The New Progressives? The Emergence of Civic Tech in the United States and its Implications for Governing

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Abstract

While much has been written on digital government as a general trend, this paper instead examines how civic tech is changing American government, focusing on an influential constellation of actors who shape the understanding and implementation of technological opportunities. Civic tech for government applies technology, data and human centered design to improve policy implementation, often with a social justice focus. It represents a distinct field of administrative practice, addressing traditional public administration problems inside and outside government, in a way that will have long-ranging effects on public sector reform and service delivery. Civic tech offers the promise of increasing state capacity in a way that centers attention on public service clients. This paper explains the origins of civic tech, its core values, how it has evolved, how it is changing government and potential opportunities to build bridges between civic tech and the academic study of government.

Keywords: civic tech, agile, human-centered design

This paper identifies the emergence and relevance of the field of civic tech in the United States. Civic tech represents a distinct movement, one bringing its own valence for change in public organizations. The movement currently consists of a loosely affiliated group of technology and design experts, traditionally coming from outside government but engaged in remaking government services through digital innovations. They are increasingly being incorporated into government as political appointees, career officials (though often on a short-term basis), or as for-profit and non-profit contractors. In doing so, they are being asked to take on core administrative tasks, while also tapped to lead the modernization of government. Some of the most important administrative reforms are being undertaken by the civic tech community.

Understanding civic tech helps us to better understand the nature of the evolution of public services to a digital era. To be sure, there is already a strong literature on digital government (see, e.g. Eom 2022; Kim, Andersen and Lee 2022; Peeters 2023; MacLean and Titah 2022; Mergel, Edelmann and Huang 2019), but how civic tech is actively involved in shaping this change in a way that has only been partly recognized (e.g. Mergel 2016), and documented largely by civic technologists themselves rather than academic scholars (Harrell 2018; Pahlka 2023; McGuinness and Schank 2021). For example, civic technologists were at the forefront of enacting an open government movement (Ingrams, Piotrowski and Berliner 2020), but, as this article explains, came to conclude that transparency itself was insufficient as a mechanism for changing government. To understand public management change, we also need identify and study the actors promoting that change, their goals, values, and strategies, as these will increasingly be reflected in routine administrative processes.

The primary research question for this paper is: how is the emerging civic tech movement reshaping American government? Thus, this paper seeks not just to conceptualize the field of civic tech, but to understand the deeper implications for the evolution of government. Given the paucity of knowledge about this field, this paper is descriptive and exploratory. The primary task is not causal theorizing, or in-depth empirical analysis, but to chart a relatively unexplored area in which such work might occur. This description is informed by content analysis of espoused values of civic tech organizations, and interviews with 14 individuals who have played significant roles in the civic tech community. Interviewees were selected based on playing leadership roles in key civic tech organizations, transcribed and coded for recurring thematic

patterns using NVivo. The list of the interviewees is provided in the appendix, and are quoted throughout, by name or interview number.

To understand how civic tech is changing American government, this paper first defines it, and explain its origins. In searching for a helpful multi-layered metaphor, we might think of civic tech as a progressive movement. In contemporary politics, progressivism is associated with values, such as inclusiveness and social equity, espoused by civic tech. We therefore next examine the espoused values of civic tech. As a historical analogy, the Progressive movement in America was a group of actors who started outside government in the late 19th century, battling what they saw as inefficiency and corruption, and offering new capacities to improve public services (Skowronek 1982). Over time, this movement became insiders: they founded the professional field of American public administration, built new administrative capacities and reshaped internal processes in government. To draw this parallel with civic tech, this paper next documents how it went went from an outsider movement to one that is embedded and accruing power in American government, and identifies the changes they seek to bring, which includes as much emphasis on centering citizen experience as it does on the use of technology. As it stands, the civic tech movement is emerging largely separate from the traditional study of government, and vice versa. The paper concludes by reviewing a research agenda that offers a basis for collaboration between the study of public administration and the practice of civic tech.

Background: Factors Specific to the US Case

Reform movements reflect a mix of general and local factors. In this case, the general factors are the emergence of information technology and its possible applications to government, as well as the presence of skilled technologists with civic motivations. This has fueled civic tech as an international movement. A number of local US factors are relevant. One is an agglomeration of tech talent, as symbolized both by Silicon Valley and more local tech communities. There is simply a large critical mass of actors with relevant skills in the private and increasingly non-profit sector, providing a breeding ground for a tech-based movement outside of government. The vast fortunes made in American technology also helped provide the basis for a new philanthropic class who had seen first-hand the possibilities of technology, and could help to provide, along with traditional donors, funding for civic tech. Indeed, a key trait of American

civic tech is the degree to which it is being consciously developed as a field by the philanthropic community to address perceived governance problems.

What are those failures the US civic tech community seeks to redress? These are described in more detail below, often tied to particular policy events (such as President Obama's rollout of the Affordable Care Act), and frustration with the perceived gap between the quality of public services and what is provided in private domains. There is a sense that the US administrative state is playing catch-up, having failed to invest in technological capacity in a systematic way (Nintze and Sinai 2022; Pahlka 2023; McGuinness and Schank 2021). The government that birthed the internet also neglected efforts to modernize its own technology, or to enable its workforce to manage such change. This partly reflected a neoliberal impulse and cultural suspicion of government. For example, in 1995, US House Speaker Newt Gingrich shuttered the U.S. Office of Technology Assessment, arguing that technological change was best managed by the private sector. At a time when the technology was driving a massive economic boom, the bipartisan wisdom emphasized the virtue of small government. Civil service policies remained unchanged. The effect is that when hiring for tech talent, the federal government relies heavily on short-term hires and hiring processes that are slower than private competitors. US governments have, by in large, preferred to outsource when possible. Complex procurement requirements rewarded vendors who could manage legal demands rather than those who offered technological expertise (Mergel 2016). Because of the general difficulty in managing technological investments, alongside the lack of government capacity to manage those contracts well, governments frequently felt they were left with problematic outcomes, including expensive and inflexible contracts that did not deliver.

