

# **E-Governance and Civic Technology: Lessons from Taiwan**

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## Abstract

For decades, Taiwan has demonstrated itself to be among the world's leaders in implementing e-government systems which improve efficiency, transparency, and representation for the entire population. Taiwan's response to the COVID-19 pandemic, which leaned heavily on these e-government systems and was one of the best in the world, has amply demonstrated this. Specifically, Taiwan's whole-of-government approach to implementing digital innovations in all aspects of governance has caused it to stand out from the crowd. Its unique approach to ICT has encouraged greater civic participation and a partial erasure of the traditional boundary between government and the citizenry. By allowing government to take advantage of the latent ICT skillsets of its citizens, Taiwan has created a more responsive, effective policy formulation and implementation mechanism which can likewise be taken advantage of by other societies with similar human resources at their disposal. Namely, India, with its large national reservoir of trained coders, would benefit substantially from following the Taiwanese model in implementing its own e-governance initiatives.

## Introduction

On March 10, 2021, the Taiwanese sushi chain restaurant Sushiro began running a simple, gimmicky online promotion for its restaurants: on March 17 and 18, using their national ID cards for verification, people whose names sounded like the word for salmon could dine for free, and people whose names included the exact characters for salmon could eat for free with up to five other people. The campaign, like so many other advertisement stunts, seemed destined to be forgotten within a matter of weeks. In many other countries, it undoubtedly would have been.

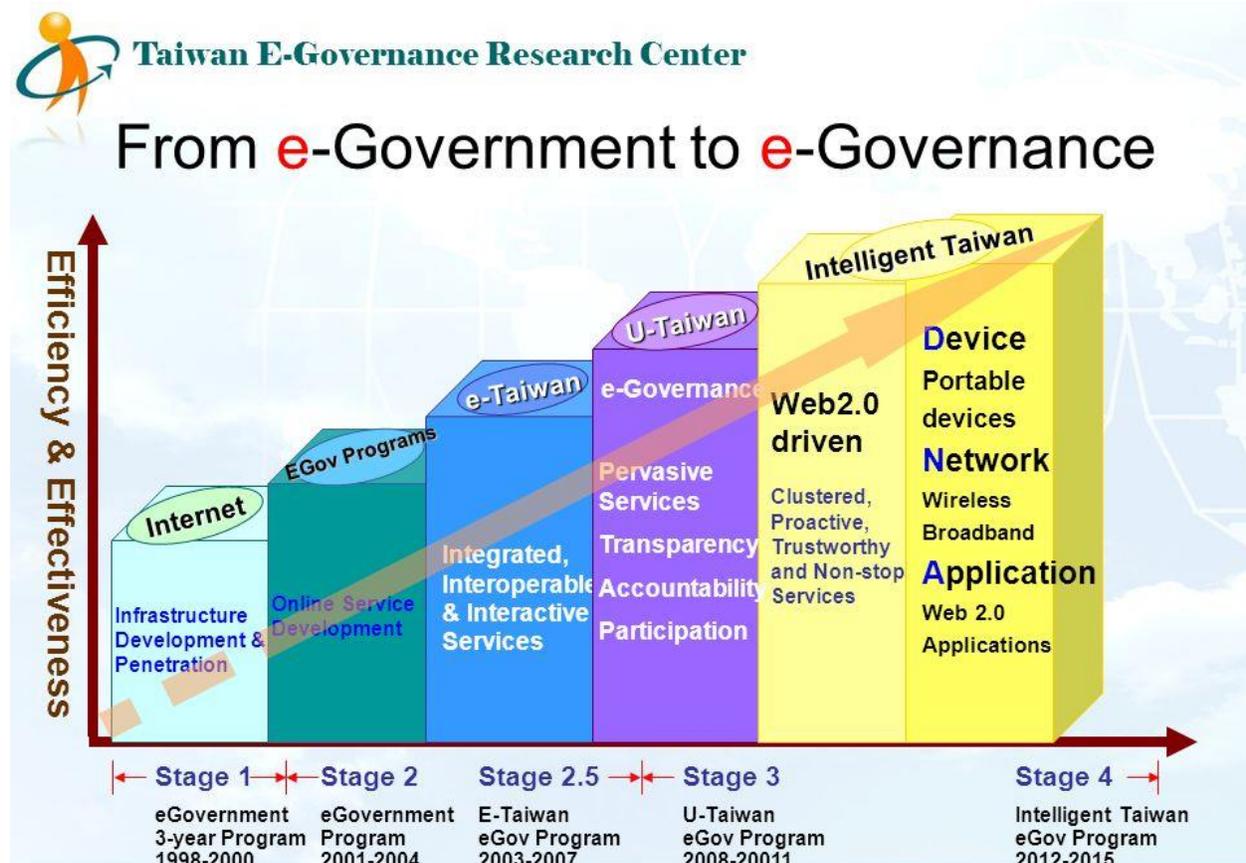
But instead, something surprising, yet not unforeseeable, started happening: people started changing their names en masse to take advantage of the promotion. Starting with the relatively mundane, like “Salmon Prince” and “Salmon Fried Rice,” the name changes got increasingly absurd. One man changed his official name to “Love Taiwan Abalone Tuna Salmon Snow Crab Sea Urchin Scallop Lobster Wagyu,” followed by the names of several hotels (making his name the longest in Taiwanese history, at 50 characters); another student, after changing his name to “Zhang Salmon Dream,” was horrified to learn that he could not change his name back, since he had already changed his name twice before. By the time the promotion ended, hundreds of people had taken advantage of it by changing their names to something fishy. The campaign was nothing if not effective.

