative process consulting illustrate that startups can develop GovTech-relevant solutions particularly in specialized problem niches (E4, p. 2).

5.3.3 Public Administration and Established Companies

Collaboration with established companies in Taiwan primarily follows a logic of stability and infrastructure. Several experts describe established providers as particularly well suited to large public IT projects because they bring experience, references, administrative capacity, and the resources required for complex procurement procedures (E6, p. 2; E2, 0:14:54; E3, 0:30:02; E9, pp. 9–10). One expert locates this collaboration primarily in infrastructure-related fields such as digital identity, data exchange, cybersecurity, cloud services, payment systems, logistics, telecommunications, and scaled service delivery. As examples, she cites MyData, the digital wallet, and TryAI as a testing and procurement pathway for domestic IT providers (E1, p. 4).

The difference compared with startups therefore lies less in formal access than in actual procurement capability. Established companies appear to public administrations and review panels as a lower-risk option because they can demonstrate references, established routines, and implementation capacity (E2, 0:14:54; E3, 0:30:02; E6, p. 2). One local government expert therefore describes this collaboration as particularly smooth because large providers know how to do business with the government. At the same time, their solutions are often cumbersome and expensive, and their market power allows them to help shape government needs (E6, p. 2).

Several interviews critically indicate that, although established companies ensure operations, scaling, and security, they contribute only limited innovative momentum to the GovTech ecosystem (E6, p. 2; E9, pp. 9–10; E3, 0:30:02). One expert further differentiates this stability-oriented dimension: traditional system integrators dominate large development and maintenance contracts; multinational platforms contribute cloud, AI, and platform capabilities but often retain the power to set standards; while quasi-governmental infrastructure companies such as telecommunications, energy, or

water utilities are important for basic digital infrastructure but tend to act more conservatively at the organizational level (E9, pp. 9–10).

This shows that established companies in Taiwan's GovTech ecosystem are primarily relevant for operations, scaling, security, and infrastructure, and less so for experimental innovation. The central mechanism is a procurement-driven preference for large, reliable providers. This stabilizes government IT systems but can at the same time create a "big get bigger" dynamic that further distances smaller innovative actors from access to public projects (E9, pp. 9–10; E6, p. 2; E2, 0:14:54).

5.3.4 Public Administration and Civil Society

Several experts describe collaboration with CivicTech as particularly influential because civil society actors, especially those associated with g0v, develop their own prototypes, data practices, and participation formats, which government agencies subsequently adopt selectively or make institutionally compatible (E1, p. 4; E9, pp. 10–11; E4, p. 3; E6, p. 2; E5, 0:26:42).

A first mechanism is autonomous CivicTech problem-solving. One expert describes this logic as "civic first, government after": g0v organizes open collaboration through Jothons, open source, and self-selected problems without initially requiring government approval, formal registration, or traditional procurement (E9, pp. 10–11). This mechanism was already evident during g0v's founding phase, when civic hackers independently rebuilt inadequate government websites and published improved alternative versions under g0v.tw. Some of these became more popular than the official websites, prompting the government to begin adopting these civic designs (Weyl et al. 2023, pp. 66–67). From the government perspective, one expert describes the same logic by emphasizing that civil society in Taiwan is not merely consulted after the fact but actively helps shape the design of public solutions (E1, p. 4).

The second mechanism is government receptiveness. One expert summarizes the Taiwanese logic as an interplay between "civic initiative" and "government catch": CivicTech actors develop solutions, while government agencies enable these solutions to become effective by providing access to data, institutional points of contact, political support, or willingness to implement them locally (E9, pp. 10–11). The Mask Map during the COVID-19 pandemic illustrates this mechanism: CivicTech actors developed a digital tool that allowed citizens to see which pharmacies had masks available. Government-provided real-time data subsequently made the prototype publicly usable and scalable (E4, p. 3; E9, pp. 10–11).

A more institutionalized form of collaboration can be seen in the Ministry of Digital Affairs' Taiwan CivicTech Experimental Field. It collects concrete

problems from local governments and connects them with CivicTech teams. The mechanism becomes tangible in the example of dengue fever prevention in Tainan: a paper-based administrative process for documenting household inspections was formulated as a digital problem, CivicTech teams developed solutions, and the source code subsequently had to be published on a public code platform. This enables other cities to adopt and adapt the solutions (E3, 0:33:02).

Another mechanism is the movement of individuals between CivicTech and public administration. One expert refers to CivicTech actors who moved into government positions (E4, p. 3). More broadly, one expert describes how CivicTech experts are involved in working groups, advisory bodies, and, in some cases, procurement committees, allowing them to influence government decisions (E5, 0:26:42). Another expert describes personnel linkages between MODA and CivicTech initiatives in the areas of AI education and AI regulation (E7, 0:16:13).

A weakness of this collaboration is that a large share of it continues to take place outside permanently institutionalized formats. One local government expert describes g0v and public administrations as two "parallel worlds" that overlap only at certain points (E6, p. 2). Another expert further points out that, despite close ties with MODA, CivicTech actors continue to address some areas, such as combating disinformation, largely independently and with only limited institutional support (E7, 0:16:13). In addition, one expert emphasizes that the influence of CivicTech currently depends heavily on individual passion and community culture and is therefore not institutionally guaranteed (E9, pp. 10–11).

The central mechanism therefore lies in the combination of autonomous civil society problem-solving and government capacity for uptake. CivicTech generates independent impulses for solutions. GovTech emerges where government agencies enable the institutional uptake of these impulses through data, points of contact, political support, or institutional formats.

5.3.5 Collaboration Among Non-Governmental Actor Groups

Collaboration among non-governmental actors is described as the "invisible backbone" of Taiwan's GovTech ecosystem because it is where knowledge of problems, technical capabilities, and initial approaches to solutions emerge before government agencies become involved (E1, p. 5; E9, pp. 12–13). The central innovation mechanism lies in combining societal problem knowledge with technical implementation capabilities. One expert describes g0v Jothons as an "engine of cross-organizational collaboration" because they bring together independent developers, startup employees, software engineers, NGO staff, and students. The central mechanism lies less in the individual event than in the repeated interaction among different

communities, from which concrete projects and collaborations can subsequently emerge (E9, pp. 12–13). One local government expert confirms that the most active non-governmental interactions tend to take place through community activities rather than formal collaboration structures (E6, p. 2).

Particularly relevant are collaborations in which domain-specific actors translate societal problems into digital tools. One expert points to connections between g0v and environmental, educational, or other reform movements that have given rise to projects such as AirBox or MoeDict (E9, pp. 12–13). Another expert describes a similar pattern with OpenFun and the LawTrace project: a company that emerged from the CivicTech community collaborates with democracy organizations, data journalists, and CivicTech actors to make parliamentary processes transparent and traceable through data (E3, 0:40:13). The contribution to innovation lies not only in programming but in translating democratic, environmental, or administrative problems into usable digital infrastructure.