The civic tech community views constraints on hiring, dysfunctional procurement processes, and a disinterest in technology as creating a need for their skills to modernize the administrative state. Lynn Overmann, Director of the Beeck Center framed it this way: "The underlying values of civic tech – and why in my mind, I ground it so solidly in government as a primary partner or area that you are trying to influence – is an origin story that centers around a recognition that government technology and the way that citizens use technology to interact with government was and remains woefully behind. And that there are not enough people with technical skills in government to improve that. A general operating thesis that if we can get more

people who are good at…using technology to serve the public, that outcomes will improve, and that that is kind of the operating thesis of the field as I see it."

Defining Civic Tech

Civic tech for government can be defined as a movement that applies technology, data, and human-centered design to improve policy implementation, often with a social justice focus. This definition is simple and crude, but captures basic elements of practice, draws on working definitions that already exist of civic tech (see Table 1), and reflects responses from those interviewed. One caveat is that all labels of loosely affiliated networks of actors are bound to be somewhat incomplete, subjective and contested. The qualifier of "for government" distinguishes it from forms of civic tech disconnected from government practice. As described below, civic technology emerged from outside government, and many retain this outsider perspective. This should not prohibit us from understanding how some civic technologists elected to engage directly with government.

Table 1: Definitions of Civic Tech

Definition	Source
"A loosely integrated movement that brings the strength of the private-sector tech world (its people, methods, or actual technology) to public entities with the aim of making government more responsive, efficient, modern, and more just"	A Civic Technologist's Practice Guide (Harrell 2020, 17)
"Progressively learning about a problem and improving on a solution" (Note: definition is for civic hacking)	Civic Tech: Making Technology Work for People (Schrock 2018, 3)
"Technological tools that promote, facilitate, or coordinate civic actions"	The Practice of Civic Tech: Tensions in the Adoption and Use of New Technologies in Community Based Organizations (Gordon and Lopez 2019, 57)
"Technology used to inform, engage, and connect residents with government and one another to advance civic outcomes"	Scaling Civic Tech: Paths to a Sustainable Future (Knight Foundation 2017, 7)
"Technology that enables greater participation in government or otherwise assists government in delivering citizen services and strengthening ties with the public"	What is Civic Tech? (Wood 2016)

"The design and use of technology to support both formal and informal aspects of government and public services"	Data, Design, and Civics: An Exploratory Study of Civic Tech (Boehner and DiSalvo 2016, 2970)
"Technology that positively impacts society — but that's not the whole story. It's about creating civic innovation tools (tools that help make more democratic, transparent and people centered governments), but it isn't only about the tools themselves — it's about the process through which these tools are created. One important element of the process, for example, is that the people who will be using the tool must be involved in its creation."	About Civic Tech (Code for All n.d.)

An overlapping concept worth noting is Public Interest Technology (PIT), which has been defined as the "application of design, data, and delivery to advance the public interest and promote the public good in the digital age" (McGuinness and Schank 2021, ix). PIT shares an interest in the use of technology for good, but is a "much bigger tent" (8), incorporating not just civic tech, plus many other concerns about how technology is used in different societal spaces. It is also more clearly associated with specific philanthropic donors (like the Ford Foundation) and think tanks (the New America Foundation), and their desire to connect universities to both education and research to these questions. Civic tech actors saw little affinity with traditional GovTech, because of its perceived indifference to civic outcomes, even as they acknowledged that they must work with it to change how technology is used.

The Origins of Civic Tech

While assigning specific start dates to amorphous movements is an inexact science, one key moment that might serve as the origin of the US version of civic tech is the aftermath of the failed rollout of the Affordable Care Act website, Healthcare.gov, in 2013. President Obama's attention to the problem led to an investment in improving government technological capabilities. New federal organizations – the US Digital Service (USDS) and 18F – were created, drawing in new tech talent who would form the nucleus of the first generation of this community. Many then left government, creating their own non-profit or private civic tech companies that partnered directly with government. Some version of this community might well have formed regardless, but the aftermath of Healthcare.gov had a formative impact in engaging key individuals, shaping the community that emerged. It also provided a defining origin story, a professional myth, and identity.

Digital innovation and open data in government had already been a priority of the Obama Administration even before the creation of Healthcare.gov. Obama was personally interested in technology, was friends with people in Silicon Valley, and saw tech as a relatively neutral space where he could make a difference (1, 5). Obama created the posts of Chief Technology Officer, Chief Information Officer, and Chief Data Officer within the Office of Management and Budget (Levy 2017). His administration also launched Data.gov, the country's first open data site, just a few months after inauguration. In 2013, he signed an executive order making open and machine-readable data the default for the federal government. This reflected on aspect of early civic tech, which put a strong emphasis on open data as a mechanism for change.

Still, the home of Silicon Valley lagged other countries, such as Estonia and the United Kingdom, when it came to digital governance. The need for USDS became clearer after the botched rollout of Healthcare.gov. Only six people were able to sign up for insurance on the website during its first day. The issues could be attributed to a combination of "disorganized contractors and bureaucratic mismanagement" (Meyer 2015). As David Cutler, an Obama health advisor, put it, the Obama administration was "running the biggest start-up in the world, and they didn't have anyone who had run a start-up" (Goldstein and Eillperin 2013). The administration turned to a group of Silicon Valley coders and developers who rebuilt the website in a matter of months (Meyer 2015).

The Healthcare.gov failure became "the big watershed moment" (3) in the evolution of civic tech by creating close scrutiny about the role of technology. Jennifer Pahlka, serving as Deputy Chief Technology Officer, helped found the USDS, drawing inspiration from the UK Government Digital Service. Her experience as the founder of the civic tech nonprofit Code for America (CFA), allowed her to frame what the healthcare.gov failure implied about the relationship between technology and services (3). Open data was not a sufficient strategy to solve the problem of poor service delivery. That framing "spawned a whole bunch of examination about like, what are the processes? How are things acquired? What's procurement look like? Who ultimately owns the systems that are being built? The technology systems, but also the larger delivery systems. And who owns the responsibility? Because there has long, at least in the federal government, been this notion that if you hire a contractor to make a thing, you're basically outsourcing the risk which is never, ever true" said Dana Chisnell, a founding member of USDS.