The “salmon chaos” of March 2021 was something which likely could only have happened in Taiwan at the present moment. First and foremost, Taiwan has done an outstanding job managing the COVID-19 pandemic, leaving it as one of the only places in the world where normal life has continued, uninterrupted and unabated, for the duration of the most disruptive event of the 21<sup>st</sup> century so far. As of April 2021, Taiwan has recorded only a thousand confirmed cases of the disease, with a mere ten deaths. Second, changing one’s name can be accomplished in a matter of minutes for a mere 3 USD. Like the vast majority of interactions Taiwanese have with their government, it is quick, simple, efficient, and inexpensive. This makes sense, because changing one’s name, given the many other government functions which depend on tracking one’s identity, is an excellent barometer of administrative efficiency. Taiwan’s handling of the pandemic has likewise testified to its unusually excellent government capacity.

Taiwan’s hazy political status has meant that its achievements in the field of governance have frequently been overlooked. The island lacks UN membership status, is not included in most international indices, and was most recently blocked from World Health Organization (WHO) membership despite its success in controlling the pandemic. Yet its innovations have truly been cutting-edge and world-beating. Beyond simplifying and accelerating public service delivery, Taiwanese e-government platforms have even been designed in such a way as to improve the health of the country’s democracy and civil society. Moreover, it has done this relying entirely on its pool of indigenous resources, resources which India likewise has at its disposal. In Taiwan, India has a model for how to apply digital innovation to build a more efficient, just, and representative society, starting immediately.