Intermediaries such as the Open Culture Foundation stabilize this loosely organized innovation model by enabling projects without their own legal entity to access funding, enter into contracts, and manage financial resources (E1, p. 5; E9, pp. 12–13). This allows informal CivicTech projects to obtain resources without having to fully transform their open community structures into conventional organizational forms.

The analytical core is that non-governmental collaboration in Taiwan generates GovTech-relevant innovation by bringing together problem knowledge, technical expertise, open-source practices, and organizational capacity for collaboration. Its strengths lie in flexibility, speed, and thematic breadth. Its limitations lie in its dependence on personal networks, voluntary engagement, and only weakly institutionalized forms of collaboration (E9, pp. 12–13; E6, p. 2).

5.3.6 Intermediaries and Network Formats

In addition to the actor groups themselves, intermediary mechanisms and network formats play a major role in shaping how interactions are organized within Taiwan's GovTech ecosystem. Table 6 summarizes the formats and entities mentioned by the experts, some of which have already been described in Chapters 5.3.1 to 5.3.5, according to their function within the ecosystem.

Category	Examples	Ecosystem Function
Events & Collaboration Formats	g0v Jothons, Presidential Hackathon, g0v Summit, Facing the Ocean Hackathons[19], COSCUP, SCSE, Computex, MOPCON	Create recurring points of contact, cross-sector exchange, and visibility for GovTech and CivicTech projects
Institutional Intermediaries & Bridge Builders	OCF, PDIS, Smart City Offices, computer associations, DIGI+ Talent	Act as institutional "connective tissue" to translate technological impulses into bureaucratic processes and foster cross-sector capabilities
Digital Participation Channels & Collaboration Infrastructure	vTaiwan, Join[20], Pol.is, g0v Slack, CivicTech Experimental Field, code.gov.tw	Provide technical interfaces that support continuous dialogue and the reuse of solutions
Experimentation & Networking Spaces	Government AI Application Sandbox (TryAI), Youai Market Digital Revitalization Hub, Science Parks	Provide specialized spaces and mechanisms for testing new technologies

Table 6: Intermediaries and Networking Formats
Source: Author's own illustration based on the expert interviews

The central finding is that intermediary mechanisms in Taiwan's GovTech ecosystem operate less through individual large-scale events than through recurring, easily accessible routines. One expert describes this as the insight that is most transferable internationally: "Frequency matters more than size; low barriers to entry matter more than high visibility; predictability matters more than one-off highlights" (E9, p. 14).

5.4 Success Factors of Taiwan's GovTech Ecosystem

Chapters 5.4 and 5.5 jointly address SQ2 by first analyzing the key success factors of Taiwan's GovTech ecosystem and subsequently identifying mechanisms for bridging the "Valley of Death." The following section synthesizes and analyzes the key success factors of Taiwan's GovTech ecosystem. This is particularly relevant for the strategic development of GovTech

[19] Facing the Ocean is a multinational CivicTech and hackathon format organized jointly by g0v, Code for Japan, and Code for Korea, in which public-sector employees from Taiwan, Japan, and South Korea collaborate with CivicTech communities as "problem providers" to translate concrete public challenges into digital solution approaches (Ministry of Digital Affairs 2025).

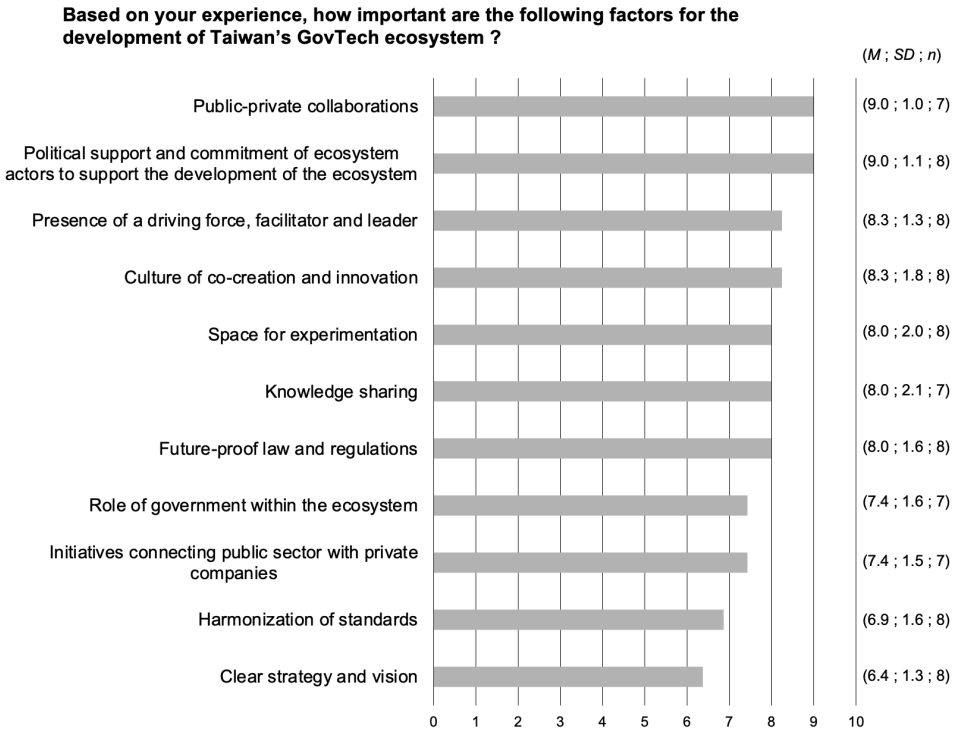
[20] Join is an online participation platform through which citizens can submit policy proposals, suggestions, and initiatives on political issues; if a proposal receives sufficient support, the responsible government agencies are required to respond (Weyl et al. 2023, p. 71).

ecosystems because the experts' assessments provide indications of which factors should be prioritized.

Before considering these success factors, however, it is important to note that the interviewees do not assess the success of Taiwan's GovTech ecosystem uniformly. While several experts describe Taiwan as a successful or internationally visible case (E1, pp. 6–7; E5, 0:32:56; E6, p. 3; E9, p. 16 et seq.), others substantially qualify this assessment and point to a lack of sustained institutionalization, unresolved scaling challenges, and dependence on individual "hero figures" such as Audrey Tang (E4, p. 4; E9, p. 16 et seq.). This ambivalence points to a fundamental measurement problem. What constitutes the success of a GovTech ecosystem has not been clearly operationalized in the academic literature either and represents a key research gap (Bauer et al. 2026, p. 17). Accordingly, one expert states that she is not aware of any specific mechanisms for measuring CivicTech or GovTech success in Taiwan (E8, 0:54:46).

The experts were asked to rate success factors of GovTech ecosystems identified in international research on a scale from 0 ("not important") to 10 ("very important"). Figure 5 provides a condensed overview of these success factors and shows that the factors identified internationally are also considered relevant in the Taiwanese context.