USDS, established in 2014, sits within the Executive Office of the President with a mission is "to deliver better government services to the American people through technology and design." Many early staffers of USDS came from the Healthcare.gov rescue team. USDS offers support and guidance to agencies, but cannot dictate a governmentwide approach on most issues. In times of crisis, or when a President prioritizes a policy outcome dependent on digital innovations, it can play a more prominent role, serving as a de facto firefighter for digital governance. The General Services Administration set up its own digital consultancy team, 18F in 2014. This team's mission is to work with agencies to "[transform] the way the federal government builds and buys digital services" (GAO 2021). 18F is a cost recoverable office, meaning that they charge partner agencies for their work rather than being funded directly through a congressional appropriation. Both organizations use similar managerial technologies, which includes agile, iterative design, a user-centric approach, a reliance on data-driven decision making, directly managing relationships with vendors, favoring open-source solutions, the prioritization of platform models, and a flatter organizational culture (Clarke 2020). USDS and 18F amplified the networking of civic technologists, by creating a cohort who would move in and out government with a common reference point. The existence of deep pools of tech talent outside government pre-dated these offices, but their creation served as a signal to this community, an entry-point for their efforts.

One practical challenge was finding hiring authority for these new types of talent. A partial solution became the Presidential Innovation Fellows program, which began in 2012, and formalized by Executive Order in 2015, and put into statute through the TALENT Act in 2015. Other routes include Intergovernmental Personnel Agreement, and Schedule A(r) which has been used by USDS. All of these hiring processes allow for short-term hires of up to four years, are on a relatively small scale, do not provide a permanent pathway for specialized tech talent, and reflects that the inclusion of civic tech hires in government has worked around rather than occurred through traditional civil service processes. On the one hand, this approach has allowed each agency to benefit from new talent reflecting "the assumption is that your tech skills go old really fast in government. They get outdated…So part of the theory of change was to create a constant stream of current talent" (13). But it also reflected opposition from public sector employee unions that have fought to maintain standardized hiring processes.

If the failed rollout of the ACA website represents one visible starting point for civic tech, it overlooks an earlier phase, one that is more bottom-up, local and non-profit. An Apps for

Democracy hackathon held in 2008, hosted by the District of Columbia, represents a key moment. As the first open government hackathon it "kick-started the city-focused and largely volunteer-driven open data movement" (Harrell 2020, 18). The work of the non-profits like the US Digital Response and the Center for Technology and Democracy reflects the more bottom-up and outsider tradition sometimes associated with civic tech, but on a broader scale. Even earlier precursors could be found in the early 2000s, such as informal events run by Tim O' Reilly or the Personal Democracy Forum meetings (1, 13). Other early conveners and funders like the Sunlight Foundation and the Knight Foundation, placed an emphasis on open data which framed the early technology policies of the Obama administration.

A number of formal organizations also formed prior to federal organizations, many at the local government level (Living Cities by OpenPlans 2012). This includes the New Urban Mechanics unit of the Mayor's Office in Boston (formed in 2010), the Louisville Office of Civic Innovation (2011), the Philadelphia Mayor's Office of New Urban Mechanics and the Mayor's Office of Civic Innovation in San Francisco (both formed in 2012). On the nonprofit side, CFA was founded in 2009 by Jennifer Pahlka, with funding from the Sunlight Foundation, with an early focus on a fellowship program that embedded developers and designers in city governments for year-long stints to bring a fresh perspective to municipal tech problems (Wadhwa 2011). Pahlka was not the only person who emerged from this movement to help found USDS. Dana Chisnell had spent years working on bringing design principles to local elections, creating the nonprofit Center for Civic Design in 2013, before becoming a founding member of USDS. In this respect, the bottom-up flow of innovators from the civic and local government world to the federal level is another historical parallel to the progressive movement.

The number of civic tech organizations in the US grew by about 25% annually between 2004 and 2012 (The Knight Foundation 2013). Since 2012, the growth in civic tech has been driven by CFA, smaller start-ups who embraced the term, big tech companies like Google and Microsoft who launched civic tech divisions (Gordon and Lopez 2019), and city-level innovation offices. States have been somewhat slower than city or federal counterparts, but have become more active such as Georgia, New Jersey, Colorado, and California. Growth in the number of civic tech projects has been exponential since the early 2010s (Modekurty, Bhatia, Stempeck, and Sifry (2019).

This leaves open the question of what civic tech actually does. Harrell (2020) identified the major current project types as:

- Service delivery: a tech solution that delivers public services; these typically involve direct support from government entities

- Infrastructure and data projects: these projects focus on upgrading or building government and civic digital infrastructure; while direct government support is necessary for projects with deep infrastructure, there are many opportunities for non-profits or volunteers to work with open data

- Specialized tools for digital government: these projects typically involve building and selling digital tools that are common in the private sector for government use

- Rescue operations: these efforts support government needs to rapidly scale up or reform some type of technical capacity or service

Thus, civic tech plays a broader role than the designer of websites. Rather, it aspires toward the idea of "government as a platform," (O'Reilly 2010).

The Espoused Values of Civic Tech

In some respects, civic tech is defined by what it is not. It is not traditional for-profit technology consultants that members of civic tech regard as charging excessive fees for poor services, in contrast to their interest in public service. Neither are they traditional government, which they associate with hierarchy and bureaucracy, even as they are more prominent in government. A key point is that it is not so much organizational sector that defines civic tech, but an ethos about how technology is used to help people engage with government. A starting point to understanding this ethos is to identify the espoused values of the most visible civic tech organizations (see Table 2).