## The Development of e-Government in Taiwan

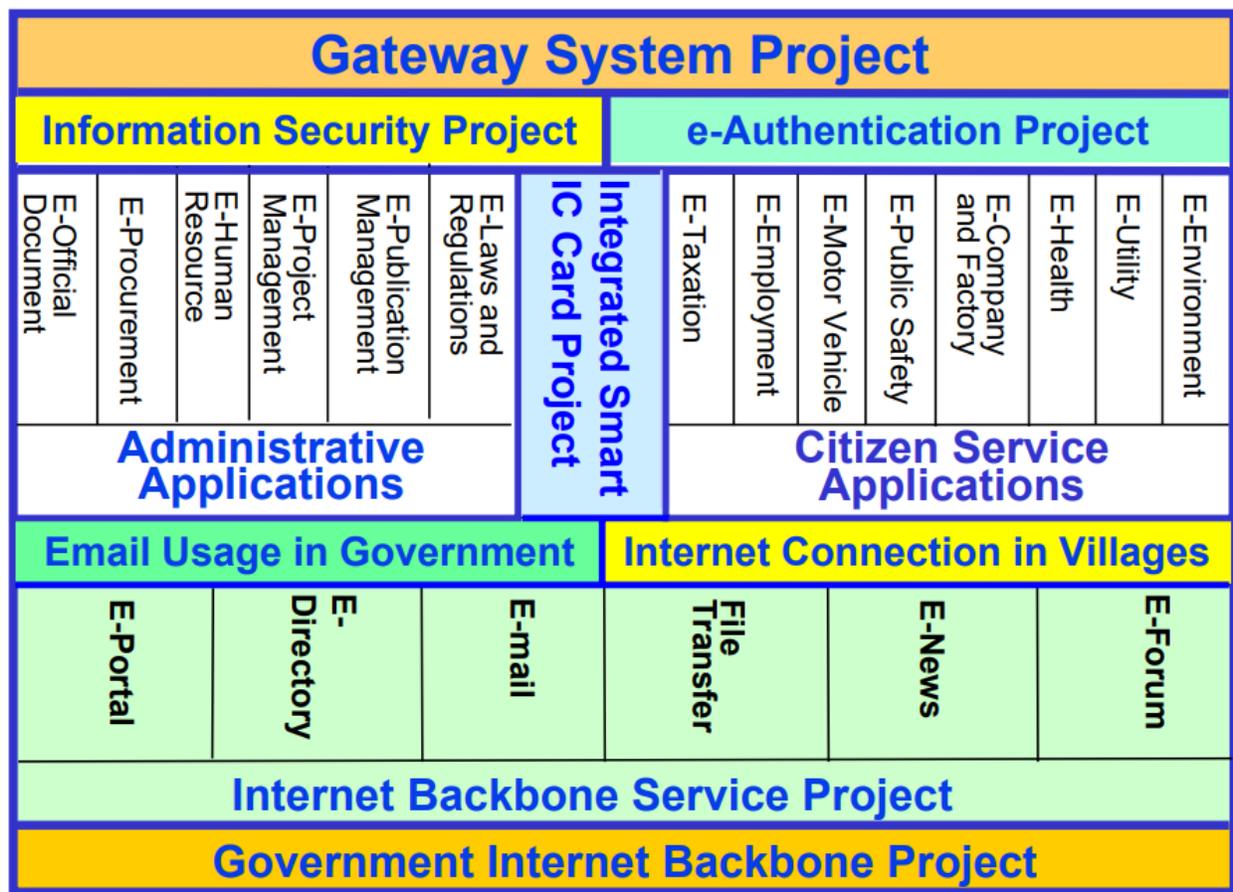
Taiwanese e-government has evolved in a strict, linear, and pre-planned trajectory since the turn of the 21<sup>st</sup> century. It has passed through five distinct stages up to the present day.



*The first four stages of the Taiwanese E-Governance program, through 2016. Source: Taiwan e-Governance Research Center*

Taiwan had taken various steps in the 1980s and 1990s to pave the way for the integration of digital technology into the administration, but starting in 1998, in the wake of Taiwan's first direct presidential elections in 1996, the government began in earnest to set the stage for the comprehensive e-governance in place across the island today. Electronic communication was made the norm across all areas of government, and rudimentary digital systems were put in place for essential intra-government information distribution. Public-facing digital systems were put into place as well, with new platforms for taxation, health, utilities, environmental protection, employment, and vehicle registration being implemented during this period. These public systems were backed up by a new e-authentication project, a prototype for the universal digital identification systems which constitute best practice in e-governance today. Finally, the government made substantial infrastructure investments to connect every corner of the territory