Given the small number of experts providing ratings (n = 7–8, depending on the factor), the results are not representative but allow for an assessment of the relative prioritization of individual success factors. For the highest-rated factor, public-private collaboration (M = 9.0), the experts showed particularly strong agreement (SD = 1.0). The presence of a driving force, intermediary entity, and leadership role was also rated highly (M = 8.3), again with a comparatively high level of agreement (SD = 1.3). This confirms the finding that the success of Taiwan's GovTech ecosystem depends strongly on individual "hero figures." It is also notable that the experts showed particularly strong agreement on the lowest-rated factor, clear strategy and vision (M = 6.4; SD = 1.0). This assessment is consistent with the finding described in Chapter 5.6 that no central GovTech strategy exists in Taiwan.



Note*:* Ratings were provided on a scale from 0 = not important to 10 = very important. *M* = mean, *SD* = standard deviation, *n* = number of valid ratings per factor.

Figure 5: Perceived Importance of Success Factors for the Development of Taiwan's GovTech Ecosystem[21]
Source: Author's own illustration based on Hoekstra et al. (2023, p. 287)

The experts were subsequently asked to identify additional success factors that are specifically relevant to Taiwan (Table 7). Analytically, it is notable that CivicTech-related factors are emphasized in particular, such as public trust and societal legitimacy (M = 10), bridging networks between civil society and the public sector (rating = 10), and a predictable, low-barrier rhythm of community activities (rating = 9).

[21] The success factors shown were identified by Hoekstra et al. (2023, p. 287) based on case studies of the GovTech ecosystems of the Netherlands and Lithuania.

Success Factor	Rating	*n*
Public trust and societal legitimacy	M = 10	2
Bridging networks between civil society and the public sector	10	1
Pathways from pilot projects to widespread application (including procurement)	10	1
GovTech talent pool	10	1
Cross-sector talent mobility	M = 9.5	2
Radical transparency and open documentation	9	1
Privacy-preserving architecture	9	1
Interoperable digital public infrastructure	9	1
Predictable, low-barrier rhythm of community activities	9	1
In-house technological expertise in government units	8	1
Local government capacity	8	1

Note: Ratings were provided on a scale from 0 = not important to 10 = very important; n = number of respondents who identified and rated the respective success factor. For n = 1, the individual rating is reported; for n > 1, the mean is reported.

Table 7: Additionally Identified Success Factors
Source: Author's own illustration based on the expert interviews

5.5 Bridging the "Valley of Death"

While Chapter 5.3 analyzes collaboration mechanisms between actor groups, this chapter focuses on the mechanisms that support the transition from prototypes to widespread adoption. The interview findings first show that the "Valley of Death" (see Chapter 2.2.3) also represents a structural challenge within Taiwan's GovTech ecosystem (E4, p. 7; E6, p. 4; E9, p. 33).

A first bridging mechanism is scaling through key individuals. The example of AirBox illustrates that scaling can succeed when committed actors mobilize funding, application contexts, and new stakeholders over an extended period (Institute of Information Science, Academia Sinica n.d.). The particulate matter sensor project was scaled from a local application across Taiwan because, among other factors, one researcher repeatedly secured follow-on funding (E2, 0:47:23). Another expert confirms that sustaining projects beyond the prototype stage depends heavily on individual committed actors, as Taiwan lacks a well-developed VC culture for CivicTech projects and funding tends to support new ideas rather than the maintenance and scaling of existing tools (E8, 0:20:34; 0:24:29). Scaling therefore often occurs not through a standardized process but through individuals who sustain the connection between funding, problem understanding, and technical implementation over time.

A second mechanism consists of pre-procurement testing environments that move experimentation ahead of actual procurement. Formats such as TryAI, the Digital Wallet Sandbox, and the Presidential Hackathon have already been described as collaboration and testing formats (see Chapter 5.3). For bridging the "Valley of Death," their bridging function is particularly relevant: they reduce adoption risks, enable field validation, and create a potential pathway from an idea to government implementation (E1, p. 10; E9, p. 35). At the same time, this bridging function remains limited because awarded proofs of concept (PoCs) are not automatically transferred into widespread adoption (E9, p. 35). In addition, one local government expert refers to the PFI mechanism (Private Finance Initiative) as an attempt to initially validate startups on a small scale through innovative public procurement and subsequently enable potential scaling, while noting that this process remains slow (E6, p. 4). The literature on Taiwan's Smart City program describes PFI more broadly as a performance-based financing and procurement model in which private actors assume responsibility for financing, design, operation, and maintenance, while local governments can pay for services after they have been provided (Leu et al. 2021, p. 129).

A third mechanism lies in institutional continuity. What matters here is not only the connection between actors but also the creation of organizational, financial, and legal continuity beyond the prototype stage. One expert cites the g0v CivicTech Prototype Grant as transitional funding that keeps prototypes alive until further opportunities emerge, as well as the Open Culture Foundation as a legal and financial vehicle for projects without their own legal personality. Collaboration units such as municipal Smart City Offices can also allow projects to be further developed within the same unit over several years (E9, p. 35). In addition, one expert describes the long-term provision of affordable innovation infrastructure, such as office space for startups, as firmly established in Taiwan (E7, 0:42:54).

A fourth mechanism is scaling through municipal imitation. One expert describes how functioning municipal solutions are adopted through political competition between cities once they become visibly successful in one city (E2, 0:51:06). One local government expert confirms this mechanism as informal scaling through administrative imitation: when a successful case is noticed by superiors, it can be transferred to other units (E6, p. 4). This mechanism can spread successful solutions but does not resolve the initial transition from prototype to regular operation.

As a remaining challenge, one expert emphasizes that the original development personnel are often lost after the pilot phase, meaning that actors taking over the solution can only continue the original design logic to a limited extent (E9, p. 34). Overall, there is therefore no single scaling pathway from prototype to widespread adoption. Instead, individual mechanisms

exist that can support this transition, but they primarily apply where solutions emerge from CivicTech-related contexts and subsequently need to be made compatible with government structures.

5.6 Strategic Options for Government Action

To derive robust recommendations in Chapter 6 for the further development of the German GovTech ecosystem and thereby address SQ3, the following section first examines the extent to which the Taiwanese government strategically shapes the GovTech ecosystem and where government action can intervene. The analysis of the expert interviews presents a consistent picture: there is no central, top-down strategy for developing the GovTech ecosystem[22] (E9, p. 28; E5, 0:48:56; E6, p. 4). Audrey Tang, the former Digital Minister, likewise describes government steering not as a central command center but as an interplay of enabling infrastructure, participation channels, and institutional bridges (E1, p. 9). One expert puts it more pointedly: the ecosystem grew rather than being designed (E9, p. 28). Another expert does not interpret this as a failure but as an appropriate response to a field that changes too quickly for long-term planning to always be effective (E5, 0:50:32).

The crucial question is therefore where government action is actually effective. One expert summarizes this with the concise formula that successful government interventions are of the "friction-reduction" type: government removes barriers so that societal energy can flow into innovation for the public sector. In this context, the development of government "ball-catching capacity" is described as central. This means that government must be able to take up civil society proposals and connect them to public institutions. Not every form of government intervention is equally transferable. Ad hoc ministerial intervention represents an exceptional success that depends on individuals and is not scalable (E9, pp. 32–33).