Table 2: Espoused values of the civic tech community

Values	Organization/Source
Government organizations	
Values: • Hire and empower great people • Find the truth and tell the truth • Optimize for results, not optics	US Digital Service

• Go where the work is • Create momentum • Design with users, not for them	
Principles: • Practice user-centered development • Test to validate hypotheses • Ship often • Deploy products in the open	18F
Principles: • Equity • Evidence • Innovation	NYC Opportunity
Non-government organizations	
Values: • Listen first • Include those who've been excluded • Act with intention	Code for America
Values: • Democracy • Collaboration • Openness • Accessibility	Code for All
Values: • Creating solutions • Fostering diversity • Taking ownership • Be relentless • Communicate openly • Practice empathy • Quality	Benefits Data Trust
Values: • Be active stewards • Pursue the root cause • Think long-term • Build together • Inclusion is essential • Progress takes work	NAVA
Values: • Working in the public interest • Humility and respect • Observing a code of conduct	US Digital Response
Mission: • To build modern, respectful, effective technology that helps low-income Americans improve their financial health	Propel

Focus on creating solutions that are: • People-centered • Policy-driven • Rigorously compliant • Data-informed • Flexible and versatile	Alluma
Vision: • Enable more complete, equitable, and effective democratic participation • Make government and politics more accountable and transparent	The Sunlight Foundation
Values: • Empathy • Privacy • Accessibility • Delivery (i.e., deliver support without it adding stress to individuals experiencing hardship)	mRelief
Values for the public interest technology ecosystem: • Accessibility • Transparency • Diversity • Equity • Accountability • Ethical • Effective	New America
Values: • Community • Education • Advocacy • Partnership • Impact	Digital Service Coalition
Values from literature describing civic tech	
Principles of civic tech: • Design locally first (build with, not for) • Hack infrastructure, not technology (think of technology as social and community infrastructure) • Open data can improve communication • Organize around public problems • Change government for the better	Civic Tech: Making Technology Work for People (Schrock 2018)
Principles that a tech-enabled social safety net should follow: • Inclusive (protecting all regardless of employment status) • Portable (following the individual regardless of job changes) • People-centric (put those affected by the policies at the center of design/delivery)	Building the Tech-Enabled Safety Net: Public Benefits and Innovation Amid

• Interoperable (integrate benefit systems/platforms)	COVID-19 (King and Ramos 2021)
Principles of new public problem solving: • People-centered • Experimental • Data-enabled • Designed to scale	The New Practice of Public Problem Solving (McGuinness and Slaughter 2019)

The espoused values reveal that members of civic tech do not see themselves as merely providing technical expertise. "I don't love the civic tech label because it obviously prioritizes the technology part, and I think there's a lot more happening in the space than only technology modernization" (2). Like the Progressive movement of a century before, they see their work as innately tied to good government values. Indeed, strip away mentions of technology and data, and many of the espoused values could easily fit with good government movements of previous generations: transparency, equity and accessibility. That said, it is worth unpacking these value statements a little further.

The broadest value, and one that might feel most surprising to non-technologists, is the emphasis on people, specifically in improving the experiences of the "users" of technology. The users might be members of the public who use public services, but can also include the government employees affected by new technology. This "unwavering focus on people first" (13) was a recurring theme among interviewees:

- "Some of those powerful things that we can do, and the most powerful changes that we can bring are not necessarily what people - especially government people – think of as tech, but tools like plain language, better service design, or user research" (9).
- "If you're building a truly civic component to it, you're making it accessible and usable for everyone" (4).
- "I am really focused on understanding the policy problem space from the point of view of people who are experiencing that problem…I can bring that to life by either having policymakers with me, so they can hear the stories of the lived experience from people directly, or finding ways to convey that lived experience to those people" (2).

The espoused values also put an explicit emphasis on inclusion – the idea that those affected by technological changes will be part of the process of designing those changes, but also

reflecting broader concerns about diversity and representation. Sha Hwang, of Nava pointed to inclusion as an ethos of "built with not for" when working with stakeholders.

The emphasis on transparency and openness also reflects a broader emphasis on the accessibility of government to citizens and invoking an open-source approach to sharing techniques and lessons. It connects values of civic involvement and transparency, such as the emphasis on shared open-source solutions that came from civic hackers and is reflected in the workings of organizations 18F. "Working in the open…is also a shared value across all of these organizations." (6).

From Outsiders to Insiders: How Civic Tech Gained Power

In the course of about 15 years, civic tech in America evolved from being primarily a movement that worked outside of government, to one that works with or inside government. This shift reflected and necessitated new theories of how civic tech could achieve its goals, and institutionalization of civic tech in organizations and processes, and greater capacity to manage power. It also reflects some ongoing tensions within the movement, from skeptics who retain an outsider role, to those who struggle with the constraints of pushing change within bureaucracies.

Early theories of change took a number of forms, but a common theme was that they did not require civic technologists to maintain an ongoing presence in government. Such theories emphasized open data and open-source code, reflecting a faith in transparency as a vehicle for change. They aligned with and were part of a broader movement toward open government as a vehicle to changing public management: "ideas of transparency, accountability, and participation bound together by the potential of new digital technologies emerged as a new reform movement" (Ingrams, Piotrowski and Berliner 2020, 258). Other theories centered on the idea that civic technologists could show or build products that could be handed off to government officials. While the previous section makes clear that the faith in transparency remain, many civic technologists came to conclude that it was insufficient to facilitate the changes they wanted.

- "Open-source and open data had a lot of resonance. There was this idea, especially in early Code for America to say, you build something in a fellowship in one city, and then you'd open-source it, and that everybody would just be able to use it…And that reuse theory really didn't work as well as people hoped" (5).