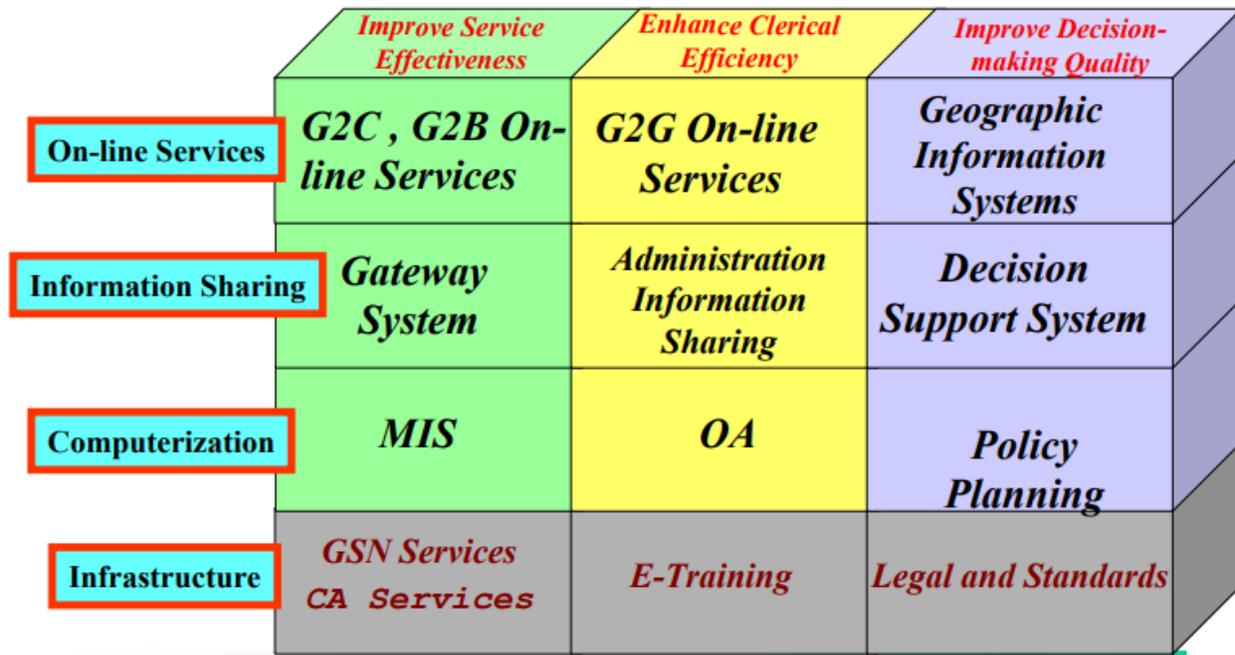
to the internet, anticipating the importance e-governance would hold for rural and urban citizens alike in the near future (today, at least 90% of Taiwanese have access to broadband internet in the home).



Taiwan's e-Government Action Plan, 1998-2000. Source: Research, Development and Evaluation Commission, Executive Yuan

By the beginning of the 21<sup>st</sup> century, Taiwan began to implement the second stage of its comprehensive e-government program by making investments in the effectiveness of these emergent online services. New platforms were established to fill demand for government-to-citizen(G2C), government-to-business(G2B), and government-to-government(G2G) services, integrating novel data standards such as Geographic Information Systems. Information sharing was improved by establishing gateway nodes for data conversion between standard formats, as well as establishing digital systems for sharing administrative and analytical information. Day-to-day operation of digital government was improved by developing Management Information Systems (MIS), automation of basic office tasks, and integrating digital technology into the policy planning process. Finally, the human infrastructure necessary for smooth, effective functioning of digital government was strengthened by establishing a legal framework, training staff to use these new digital systems, while the Government Service Network (GSN) was formed as a common public hosting network for essential public services. Through this series of investments, Taiwan effectively bolstered the capacity of its digital government systems to

improve service delivery, enhance administrative efficiency, and improve the policymaking process.



*Taiwan's e-Government program, 2001-2004. Source: Research, Development and Evaluation Commission, Executive Yuan*

Taiwan further deepened its digital engagement with its citizens with its e-Taiwan initiative, from 2003-2007, and its U-Taiwan e-government program, from 2008-2011. Under these programs, the government broadened its vision of e-government from simply providing digital services to its citizens to maximizing the island's digital competitiveness. With a foundational goal of providing broadband to every household, the program sought to boost the digital competence of its society, industrial, and transportation sectors. Information systems were built up with the explicit goal of encouraging the development of a knowledge-based economy, while the government incentivized industries to incorporate digital systems in order to stay internationally competitive. Finally, e-government systems were further elaborated in order to offer one-stop services to every citizen. By 2008, Taiwan's e-government ranked only below South Korea in a survey undertaken by Brown University, and the island had ranked lower than third in the world only once since 2001.



*E-Taiwan initiative, 2003-2007. Source: Research, Development and Evaluation Commission, Executive Yuan*

Universal digital government and competitiveness truly began taking off between 2012 and 2016, under the Intelligent Taiwan e-government program. With the emergence of widespread personal mobile devices, new opportunities arose for government to engage with the citizenry, in ways which required investments both in new kinds of infrastructure and new kinds of systems for digital interactions with the public. During this phase, particular emphasis was placed on effecting a transition from e-government, in which government takes advantage of digital tools, to e-governance, in which digitization pervades all aspects of the governing process. A principal feature of this transition was improving the accountability process, by using government platforms to simplify information and process disclosure and invite public supervision of the administration. Transparency was further boosted by integrating government information under a single portal, and e-participation portals emerged to facilitate mutual exchange between the government and the public during the policymaking process. These trends would become the defining features which makes Taiwan’s e-governance systems stand out so much today compared to the rest of the world.