By contrast, the strategic development of open data infrastructure (Lee & Tseng 2017; National Development Council 2021, 2025) and permanent institutions such as the Tainan Smart City Office makes the success of a GovTech ecosystem less dependent on individuals and political cycles (E9, p. 32). This institutionalization is particularly important because building a robust ecosystem itself requires several years (E2, 0:40:42). Short-term, person-dependent policymaking is therefore structurally at odds with the time horizon required for a GovTech ecosystem to emerge. The establishment of MODA in 2022 can be interpreted as a deliberate strategic response to the problem

[22] The document analysis identified only isolated approaches in the area of smart cities at the local government level and in the area of e-governance at the central government level (Taipei Smart City Project Management Office 2024, p. 5; Biberman 2021, p. 10). Corresponding figures are provided in Appendices 9 and 10.

of dependence on individuals. Its establishment transferred collaboration, which had previously depended more strongly on the personal commitment of individual officeholders such as Audrey Tang, into a permanent institutional counterpart (E1, p. 9; E9, p. 32). Institutionalization alone, however, does not guarantee effective steering, as illustrated by MODA's limited authority vis-à-vis the line ministries (E6, p. 4).

Government strategy in Taiwan can therefore be understood as a policy of indirect enablement: long-term investment in data infrastructure as a foundation for innovation, combined with institutional points of connection such as MODA through which civil society energy is taken up rather than directed.

6 Recommendations for Germany

The following recommendations are derived from the mechanisms and success factors of Taiwan's GovTech ecosystem identified in the interviews and focus on transferable underlying principles. They are not intended as an exhaustive catalog of measures. This logic of transfer is consistent with the assessment of former Taiwanese Digital Minister Audrey Tang, who explicitly advises against institutionally copying Taiwan. Instead, the key is to understand the interfaces through which Taiwan's GovTech ecosystem functions: participation, experimentation, interoperability, and scaling (E1, p. 8).

6.1 Understand GovTech as Relevant to Democracy

Germany should understand GovTech not only as an instrument for more efficient public administration but, in the sense of digital democracy, also as the use of technology to strengthen transparency, public accountability, and participation (E1, p. 2). In concrete terms, this can be seen, for example, in open data portals that make administrative data accessible (von Lucke & Gollasch 2022, p. 68), thereby enabling transparency, civil society reuse, and CivicTech innovation. This principle should also be taken into account in legislation, as transparency rights provide an essential foundation. Against this background, proposals such as the planned amendment to the Freedom of Information Act (IFG), under which rights to information would in future focus on natural persons with a "legitimate interest" and IFG fees would be aligned with the principle of cost recovery (Federal Government 2026, pp. 11–12), should be critically examined.

6.2 Strengthen CivicTech[23]

Germany is currently comparatively weak in collaboration between public administration and CivicTech (see Chapter 3). However, Taiwan's experience demonstrates the innovation potential that can emerge when government and civil society collaborate on a foundation of trust and technological openness. Germany should therefore specifically expand open government data and, wherever possible, standardized open interfaces, particularly at the municipal level, to enable CivicTech innovation. One expert states: "Open data is infrastructure, not a feature. [...] Without long-term investment in open data, there will be no explosive output from the CivicTech sector" (E9, p. 22). At the same time, regular and easily accessible formats for exchange and joint work between public administration and civil society are needed.

[23] The Civic Tech Project & Community Handbook provides detailed documentation of experiences from Taiwan's g0v community regarding the establishment, organization, and further development of CivicTech communities (g0v Jothon & Contributors n.d.).

The focus should be on continuous trust-building, as resilient collaboration does not emerge from individual large-scale events but through repeated joint problem-solving (E9, p. 17).

6.3 Innovation Should Start with a Concrete Public Problem

Germany should consistently develop GovTech innovation from concrete public problems (E1, p. 7). These problems can be identified from citizens' experiences (E5, 0:36:18), as already reflected in the current initiative "Deutschland, was geht?"[24] (see Chapter 3). It should be examined how key developers from the experimentation phase can continue to be involved in a legally compliant manner when prototypes developed through such formats move into procurement, operation, or reuse. This preserves the original understanding of the problem, users, and design even when larger IT service providers or other public administrations subsequently take over the solution (E9, p. 34). In addition, municipal employees in particular should be enabled through education and training to formulate their own problems precisely enough for startups and CivicTech teams to respond to them effectively (E3, 0:52:49). Academic institutions such as local universities and research institutes can provide methodological support for this problem formulation.

6.4 Build Government Capacity to Take Up External Prototypes

Public administrations should establish clear points of contact and review processes to rapidly assess external GovTech and CivicTech prototypes in terms of responsibility, data requirements, legal frameworks, technical feasibility, and potential piloting. If AI, open source, and easily accessible development tools lead to more external prototypes in the future, public administration must be prepared to systematically take up such impulses and enable their institutional integration (E9, p. 24).

6.5 Build Bridging Roles Through Talent Circulation

GovTech ecosystems need individuals who can translate between public administration, technology, academia, startups, and CivicTech. Germany should therefore deliberately develop GovTech capabilities through talent circulation. Talent needs to move from startups, research, CivicTech, and technology companies into public administration, work there for a period of

[24] The initiative "Deutschland, was geht?" explicitly refers to Pol.is as a method of AI-supported consensus building and to Taiwan's Presidential Hackathon as a model for the citizen hackathon (BMDS 2026; SPRIND 2026a).

time, and subsequently return to the ecosystem with a better understanding of government processes (E6, p. 3). Conversely, public-sector employees should also gain practical experience in innovation, research, or CivicTech environments. For such a circulation model to become realistic, Germany needs more flexible career paths, temporary project roles with opportunities to return, more attractive conditions for technology professionals in the public sector, and explicit funding programs to promote talent circulation. In the field of AI, the IPAI Campus Heilbronn already demonstrates how bridges between actors can also be created spatially and organizationally, for example through the proximity of offices of the state administration and police to AI companies. Such structures should also be deliberately expanded in other regions.

6.6 Use International GovTech Partnerships as Spaces for Learning and Scaling

Germany should further expand partnerships with technologically advanced democracies to develop its GovTech ecosystem. One expert points to HealthTech and electronic patient records as examples of areas in which Germany and Taiwan can learn from one another and should pursue greater regulatory alignment so that companies from both countries gain better market access (E7, 0:47:10). Germany should expand exchange formats with Taiwan without overstating them diplomatically. Examples include research collaborations, expert delegations, job-shadowing placements, joint hackathons, and municipal tandem projects addressing concrete challenges such as flooding, heat, disaster management, citizen services, open data, or digital participation. On-site learning formats are particularly important because administrative culture, trust, and informal interfaces cannot be understood through reports alone. The knowledge gained through such exchange formats can be disseminated more broadly through actors such as state-level municipal associations (county, city, and municipal associations) and the Kommunale Gemeinschaftsstelle für Verwaltungsmanagement (KGSt).