- "Maybe 10 years ago, 15 years ago, in the kind of open-data movement days were very much like…sunlight will be the best disinfectant. And I think some of the things that the civic tech movement has actually learned is that it is not…There's actually work to be done internally" (6).
- "That open-source idea had a lot of attempts at it, and it didn't work… And I think things were learned from that. For example, at the end of the day, city government folks – like city government IT staff, technology staff – they're not looking to be participants in an open-source project" (3).
- "Some of the critiques of the earlier fellowship models was that you would kind of put people in and ask them to build their own projects. Which could end up, and I think did in a number of respects, being a complete mismatch with what the government either expected or needed. And so, I think there were a lot of early-stage examples of fellows going and building objectively cool things, that the minute that they left did not get maintained and just completely fell off" (2).
- Volunteers "build the project, and then they try to get government to use it. And that's when government workers are like…"what is this? I don't want this, I don't know python, I don't have money to upkeep this, like I can't hire you, I don't know what's going on here" (10).

Among interviewees, the nonprofit CFA is identified as the closest thing to a hub in the network, a "movement maker" (3). "Code for America is such a big trendsetter in the space that like sort of any action that they take sort of ripples out to a lot of people" (10). Its evolution reflected the evolution of the broader field. CFA started with fellowships and volunteer brigades at a local level, and with an emphasis on open-source. Over time these brigades were phased out, and it now primarily works directly with governments to solve specific problems. CFA founder Pahlka helped found the USDS. "Jen Pahlka is a civic tech person. She started outside of the government, and it was like - Oh, if we want this to work better for us and this stuff we're trying to do out here, actually, the only way that'll change is if we get in here." (13). In 2022, CFA received a $100 million donation to work directly with state governments to improve access to social services. The annual CFA summit is the key meeting for the field. In the 2023 summit in Washington DC, 40% of attendees were government employees. This statistic actually

understates the interaction with government, since many of the other attendees are government-facing even if not part of government. Of the 54 organizations featured in summit presentations, 21 were from government domain. Of the 37 sessions at the meeting, 33 were either directly about government operations, services, and/or featured a government employee.

In the US at least, it is fair to say that public services and working with government has become a central focus of civic tech. This reflects a de facto theory of power that civic tech cannot achieve its goals without playing a direct role with government, either as a government employee or contractor. As this realization was made, it also required that civic tech actors learn how to manage change in public sector settings. This required understanding the importance of policy, building coalitions for change, and government processes and employees. This skillset emerged over time.

Initially, civic tech was brought into the federal government in a firefighting mode, fixing basic problems with the underlying technology. According to Dana Chisnell: "Just keeping the servers up was a challenge pretty much everywhere…And so there wasn't any attention beyond uptime or downtime to what the user experience was like. When I arrived at USCIS, I was the only designer among about 80 developers." She remembered a conversation with a superior: "And I was like, you need more UX [user experience] people. We need more designers. And she's like "Nope, we're going for 50 engineers, and UX is never going to be a thing…We had to get the engineering…because nobody could think about anything else. You couldn't look at it holistically. You just had to solve those problems first. But it wasn't long, and [her superior] was like, "Oh, yeah, you're right. We need a bunch of UXers", because now we have websites, we have forms that we're putting online beyond fillable PDFs, all of those things." She contrasted these early days with the current leadership at the Department where she works who are "all very forward-thinking in terms of human-centered design as a way of improving government services."

As civic tech proved adept at putting out fires, civic technologists were brought onto more policy roles, such as presidential transition teams. Lynn Overmann. who worked in both the Obama and Biden administrations, identified two changes over time. First, was the creation of new capacity. The second was "much better senior leadership recognition of the value-added of bringing in people with those skill sets to tackle policy priorities." According to Cyd Harrell: "it has come a long way from like, if we build something cool, it'll get adopted somehow, to

now, there is a big focus on getting people who understand technology into, if not elected roles, appointed roles, as well as just getting a lot of tech talent into government spaces."

Institutionalization
There are different ways to measure the institutionalization of civic tech in American government. One is simply the existence and size of formal units or organization. "There are more people who are in government for longer, and bringing the same values and practices." (2) When USDS was created, the Obama Administration planned to hire ten people. By 2023, the organization had grown to over 200 employees, with around 500 alumni, many of whom have taken tech leadership positions in other organizations, creating hot spots of digital innovation (2). Customer experience units are being created withing the federal government. The largest one, at Veteran's Administration, has about 300 people. State governments are following suit, and 15 now have digital service teams (14). Outside of government, nonprofits and private vendors exist (Table 2). These are relatively small numbers within the government as a whole, or even of the broader tech ecosystem, but represent a significant increase in a short time period.

Another form of institutionalization are new legal processes or administrative practices that align with civic tech goals. The 21st Century IDEA Act was passed in 2018 to guide agencies to pursue digital first experiences. The Biden administration signed a Customer Experience Executive Order, which prioritized reducing administrative burdens and increasing access. The order "opened up all the doors at the department where I work" (2) and "was a really helpful communications tool to orient agencies towards what the Biden administration wanted them to care about, which is how is your end user actually experiencing your service. And I would argue, that's not entirely civic technology, but that is a delivery orientation of which digital service has a piece" (7). Guidance from the Office of Management and Budget has embedded customer experience practices in a variety of mandatory routines, including budget preparation, Paperwork Reduction Act requirements, and performance reporting requirements.[1] Sha Hwang of Nava pointed to such formal actions as a way that civic tech has been "been institutionalized or metabolized by the organizations."

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[1] Executive Order on Transforming Federal Customer Experience and Service Delivery to Rebuild Trust in Government. https://www.whitehouse.gov/briefing-room/presidential-actions/2021/12/13/executive-order-on-transforming-federal-customer-experience-and-service-delivery-to-rebuild-trust-in-government.