The fourth-phase Intelligent Taiwan program was also notable for another great, philosophical change concerning digital service delivery: the transition from a “pull” philosophy to a “push” philosophy. Prior to 2012, Taiwanese investment in e-government services had overwhelmingly been focused on refining platforms to the point where normal citizens could log on and request government services without encountering any significant stumbling blocks or difficulties. This model continues to be the status quo for much of the world today, but it does not take full advantage of the capabilities of a fully digitalized system, especially one incorporating digital

identification. A “push” model, in contrast with the status quo, proactively identifies the needs of citizens, according to factors such as age, location, demographics, preferences, and circumstances, and delivers services straight to citizens without waiting for them to request them. In the context of a modern welfare state, whose natural complexity often prevents ordinary citizens from understanding the ways in which they can take advantage of services they are entitled to without receiving hands-on guidance, this model essentially automates the process of providing means of support to a population within a complex environment. By increasing the delivery rate of actual services which have been promised while improving the transparency of these services, a “push” digital model enhances both the public welfare and public trust in government.



*Key goals of the Intelligent Taiwan e-Government program, 2012-2016. Source: Research, Development, and Evaluation Commission, Executive Yuan*

## A New Digital Democracy

In August 2016, software programmer Audrey Tang was appointed as Taiwan’s first Digital Minister, making her, at 35, the youngest minister without portfolio in Taiwan’s history. Tang had previously designed the media literacy curriculum in Taiwan’s public schools, and had made a name for herself building digital tools to improve the effectiveness of social movements. Tang’s appointment would soon prove to herald a sea change in Taiwan’s approach to e-governance, already one of the world’s best. Tang would take this opportunity not to continue the process of making incremental improvements which had been so successful over the past

twenty years, but rather, to unveil a new, transformative, open-source vision for how technology can redefine, invert, and even erase the distinction between the public and those in public service.

As far back as 2012, a vibrant community referring to itself as the g0v movement, or gov-zero, had been developing a so-called “shadow government” of government services in which volunteer contributors developed parallel, open-source versions of official agency websites with an emphasis on speed and functionality. Gov-zero first gained substantial notoriety during the 2012 election campaign, when a government real estate transaction platform crashed under a flood of requests in the midst of a housing speculation bubble. A gov-zero team comprised of four Google engineers, volunteering on their own time, built a parallel platform that not only was capable of handling the surge in national traffic, but had greater functionality than the official government platform, all for a total budget of under 20 USD. Gov-zero engineers would go on, not long after, to create interactive graphic budget maps of annual spending by each government agency, inviting participants to rate the usefulness of each budget item. Coders associated with gov-zero, which by now had received its own domain name,<sup>1</sup> hosted a hackathon which resulted in a whole suite of shadow government applications, including platforms for services such as weather forecasting, utilities, healthcare and tracking bills in congress. Other noteworthy applications included a participatory fact-checking bot, Cofacts,<sup>2</sup> and MoeDict, one of the world’s most comprehensive online Chinese dictionaries – the latter developed by Tang herself.

What Tang’s appointment to the position of Digital Minister did was to effectively give the official seal of approval to this new wave of entrepreneurial digital governance, and to invite the movement into the public confidence with the government’s blessing. In fact, in the view of some, the appointment of a prominent internet activist to a high-level government position was actually a lagging indicator of public and official willingness to blur the line between public and civic sector aspects of democracy. The development of Taiwan’s democracy has been coterminous with the development of the internet, with the result that democracy on the island has become largely inseparable from the internet. Evolution in the digital space has prompted evolution in the democratic space and vice versa, and the two have even come to share a similar ethos. As Tang describes this interaction, “democracy is a social technology. Much as you can try different semiconductor designs, you can try different constitutional designs.” As a relatively new democracy, Taiwan has not been burdened by the “legacy systems” which have distorted representative government in older democracies, and has been free to experiment with the design of its political system – a mindset borne out by the seven constitutional amendments Taiwan passed between 1991 and 2005 alone.