7 Conclusion and Outlook

7.1 Summary of Findings

This paper contributes to GovTech research by examining the Taiwanese case not only as a CivicTech success story (E9, p. 41; E2, 0:28:50) but explicitly as a GovTech ecosystem.

With regard to SQ1, the analysis shows that Taiwan's GovTech ecosystem cannot be reduced to bilateral relationships between the government and individual external actors. The actor groups perform different functions: academia provides legitimacy and evaluation, startups test specialized solutions, established companies ensure operations and scaling, CivicTech generates independent impulses, and non-governmental networks provide the social and technical groundwork for subsequent GovTech innovation. Taiwan's particular strength therefore lies in the combination of civil society initiative, government capacity for uptake, and horizontal networking.

Regarding SQ2, it becomes clear that the development and scaling of GovTech innovations in Taiwan are driven primarily by public-private collaboration, bridging individuals, open data infrastructures, CivicTech culture, and easily accessible collaboration formats. At the same time, the "Valley of Death" remains a central challenge: many projects scale not through standardized processes but through key individuals, pre-procurement testing environments, and municipal imitation.

With regard to SQ3, the findings indicate that Taiwan should not be understood as a model that can be transferred directly. Many conditions for success depend on specific contextual factors, such as the strong CivicTech community, crisis-driven mobilization, and personal relationships of trust. What can be transferred, therefore, are not individual institutions but underlying principles. The paper also provides insights into research gaps identified in the current literature (see Chapter 2.3), particularly regarding the role of CivicTech in GovTech ecosystems. In addition, the paper contributes to the ongoing debate on the definition of GovTech and GovTech ecosystems by introducing perspectives from Taiwan into a discussion that has thus far been predominantly shaped by Western contexts.

7.2 Limitations

This paper does not provide a comprehensive mapping of Taiwan's GovTech ecosystem, as the small sample captures only selected actors and regions. Particularly in a politically and security-sensitive field such as GovTech, certain internal processes or strategic considerations may also not be publicly visible or accessible to individual interviewees.

A further limitation lies in the heterogeneity of the material. In addition to online interviews, written interviews were included, which allowed fewer opportunities for spontaneous follow-up questions in some cases. Responses provided in Mandarin were translated for the analysis, meaning that subtle differences in meaning cannot be entirely ruled out despite careful preparation. In addition, the term GovTech itself is not used consistently and partly overlaps in Taiwan with CivicTech, DigitalGov, and innovation in public administration.

The breadth of the analysis is both a strength and a limitation of the paper. It enables a systematic overall picture of Taiwan's GovTech ecosystem but can examine individual aspects such as financing, procurement, or specific scaling mechanisms only to a limited extent. Moreover, the small number of interviewees and the lack of a consistent definition of "success" make it difficult to determine unequivocally which mechanisms within Taiwan's GovTech ecosystem can actually be considered successful.

7.3 Implications for Future Research

Given its broad scope, this paper should be understood as an entry point into the analysis of Taiwan's GovTech ecosystem. A particularly relevant question for future research is whether Taiwan succeeds in moving from a person- and crisis-driven "hero model" toward a normalized collaboration infrastructure that functions independently of individual key actors, personnel changes, and exceptional circumstances (E9, pp. 37–38). This process of institutionalization should be systematically observed in the coming years. For Germany, the retrospective emergence of Taiwan's ecosystem is less important than the question of which mechanisms can be sustainably institutionalized in the future and thereby serve as robust lessons.

Building on this, further research is needed on how such institutionalized success mechanisms can be transferred to Germany's federal levels. This would require individual mechanisms of Taiwan's GovTech ecosystem to be examined in greater depth and systematically compared with specific German characteristics such as federalism, public procurement law, data protection, municipal resources, and administrative culture. In particular, future research should examine how the structure of the state, Taiwan as a

unitary state compared with Germany as a federal state, influences the GovTech ecosystem and the transferability of individual mechanisms. On this basis, differentiated measures could be developed for the federal government, the states, and large and small municipalities.

In addition, this paper demonstrates how a GovTech ecosystem can be analyzed in a structured manner. The approach can serve as a point of reference for the systematic analysis of other national GovTech ecosystems. Comparative studies in particular could examine whether the patterns identified in the Taiwanese case are also relevant in other democratic contexts. A further research need concerns the measurement of success in GovTech ecosystems. The differing assessments among experts as to whether Taiwan's GovTech ecosystem can be considered successful point to a key research gap: future research should examine more precisely which criteria and maturity models can be used to measure the success of GovTech ecosystems (Bauer et al. 2026, p. 17).

7.4 Outlook on Future Developments in Taiwan

To learn from Taiwan not only retrospectively but also with regard to future challenges, a brief outlook on the expected development of the GovTech ecosystem is useful. AI is described by several experts as a key factor that will shape the development of Taiwan's GovTech ecosystem in the coming years (E2, 0:54:26; E7, 0:47:10; E3, 1:22:39; E9, pp. 37–38; E1, pp. 10–11). One expert describes its impact on the distribution of roles: if public administrations become able to develop AI-supported prototypes more quickly themselves, CivicTech will increasingly need to demonstrate its added value through trust, local contextual knowledge, and its ability to translate between different contexts (E9, pp. 37–38). Another expert describes this development normatively as a transition toward "Civic AI," meaning AI applications that remain subject to collective control, preserve privacy, and can be verified locally (E1, pp. 10–11).

One expert also identifies disaster management and crisis response capacity as future core themes of the ecosystem and expects the increasing frequency of disaster situations (Lan 2025; The Reporter Podcast Production Team 2025) to become a driver for GovTech startups and CivicTech communities (E9, pp. 37–38; Ministry of Environment 2026). One local government expert points to the trade-off between the necessary openness to innovation and increasing security pressures (E6, p. 4).

One expert identifies an additional boost to the development of the GovTech ecosystem in Taiwan's global leadership position in hardware and semiconductors, for example in the context of Nvidia and TSMC. According to this view, massive investments in hardware infrastructure create market

dynamics in which innovative software solutions are developed to demonstrate the practical value of this hardware. This could generate a new wave of startups that build on this technological infrastructure and specifically develop applications for the public sector (E2, 0:54:26). Another development trajectory concerns the international positioning of the ecosystem. Two experts increasingly see Taiwan as an exporter of knowledge on democratic methods, including participation formats, open-source collaboration models, and CivicTech experience (E1, pp. 10–11; E9, p. 38).

The Taiwanese case thus returns to the central question of this paper: GovTech is not only about modernizing public administration but also constitutes infrastructure that is relevant to democracy. In the coming years, Taiwan can demonstrate whether and how digital technologies can strengthen government legitimacy when transparency, participation, civil society innovation capacity, and government capacity for uptake are sustainably connected.