As tech was seen less as an innovation, but increasingly understood as central to service delivery, it becomes institutionalized in less obvious ways. "Some of it also comes down to how do we continue to rewrite job descriptions, or figure out new missions or vision statements for departments or for agencies and how they do their work that maybe centers and has technology at its core" (14). This includes greater skill at hiring technologists. USDS pioneered the Subject Matter Expert-Qualification Assessments (SME-QA) as a means to make it easier to hire technologists without changing the underlying hiring policy. This modification of existing processes can be seen as the civic tech community adapting to and learning to use existing processes to build their community within government, rather than wait for civil service reform to provide a specialized pathway (Nitze and Sinai 2022, 67-69). New training on procurement also provides guidance on how to hire civic tech talent within existing procurement processes.

Greater Skill and Purpose

As civic tech actors spent more time in government, they gained an ability to see how their work could make a difference and a greater sense of purpose about how to manage change:

- "We have a much clearer understanding of the public and gaps in delivery for the public that also was missing earlier. And so, I think that also allows us to have this sort of action orientation…now there's a clearer direction and orientation towards the north star, which is outcomes for the public" (11).

- "We have a lot better idea of what it takes to actually make change. How long, how much work, what kind of institutional engagement. It's grown by orders of magnitude" (5).

- "We've gotten better and more mature around recognizing that it is not enough just to be a really good coder or a really strong software engineer, and that we can plop those people into government and those people will magically solve problems that career people have been working on for decades. But I do think that a lot of the early learning centered around an initial hypothesis that all that was necessary was to get those people into government and somehow turn them loose and magic would happen" (7).

Part of learning how to use power was learning how to work with pubic employees, and within government systems. One persistent risk was that civic technologists with limited experience of government or a specific policy domain could easily present themselves as saviors,

failing to understand why existing processes worked the way they did (Harrell 2018). As part of "the movement's gradual shift from operating outside government to inside, it's become far less solutionist, far more understanding and supportive of public servants, and somewhat more interested in the underlying causes of poor service delivery" (8).

As civic tech actors gained more experience and power, they had greater interest and capacity to focus on policy design, and not just implementation. "I've come to learn over the years is that you can do a beautiful job of implementing badly designed policy, and it will not deliver the outcomes that the original policy might have and been intended for. And so, where I wanted to go was much further upstream" says Dana Chisnell. She represents one of the USDS and 18F alumni who took an agency position. Being embedded within an agency allows for long-term efforts to connect policy and service delivery. "Being able to really work to evolve and define the policy together with the service delivery makes both better. And that's an opportunity I've had in the agency that wasn't on the table at somewhere like 18F, where I was engaging more as a consultant or an outsider" says Rebecca Piazza.

The progress of the civic tech movement inside government has raised tensions with the old outsider ethos. Civic technologists can find the cultural norms of government as constraining and overly bureaucratic. A hacker ethos does not always align easily within hierarchy (4, 13). "For folks who are ideologically open-source aligned, the importance of having no gods and no masters is high" (5). As civic tech gains power, it will also face more questions about what it has done with that power, especially from outsiders who struggle to understand the slow pace of change within government, or reject compromises. "I imagine there may be some disappointment from the outsider civic tech community in not seeing sort of those outsider ideas becoming insider ideas and maybe not seeing them being fully realized" (9). Being institutionalized also brings the risk of ossification, where civic tech organizations narrow their focus to specific ecosystems or policies, losing the opportunity to engage in more horizontal framings of problems (6).

How is Civic Tech Changing Government?
The civic tech movement is bringing different types of capacity to government. But such skills come with an accompanying set of practices, norms, and beliefs that challenge existing government practices (Mergel, Edelmann and Huang 2019). At the broadest level, technology

focused high-level leadership attention to the neglected topic of policy implementation (Pahlka 2023). Cyd Harrell pointed to a growing acceptance "that well-designed services at the point of delivery are critical to policy success and constituent satisfaction" while Jen Pahlka argued that "it's likely that government generally (but federal most of all) would not have built the capacity for delivery it has today without the civic tech movement."

The tech component in civic tech operated as a "Trojan Horse" that allowed the importation of a broader array of civic tech values into government (13). Most obviously, as discussed in previous sections, is centering the experience of users, learning from their experiences, and iteratively adjusting in the search for improvements. "In order to really apply these principles of research and exploring a problem, doing discovery, building what's ultimately best for the customer experience – that requires a lot of engagement with the public, it requires a lot of research, a lot of usability testing and iteration and fast cycles. And that's frankly risky and scary for the government" (9). Civic tech made government more open to this change. "I don't think that you would see the focus on user experience and user-centered design throughout government groups without civic tech" (5).

Another aspect of civic tech that reflects a progressive focus is the goal of change as an ongoing and routine part of managing organizations. A core assumption of much of civic tech is that experimentation is an ongoing aspect of their work (Pahlka 2023). Civic tech, especially through USDS and 18F, brings the tech industry's ethos of constant change into the more rigid environment of government bureaucracy. In tech, agile development is a common mindset. This is an approach that involves "short sprints of coding, continual testing, and gradual rollouts" and prioritizing collaboration (Levy 2017, see also Mergel 2022). "A/B testing" implies constant tinkering with systems and processes in a way that runs contrary to how most bureaucracies work. In government, speed is often capped, since changes to processes, budgets, or strategy may require executive or legislative support, or multiple layers of approval within a hierarchy (McGuinness and Schank 2021, 17). The civic tech mindset of continual change can also be at odds with the world of government procurement, where contracts typically include concrete dates for specific deliverables (Harrell 2020), and precludes iterative change (3, 9, 12). In contrast, a successful software project tends to have a shifting timeline as the team learns more and updates their plan, with more back and forth between the contractor and client as they learn

more about revisions to the process that need to be made (Mergel, Ganapati and Whitford 2021; Pahlka 2023).