It’s no surprise, then, that in 2016, Taiwan found itself hosting the world’s most active “civic technology” sector, a phase which describes informal and semiformal volunteer and nonprofit

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<sup>1</sup> <https://g0v.tw/>

<sup>2</sup> Co-Facts is comprised of a volunteer community of fact-checkers that flags articles which have been identified as containing potential misinformation. When a user on Line, Taiwan’s most popular messaging app, forwards disinformation which has been verified and recorded, a chatbot notifies both the sender and the recipient that the content of the message contains disinformation.

initiatives to build digital technology for the public good. Taiwan’s burgeoning civic tech sector was the beneficiary of two main factors causing it to flourish. First, of course, Taiwan had a critical mass of citizens with the skillsets to contribute to such potential initiatives – largely due to the government’s foresight in promoting information industries and an information society during earlier phases of its digital development. Second, and less obviously, Taiwan in 2016 benefited from a high level of trust between the government and its civic tech sector. This development was the outcome of a 2014 student movement, in which Tang was heavily involved, which produced new norms surrounding communication and transparency between the government and its citizens. With this foundational level of trust, the government could provide data and financial support to the civic tech sector without worrying that it would be abused; civic hackers could in turn volunteer their time and effort without worrying that their contributions would be cast aside or mishandled.



Overview of the major priorities of the Phase 5 e-governance program. Source: Taiwan e-governance research center

However, civic tech activists and the government alike had a larger goal than simply outsourcing the development of public platforms to talented volunteers. They wished to advance a wholesale integration of civil society and the public sector, through the application of new technological advances, in a way which improved the functioning of democracy itself. In other words, counter to the digital trends much of the world has experienced over the past decade, in which ICT tools have inculcated mistrust and division, they wished to design an open, transparent governance system from the bottom up to boost social trust, create mutual trust between the population and

the government, and use this mutual trust to create space to pursue common goals. ICT tools can be seen as technologies which accelerate the adoption of the values underlying them, but up until this point, few digital tools had been designed which genuinely prioritized the values of listening, trust, and consensus. For the population to gain this “larger digital literacy of civic engagement,” new structures had to be built from scratch.

Taiwan’s civic tech sector started by identifying a technology for democratic mediation upon which they could build. They found this in Polis,<sup>3</sup> an open-source online tool which had its roots in the grassroots organization tools used during the Occupy Wall Street movement. Polis draws lessons from in-person experiences with direct democracy in order to work towards more collaborative and inclusive online discussions. Given a discussion topic selected by the body of users, individual users post their sentiments about the topic, which other users can agree or disagree with. To discourage trolling behavior, replies on these statements are disabled. As users react to statements, a machine-learning algorithm groups like-minded users together and physically moves their avatars closer together on the user interface. This movement is visible in real time to all users, a tangible demonstration that adjusting one’s opinions in response to new facts in a democracy is not only acceptable, but should be encouraged. This structure essentially gamifies the process of reaching consensus by incentivizing users to post statements about controversial topics which other users will agree with. At the same time, physically grouping like-minded users exposes concrete areas of disagreement and encourages discussion around reaching consensus over those topics. While Polis has likely been used to the greatest extent in Taiwan, its use has certainly not been limited to Taiwan – Canada, for instance, used Polis in 2018 to facilitate debate around a series of anti-racism policies proposed by the government.