8 Appendix

8.1 Appendix 1: Interview Guide (English)

1	**Introduction** Would you kindly introduce yourself briefly, discussing your academic education and professional experience with the public sector in Taiwan and explaining your practical involvement with GovTech? 1.1 Your academic education 1.2 Your professional experience with the public sector in Taiwan 1.3 Your practical involvement with GovTech
2	**Definition and understanding of GovTech** 2.1 What do you understand by GovTech? (Possible follow-up question: How does it differ from eGov/DigitalGov?) 2.2 What do you understand by a GovTech ecosystem? In this interview, we will use the following definitions: "GovTech can be understood as technological innovations for the public sector that often emerge through collaboration between government institutions and external actors such as startups, companies, research institutions, or civil society initiatives." "Thus, a GovTech ecosystem can be understood as the network of these actors and their collaboration in developing and implementing such innovations."
3	**Ecosystem actor mapping** 3.1 Which are the key actors in Taiwan's GovTech ecosystem? (e.g. ministries, research institutions, private actors such as startups) 3.2 For the following entities, how do collaborations with the Taiwanese government in the context of GovTech typically proceed? 3.2.1 Taiwanese government collaboration with research institutions/ universities 3.2.2 Taiwanese government collaboration with startups 3.2.3 Taiwanese government collaboration with established companies

	3.2.4 Taiwanese government collaboration with civil society (CivicTech) 3.2.5 Taiwanese government collaboration with other actors mentioned in 3.1 3.3 Are there also important collaborations between non-government actors within Taiwan's GovTech ecosystem? 3.4 Which intermediaries and networking formats are particularly important (e.g. innovation labs, communities, conferences, trade fairs, hackathons)? Please briefly explain. 3.5 Which actors typically initiate technological innovations in Taiwan's GovTech ecosystem?
4	**Success factors** 4.1 What makes Taiwan's GovTech ecosystem a success story? (please give two examples/best practices) 4.2 What design principles for successful GovTech ecosystems would you derive from Taiwan? 4.3 – Q1: Previous research has identified several factors that contribute to the success of GovTech ecosystems. Based on your experience, how important are the following factors for the development of Taiwan's GovTech ecosystem? Please rate each factor on a scale from 0 (not important) to 10 (very important). | Public–private collaborations | Knowledge sharing | Political support and commitment of ecosystem actors to support the development of the ecosystem | Clear strategy and vision | Presence of a driving force, facilitator and leader | Role of government within the ecosystem | Initiatives that connect public sector organizations with private companies | Culture of co-creation and innovation | Space for experimentation | Harmonization of standards | Future proof law and regulations 4.4 – Q2: In your opinion, are there any other success factors for Taiwan's GovTech ecosystem? Please rate each factor on a scale from 0 (not important) to 10 (very important).

5	**Government influence** 5.1 How does the Taiwanese government strategically develop Taiwan's GovTech ecosystem? 5.2 Which government interventions regarding the GovTech ecosystem have been particularly successful in Taiwan? Why? Do you have any recent examples?
6	**Valley of Death (TRL model)** 6. Many innovative ideas or pilot projects fail because they do not make it past the testing phase. What mechanisms or programmes are in place in Taiwan to help successful GovTech projects move from the prototype stage to scaling and ultimately to widespread application?
7	**Conclusion and acknowledgements** 7.1 Outlook: In your professional opinion, how will the GovTech ecosystem in Taiwan develop over the next five years? 7.2 What potentials will Taiwan be able to leverage through GovTech? 7.3 Do you have any literature recommendations for me that I should consider in my project (e.g. research in Mandarin)? 7.4 Are there any other organizations/people I should talk to? 7.5 Would you like to add anything else that has not been discussed so far? Off-record comments?

Source: Author's own illustration

8.2 Appendix 2: Interview Guide (German)

1	**Einführung** Würden Sie sich bitte kurz vorstellen und dabei auf Ihre akademische Ausbildung, Ihre beruflichen Erfahrungen mit dem öffentlichen Sektor in Taiwan sowie Ihre praktische Beteiligung an GovTech eingehen? 1.1 Ihr akademischer Werdegang 1.2 Ihre beruflichen Erfahrungen mit dem öffentlichen Sektor in Taiwan 1.3 Ihr praktischer Bezug zu GovTech
2	**Definition und Verständnis von GovTech** 2.1 Was verstehen Sie unter GovTech? Wie unterscheidet sich GovTech von eGov/DigitalGov? 2.2 Was verstehen Sie unter einem GovTech-Ökosystem? In diesem Interview verwenden wir die folgenden Definitionen: „GovTech kann als technologische Innovation für den öffentlichen Sektor verstanden werden, die häufig durch Zusammenarbeit zwischen staatlichen Institutionen und externen Akteuren wie Startups, Unternehmen, Forschungseinrichtungen oder zivilgesellschaftlichen Initiativen entsteht." „Ein GovTech-Ökosystem kann entsprechend als Netzwerk dieser Akteure und ihrer Zusammenarbeit bei der Entwicklung und Umsetzung solcher Innovationen verstanden werden."
3	**Mapping der Ökosystemakteure** 3.1 Welche sind die zentralen Akteure im GovTech-Ökosystem Taiwans? (z. B. Ministerien, Forschungseinrichtungen, private Akteure wie Startups) 3.2 Wie verlaufen bei den folgenden Akteurstypen typischerweise Kooperationen mit der taiwanischen Regierung im Kontext von GovTech? 3.2.1 Zusammenarbeit der taiwanischen Regierung mit Forschungs-einrichtungen/Universitäten 3.2.2 Zusammenarbeit der taiwanischen Regierung mit Startups 3.2.3 Zusammenarbeit der taiwanischen Regierung mit etablierten Unternehmen 3.2.4 Zusammenarbeit der taiwanischen Regierung mit der Zivilgesellschaft (CivicTech)

	3.2.5 Zusammenarbeit der taiwanischen Regierung mit anderen in 3.1 genannten Akteuren 3.3 Gibt es innerhalb des taiwanischen GovTech-Ökosystems auch wichtige Kooperationen zwischen nichtstaatlichen Akteuren? 3.4 Welche Intermediäre und Vernetzungsformate sind besonders wichtig (z. B. Innovationslabore, Communities, Konferenzen, Messen, Hackathons)? Bitte erläutern Sie kurz. 3.5 Welche Akteure initiieren technologische Innovationen im taiwanischen GovTech-Ökosystem typischerweise?
4	**Erfolgsfaktoren** 4.1 Was macht Taiwans GovTech-Ökosystem zu einer Erfolgsgeschichte? Bitte nennen Sie zwei Beispiele/Best Practices. 4.2 Welche Gestaltungsprinzipien für erfolgreiche GovTech-Ökosysteme würden Sie aus Taiwan ableiten? 4.3 - Q1: Die bisherige Forschung hat mehrere Faktoren identifiziert, die zum Erfolg von GovTech-Ökosystemen beitragen. Wie wichtig sind die folgenden Faktoren aus Ihrer Erfahrung für die Entwicklung des GovTech-Ökosystems in Taiwan? Bitte bewerten Sie jeden Faktor auf einer Skala von 0 (nicht wichtig) bis 10 (sehr wichtig). | Public – private collaborations | Knowledge sharing | Political support and commitment of ecosystem actors to support the development of the ecosystem | Clear strategy and vision | Presence of a driving force, facilitator and leader | Role of government within the ecosystem | Initiatives that connect public sector organizations with private companies | Culture of co-creation and innovation | Space for experimentation | Harmonization of standards | Future proof law and regulations 4.4 - Q2: Gibt es Ihrer Meinung nach weitere Erfolgsfaktoren für Taiwans GovTech-Ökosystem? Bitte bewerten Sie jeden Faktor auf einer Skala von 0 (nicht wichtig) bis 10 (sehr wichtig).