Another tension that civic tech raises is the relationship between data sharing and privacy. Unlike other pioneers in the use of digital government, most notably Estonia or Denmark, the US features a government culture where data sharing between government agencies is not a norm, reflecting a suspicion of government and concerns about privacy. The federal government has made only minor modifications to the 1974 Privacy Act, most notably the Computer Matching and Privacy Protection Act of 1988, to encourage data sharing across government. Access to tax data requires an act of Congress. As a result, the default assumption among agencies is that data sharing is highly onerous, meaning that members of the public must frequently provide the same data to government multiple times, creating hassles that ultimately limit access to services. Efforts to make technology more useful for the public often hinge on access to data. Thus, the values of civic tech are to push towards more data sharing, challenging long-held norms within government, and those of privacy advocates.

A Research Agenda for Civic Tech

The 19th Progressive movement evolved in the 20th century to take root in universities and governments, giving rise to the American field of public administration. Civic tech as a field of practice already exists. The scale of ambitions for the movement are similarly grand to this prior generation of Progressives, hoping to see its ethos and practices "become such an ingrained part of the work that government is doing, that you're not even thinking twice about how technology fits in" (14). "What we're hoping is a chronic and perpetual shift…that this sort of orientation to outcome improvement for the public is just baked in" (11).

The scale of the ambitions means that the concept of civic tech may become overly constraining. "Civic tech could use a rebrand, that maybe de-emphasizes the tech part of it and helps align people on the goals of government more effectively serving the public" (Piazza). In thinking about the future, Jennifer Pahlka declared that "I'm going to work on building state capacity. I think both civic tech and gov tech are part of state capacity, and each brings a lens of shaping the values of government implementation through a sort of advocacy." This desire to rebrand suggests that civic tech will at some point disappear into existing or refurbished

frameworks of government administration, but only if those frameworks share its values and offer insights to achieve its goals.

Civic tech has a growing presence in government, but lacks a similar foothold in the world of scholarship. It has no natural academic disciplinary home to guide its evolution or study its impact. Civic tech practitioners generally lack the time to undertake research on their efforts, even if they are inherently interested in processes of experimentation. Some civic technologists may not believe this matters, but other see institutionalization into scholarship as essential to the longevity of the movement. "We have a growing bookshelf for practitioners," said Cyd Harrell, "but we really do need partnership with academics to reach our goals from here." This section considers how a study of civic tech might emerge, and how other traditional fields of studying government could guide the study of civic tech on well-trodden research paths. Consider the following examples.

Administrative burden reduction: The clearest entry point between the civic tech community and research has centered on the concept of administrative burden (Pahlka 2023; Peeters 2023). Administrative burden research shares the civic tech interest in user experience and minimizing, but also provided a means of considering issues of power and inequality that motivated their interest in reducing frictions in non-commercial settings (Kennan and Soka 2022). As the Biden administration laid out a series of guidelines to reduce burdens, such as the customer experience executive order, it became clear that the civic tech community would play a leading role. According to Jennifer Pahlka: "It's likely that all the focus on burden reduction and customer experience in the current moment would not have happened without the civic tech movement… Most importantly, while we've reduced some burdens on some populations, public servants are still trying to squeeze modest outcomes out of an ill-fitting kludgeocracy. Reducing burdens on the public further will require also reducing burdens on public servants, so they can do more with what they have, and making structural changes to both how our overly-proceduralized government operates and to the programs themselves." While an obvious touchpoint is to understand how digital innovations can reduce burdens (Moynihan, Herd, Giannella and Sutherland 2022), Pahlka's comments speak to the need to understand how public employees face burdens. Another question is how digital transformation may also increase burdens for some groups (Madsen, Lindgren and Melin 2022; Peeters 2023).

Motivation: Public administration has long studied the motivation of those who work in and around government: Is it different? In what way? And with what consequences? Civic technologists espouse strong public service motivation. They act in ways that reflect those beliefs, often stepping away from more lucrative opportunities in order to work in and with government (10). The action orientation of civic tech to make services accessible and help the public may also help rejuvenate public service motivation among employees by demonstrating concrete ways to help the public. On the other hand, while a standard model of public service motivation predicts it should lead to longer-term satisfaction and commitment to work in in government, civic technologists often express skepticism of working in government, frustration with its culture and constraints, and do not stay for long.

Short-term and long-term workforce: The short-term nature of civic tech stints in government raises parallels with another topic of traditional study: the role of political appointees. Such appointees serve as vectors of change in government, but often struggle to be effective because of their lack of domain-specific knowledge and their short tenures in office (Lewis 2008). Civic tech officials represent another type of short-termer. They bring with them a particular type of substantive knowledge and will generally have less of a partisan ideological agenda, but still face the need to accumulate knowledge about their public sector environment, including the policy domain in which they work, as well as skills of managing change in a bureaucracy (Nitze and Sinai 2022). Understanding how the balance between experience and new skills relates to the success of civic is an open question.

Publicness and public values: Civic tech focuses on public services, but often fails to engage in explicit consideration of what this means in practice. Civic tech organizations are public, nonprofit, for-profit and public benefit corporations. Public administration can offer a historical stock of knowledge about what publicness means, and basic values and tradeoffs that come with working in a public space (Jorgensen and Bozeman 2007). Issues centered on accountability, value tradeoffs, political-career interactions, blame avoidance, negativity bias, and public-private contracting are all examples of well-studied domains relevant to any set of actors working in government.

Design and participation: The study of public organizations has a long-term, though not deeply embraced, interest in design issues. This is also a central interest of civic tech, which generally connects technological change with human-centered design and journey mapping (Civilla and the Beeck Center 2021; Mergel 2016; 2022). The actualization of civic tech's value of inclusion relies, in practice, on incorporating the views and preferences of existing or potential users of alternative design functions. This creates an opportunity to consider how such consultations represent forms of participation that are distinct from more traditional modes of including citizen voices, as well as a distinct skill-set for students of government to learn.