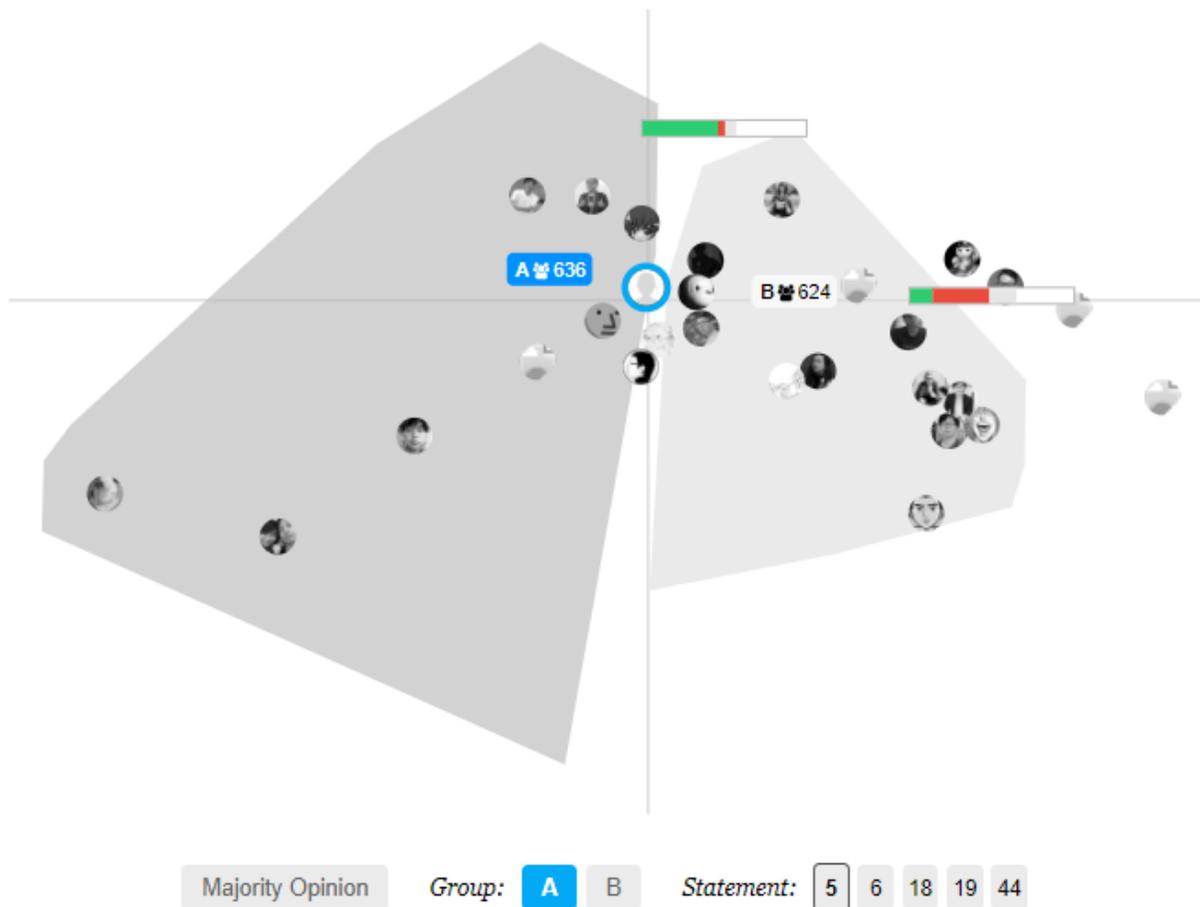
Taiwan used Polis as the foundation for two major direct democracy platforms. The first, vTaiwan,<sup>4</sup> is run as a partnership between the government and the civic tech sector. Incorporating stakeholders from the public, private, and social spheres, it has largely been used to debate policy solutions to challenges that emerge within the digital economy. For instance, vTaiwan was indispensable in defining a set of norms and rules to regulate Uber and other actors in the ridesharing market. Prior to vTaiwan’s involvement, the national debate over what constituted a fair system for licensing, registration, insurance, and taxation of rideshare vehicles had proceeded fruitlessly for two years, unsurprisingly given the complexity of the topic. VTaiwan facilitated the emergence of a “rough consensus” around these necessary policies, one which would have likely been impossible to reach through the ordinary political system. Policymakers were then able to work within the bounds of this consensus to produce a full-fledged regulatory agenda for rideshare vehicles, which was ultimately successful (while Uber initially withdrew from the Taiwanese market as a result of these new regulations, it returned soon after). VTaiwan has additionally been used to identify societal consensus around a host of other controversial topics, such as how to combat revenge porn, how to regulate online alcohol sales, or what regulations to implement for the platform economy. The platform was even used

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<sup>3</sup> <https://pol.is/home>

<sup>4</sup> <https://info.vtaiwan.tw/>

to create a “FinTech sandbox,” which allowed companies to temporarily experiment with financial products which had not yet been formally legalized.



#5 我覺得主動取締白牌車是交通部的責任。



80% of those in group A who voted on statement 5 agreed.

*An example of the Polis user interface, drawn from Taiwan’s rideshare debate. Selected is the statement, “I think it is the responsibility of the Ministry of Transportation to crack down on illegal, unlicensed taxis.”*

The second platform, “Join,” is operated entirely by the government and largely concerns itself with offline policies, such as vacancy taxes and regulations for veterinary drug prescriptions. The overall functionality and status of the platform is similar as well: an agenda is set by participants (in contrast with a citizens’ jury, in which organizers determine the discussion topic), information about the topic verified by crowdsourced fact-checking is posted 2-3 weeks in advance for users to review, a “rough consensus” is reached, and the outcome is formally forwarded to the government, often resulting in concrete policy action. This suite of platforms are a manifestation of what Tang refers to as “algorithmic cogovernance,” in which norms for digital interaction are redefined through applications of new technology in ways that produce

consensus and strengthen democracy. This, in addition to an education curriculum which stresses media competence – or the ability to recognize and deal with disinformation in real time – could be the main reason for the health of Taiwan’s democracy, especially in the online space. In fact, in a recent study, Taiwan was rated as one of the healthiest liberal democracies in the world, despite being the target of more disinformation campaigns and overseas media interference relative to its size than any other democracy in the world.<sup>5</sup>