5	**Staatlicher Einfluss** 5.1 Wie entwickelt die taiwanische Regierung Taiwans GovTech-Ökosystem strategisch weiter? 5.2 Welche staatlichen Interventionen in Bezug auf das GovTech-Ökosystem waren in Taiwan besonders erfolgreich? Warum? Haben Sie aktuelle Beispiele?
6	**Valley of Death (TRL-Modell)** 6. Viele innovative Ideen oder Pilotprojekte scheitern, weil sie nicht über die Testphase hinauskommen. Welche Mechanismen oder Programme gibt es in Taiwan, die erfolgreichen GovTech-Projekten helfen, von der Prototypenphase zur Skalierung und schließlich zur breiten Anwendung zu gelangen?
7	**Abschluss und Danksagung** 7.1 Ausblick: Wie wird sich das GovTech-Ökosystem in Taiwan Ihrer fachlichen Einschätzung nach in den nächsten fünf Jahren entwickeln? 7.2 Welche Potenziale wird Taiwan durch GovTech nutzen können? 7.3 Haben Sie Literaturempfehlungen für mich, die ich in meinem Projekt unbedingt berücksichtigen sollte (z. B. Forschung in Mandarin)? 7.4 Gibt es weitere Organisationen/Personen, mit denen ich sprechen sollte? 7.5 Möchten Sie noch etwas ergänzen, das bisher nicht besprochen wurde? Off-record-Kommentare?

Source: Author's own illustration

8.3 Appendix 3: Interview Guide (Mandarin)

1	**引言** 可否請您簡要自我介紹，說明您的學術背景、您在臺灣公部門相關的工作經驗，以及您在政 府科技（GovTech）上的實務參與情況？ 1.1 您的學術背景 1.2 您在臺灣公部門相關的工作經驗 1.3 您在政府科技（GovTech）上的實務參與情況
2	**政府科技（GovTech）的定義與理解** 2.1 您如何理解政府科技（GovTech）？它與電子化政府（eGov）/ 數位政府（DigitalGov）有何不同？ 2.2 您如何理解政府科技生態系（GovTech ecosystem）？ 在本次訪談中，我們採用以下定義： 「政府科技（GovTech）」係指面向公部門的科技創新；這類創新通常是透過政府機關與 外部參與者（例如研究機構、新創公司、企業，以及公民社會倡議）之間的合作而產生。 相應地，「政府科技生態系（GovTech ecosystem）」可理解為這些參與者所形成的網絡 ，以及它們在開發與落實此類創新過程中的協作關係。
3	**生態系參與者盤點** 3.1 臺灣政府科技生態系中的關鍵參與者有哪些？（例如部會、研究機構、私部門參與者如新創公司） 3.2 就下列類型的單位而言，與臺灣政府在政府科技脈絡下的合作通常是如何進行的？ 3.2.1 臺灣政府與研究機構／大學的合作 3.2.2 臺灣政府與新創公司的合作 3.2.3 臺灣政府與成熟企業的合作

	3.2.4 臺灣政府與公民社會（公民科技，CivicTech）的合作 3.2.5 臺灣政府與 3.1 中提到的其他參與者之合作 3.3 在臺灣的政府科技生態系中，非政府參與者彼此之間是否也存在重要合作？ 3.4 哪些中介組織與交流／串連形式特別重要？（例如創新實驗室、社群、研討會、展會、黑客松）請簡要說明。 3.5 在臺灣政府科技生態系中，通常由哪些參與者發起科技創新？
4	**成功因素** 4.1 是什麼讓臺灣的政府科技生態系成為成功案例？請舉出兩個例子／最佳實務。 4.2 根據臺灣的經驗，您會歸納出哪些成功政府科技生態系的設計原則？ 4.3 - Q1：先前研究已指出若干有助於政府科技生態系成功的因素。根據您的經驗，下列因素對臺灣政府科技生態系的發展有多重要？請以 0（完全不重要）到 10（非常重要）評分。 | 公私部門協作 | 知識共享 | 政治支持，以及生態系參與者對推動生態系發展的投入與承諾 | 清楚的策略與願景 | 具備推動力量、促成者與領導者 | 政府在生態系中的角色 | 能連結公部門組織與民間企業的倡議／機制 | 共創與創新文化 | 實驗與試行的空間 | 標準的協調一致 | 能因應未來發展的法律與法規 4.4 - Q2：依您之見，是否還有其他成功因素？請就各項因素以 0（完全不重要）到 10（非常重要）評分。
5	**政府影響** 5.1 臺灣政府如何從策略層面發展臺灣的政府科技生態系？

	5.2 就政府科技生態系而言，臺灣有哪些政府介入措施特別成功？為什麼？您是否有近期的例子？
6	**死亡之谷（TRL）** 6. 許多創新構想或試辦計畫之所以失敗，是因為無法跨越測試階段。在臺灣，有哪些機制或方案可協助成功的政府科技專案，從原型階段走向擴大規模，並最終廣泛應用？
7	**結語與致謝** 7.1 展望：依您的專業判斷，未來五年臺灣的政府科技生態系將如何發展？ 7.2 透過政府科技，臺灣將能發揮哪些潛力？ 7.3 您是否有任何文獻建議我在本計畫中務必參考？（例如中文研究） 7.4 是否還有其他組織／人士是我應該訪談的？ 7.5 您是否還想補充任何目前尚未談到的內容？是否有不列入紀錄的意見？

Source: Author's own illustration

8.4 Appendix 4: Overview of Conducted Expert Interviews

Code	Description	Date	Format	Language
E1	**Audrey Tang** Taiwan's Cyber Ambassador and first Digital Minister; Senior Accelerator Fellow, Oxford Institute for Ethics in AI	March 21, 2026	Written	English
E2	**Professor** National Taiwan University	March 30, 2026	Online Interview	English
E3	**Ya-wei Chou** Program Manager, Global Innovation Hub/Taiwan Office, Friedrich Naumann Foundation for Freedom	April 17, 2026	Online Interview	English
E4	**Ronny Wang** Founder of OpenFun	April 17, 2026	Written	Mandarin
E5	**Rosalind Liu** Open Culture Foundation	April 23, 2026	Online Interview	English
E6	**Expert** Municipal administration of a Taiwanese city with more than 1 million inhabitants	April 24, 2026	Written	Mandarin
E7	**Julian Goldmann** Head of Science and Technology Section, German Institute Taipei	April 27, 2026	Online Interview	German
E8	**Claire Cheng** CivicTech freelancer; contributor to the g0v CivicTech community	April 30, 2026	Online Interview	English
E9	**Howard Wu** Founder of Goodideas Studio (好想工作室); contributor to the g0v CivicTech community	May 8, 2026	Written	English, Mandarin

Table 8: Overview of Conducted Expert Interviews
Source: Author's own illustration

8.5 Appendix 5: How vTaiwan Works

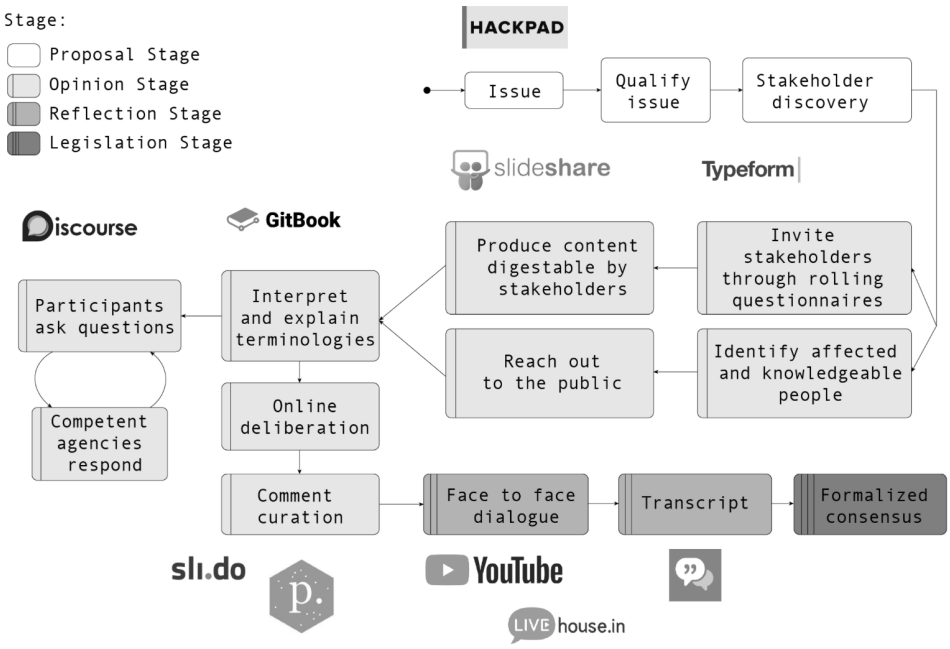


Figure 6: How vTaiwan Works
Source: vTaiwan 2023

8.6 Appendix 6: Opinion Clusters Generated by Pol.is

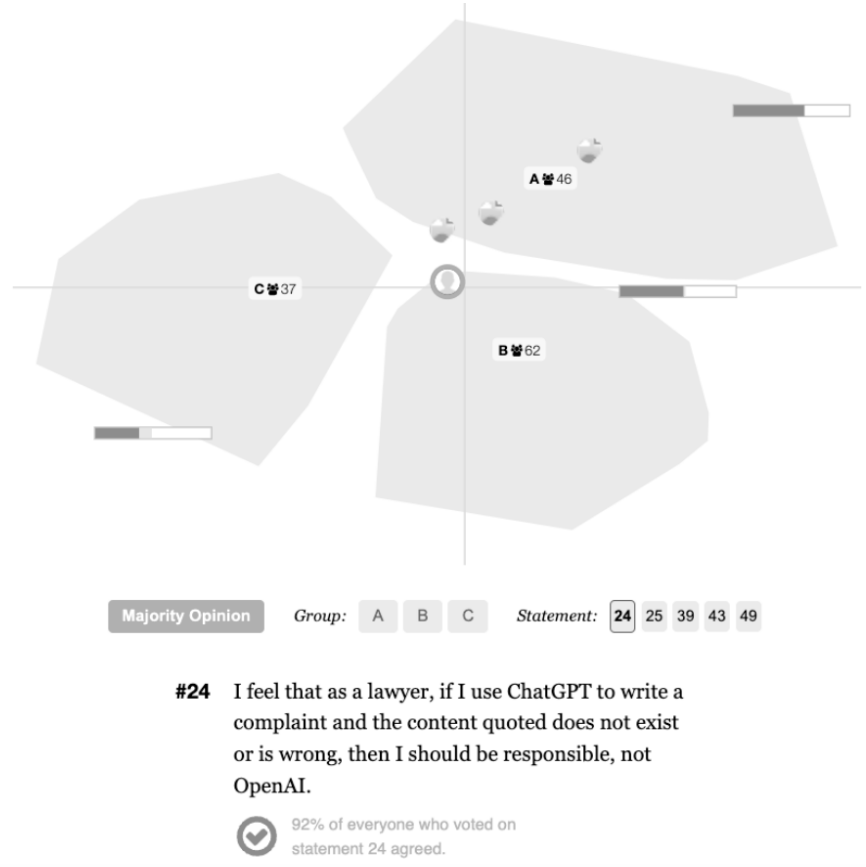


Figure 7: Opinion Clusters Generated by Pol.is
Source: Weyl et al. 2023, p. 70

8.7 Appendix 7: Disfactory



Figure 8: Disfactory
Source: g0v Jothon & Contributors n.d., p. 78

8.8 Appendix 8: Mask Map



Figure 9: Mask Map
Source: g0v Jothon & Contributors n.d., p. 75

8.9 Appendix 9: Smart Taipei Collaborative Ecosystem

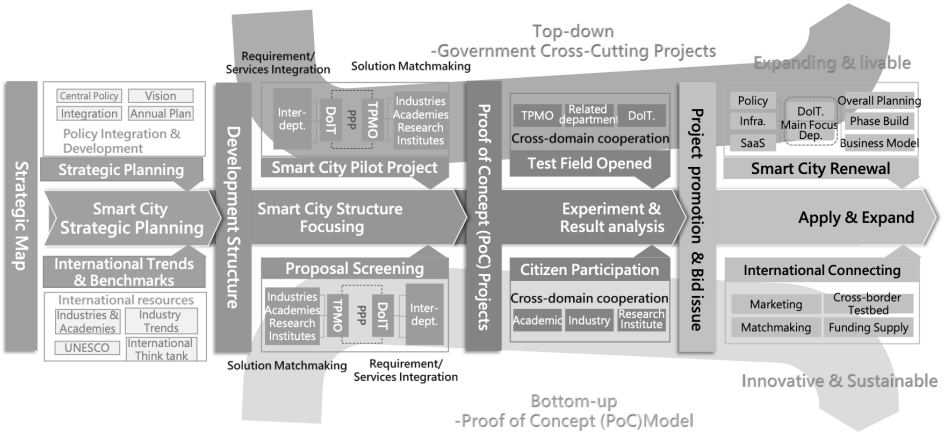


Figure 10: Smart Taipei Collaborative Ecosystem
Source: Taipei Smart City Project Management Office 2024, p. 5

8.10 Appendix 10: Priorities of the "Phase 5 E-Governance Program"



Figure 11: Priorities of the "Phase 5 E-Governance Program"
Source: Biberman 2021, p. 10

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