## Adapting the Taiwanese Model to India

At first sight, Taiwan may not seem like a particularly appropriate place for India to be adopting ICT innovations from. India and Taiwan are at substantially different levels of development, and face substantially different challenges. Furthermore, the deep integration of ICT within all aspects of Taiwanese society over the past 20 years has been a prerequisite for much of Taiwan’s subsequent success; although India has made significant investments in both its soft and hard ICT infrastructure in recent years, far more would be required to reach Taiwan’s level. However, regardless of these limitations, India is actually ideally suited to adopt many of the innovations developed in Taiwan’s civic technology sector. With a successful adaptation, India would rapidly start to benefit from more transparent and efficient public services, greater trust between government and society, and even healthier, more democratic, consensus-oriented interactions between the public and the political sphere.

First, like Taiwan, India does have a critical mass within the population who have developed the skills necessary for a functioning civic technology sector to blossom. India has a large base of coders, software developers, and other technology workers, similar to the groups in Taiwan which gave birth to its civic technology sector starting roughly in 2012. With proper structures to mobilize their talents and the backing of official resources, India could immediately see developments similar to the “shadow” government platforms of gov-zero which became such a great success in Taiwan – a very important potential development for government transparency and public trust given the limitations of many existing public ICT platforms in India. These structures could even be established with formal technical assistance from Taiwan. It wouldn’t be the first time that Taiwan had assisted a foreign country in the development of their e-governance systems; the Public Digital Innovation Space (PDIS), Taiwan’s cabinet-level digital policy lab, was deeply involved in transplanting the Taiwanese model to Italy, culminating in the founding of gov-Italy in 2018.

Given the ways in which access to technology aligns with deep divisions within Indian society, it is likewise natural to raise concerns about how unrepresentative a group defined by its high ICT literacy would be of Indian society. An emergent civic tech sector in India may develop solutions to challenges in society, but who would these challenges be for? This is certainly a valid concern, but it is also worth noting that a disproportionate amount of the untapped STEM talent in India

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<sup>5</sup> [https://www.v-dem.net/media/filer\\_public/99/de/99dedd73-f8bc-484c-8b91-44ba601b6e6b/v-dem\\_democracy\\_report\\_2019.pdf](https://www.v-dem.net/media/filer_public/99/de/99dedd73-f8bc-484c-8b91-44ba601b6e6b/v-dem_democracy_report_2019.pdf)

comes from disadvantaged groups, namely women. Although women comprise 43% of Indian STEM graduates, the most in the world, a mere 14% of STEM jobs go to women. The opportunities provided by a civic tech sector would both offer these graduates chances to use their talents for the public good and could give them greater opportunities for formal employment in the fields in which they trained. If similar dynamics are replicated among other disadvantaged groups in India society, then civic tech provides a powerful ladder for social mobility, while at the same time creating solutions to true public challenges among disadvantaged groups which the status quo is not providing.

The second pillar of a thriving civic tech sector in India would be greater mutual trust between government and society, particularly those members of society who would form the body of this potential volunteer community. This trust provides necessary assurances to these volunteers that their work will go to good use, and provides assurances to the government that their support will not be abused. Countries which attempt to build similar e-governance systems without this level of trust often find that their new decision-making platforms end up powerless. Without the weight of law to give their decisions formal impact, direct democracy forums in these countries often become a way of “openwashing” preordained decisions by the government. Taiwan’s system is far more formalized than these countries, and legislation has worked to give recommendations from its direct democracy platforms legal weight. But even despite this, the government has on occasion been hesitant to put forward the trust in civil society necessary to give these platforms actual power. In India, this process is likely to be even more difficult. At the national level, the government’s relationship with both the tech sector and much of civil society has become increasingly adversarial. However, the model could easily be piloted at the state level or even in a city such as Bangalore where a critical mass of volunteers is easier to achieve and barriers to achieving trust will be lower than at the national level.

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