Innovation diffusion and managing administrative change: Much of the work undertaken by civic tech actors could be classified as administrative reforms or innovations in that they change some existing administrative process (Zhang and Feeney 2019). Thus, studying them offers a means of tracking how contemporary innovations become more widely adopted. Studying these changes, and their relative successes and failures offers an opportunity to study both specific and narrowly tailored interventions, like a well-designed digital form, as well as broader reform challenges and tactics that the civic tech community faces in their interactions with government. The study of administrative reforms – understanding, for example, the importance of employee participation, leadership support, organizational culture and adequate resources – provides a template for studying the how well civic tech interventions take hold in organizations.

Altering the political economy of contracting and digital government innovation: A stylized version of the existing political economy for technological innovation in government goes as follows: Governments outsource technological capacities, generally to for-profit consultants. The procurement process and nature of the resulting contracts tend to be slow, highly-formalized, and unwieldy (Pahlka 2023). Any changes to the initial vision of a project can take months to resolve, and require additional payments, an approach at odds with the need to constantly test and modify delivery processes. These problems are worsened by a lack of goal alignment between the state and for-profit consultants, where the consultants have a goal of establishing an ongoing lucrative relationship where it is difficult for the government to exit. The emergence of civic tech offers the possibility of disrupting this political economy. Their ethos and, in the case

of non-profit firms, incentive structure, makes a potential value alignment between the government principal and the agent contractor more feasible. Whether such outcomes come to pass or not are empirical questions, dependent on the ability of civic tech to displace entrenched actors, and to maintain its core values and ethos of disruption along the way.

Conclusion

The old Progressive movement in American government fixed real problems, like the politicization and lack of competence of government services. They built bureaucracies and civil service systems, professional fields of training and study (Skowronek 1982). But the products of these efforts were seen as becoming rule-bound, resistant to change, inattentive to opportunity and not responsive enough to the public. These are the problems that the civic tech seeks to fix, by rebuilding American public services to be nimbler and human-centered. The scale of their impact, whether they can maintain their core values, and the potential risks along the way offer rich topics for study. The ability of civic tech to weather the polarization of American politics and maintain its influence if it becomes identified as politically progressive is another question. While using tech to improve user experience may seem like a nonpartisan value, politicians sometimes see strategic value in making public services difficult to access.

This sketch of the civic tech community is admittedly preliminary, and invites criticism, suggestion, and revision. Summarizing a nascent field will miss nuance, since it seeks to group together many different types of organizations. We run the risk of overly broad categorizations. It is all too easy to imagine "civic tech" becoming, on the one hand, the basis of consultant slide deck, uncritically sold as an inevitable and positive force for change, and on the other hand, fodder for critical academic pieces that loftily dissect a new fad without actually engaging seriously with the type of work that civic technologists are engaged in. At this point, not categorizing the evolution of civic tech generates a different kind of risk, which is failing to gain some basic understanding of real forces reconstituting the relationship between government and society. And so, this paper represents an initial effort to do so, in the hope it will advance knowledge even if it does not engender consensus, all the while inviting future work to more fully consider the normative challenges, practical consequences and social science results associated with this movement.

How much the US version of this community resembles or differs from other countries is also an open question. For example, the US government federalist design and strong constraints on the sharing of public data due to privacy concerns creates particular challenges in using administrative data. Emily Tavoulareas noted how structural factors have shaped the evolution of civic tech: "it is not possible for the US to do what the UK did, what Greece did, what Estonia did…And it's not possible because we don't literally don't have the mechanisms on purpose." There are plenty of civic technologists outside of the US, and the term can be found in other settings. The application of their work varies. In some cases, they might share governmental interests, but not connect with government, such as white hat hackers. In some cases, they might pursue public values but work at odds to the interests of government, such as organizing and protecting protest movements in authoritarian settings like Belarus. In other cases, civic technologists might align themselves with state military actions. Ukraine drew on both public and private engineers to convert its digital capacities as a means to defend against Russia's invasion and provide support for those displaced by the war (Mamediieva and Moynihan 2023).

The emergence of this field provides opportunities for research and threats to existing academic fields. The threats come from the potential irrelevance of the field for policymakers who turn instead to civic tech to solve pressing administrative problems. The opportunities come from a new domain to study, as well as relevant insights on domains of knowledge that are necessary for civic tech to function. But the ability to exploit those opportunities requires an awareness of, and engagement with, this movement.

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Appendix: List of interviewees and relevant civic tech experience

1. Danah Boyd	Partner Researcher at Microsoft Research; Founder Data & Society.
2. Dana Chisnell	Acting Executive Director for Customer Experience at the Department of Homeland Security; Author of "Handbook of Usability Testing"; Co-founded Center for Civic Design; Founding member of US Digital Service
3. Dave Guarino	- Consultant at FIDG Labs; Director of GetCalFresh at Code for America; Product Lead at California Office of Digital Innovation; Technology Advisor at US Department of Labor
4. Luke Fretwell	Co-founder and CEO of ProudCity; Founder of the civic innovation and technology blog GovFresh
5. Cyd Harrell	Chief Digital Services Officer at the City and County of San Francisco; Author "A Civic Technologist's Practice Guide"; Chief of Staff at 18F; Product Director at Code for America
6. Sha Hwang	Chief Operating Officer and co-founder of Nava
7. Lynn Overmann	Executive Director at the Beeck Center; Senior Advisor for Delivery with the US Digital Service; Senior Policy Advisor to the U.S. Chief Technology Officer in the White House Office of Science and Technology Policy
8. Jennifer Pahlka	Author of "Recoding America"; Founder and former executive director at Code for America; U.S. Deputy Chief Technology Officer under Obama; Founding member of US Digital Service
9. Rebecca Piazza	Senior Advisor for Delivery at the Food and Nutrition Service; Vice President of Program Delivery at Nava; Executive Director at 18F
10. Karina Rider	Postdoctoral Fellow at the Digital Civil Society Lab (Stanford); - Author, "Volunteering the Valley: Designing for the Common Good in the San Francisco Bay Area"
11. Ayushi Roy	Deputy Director of New America's New Practice Lab; Lecturer at Harvard Kennedy School; Former Director of State and Local Technology at 18F
12. Steve Spiker	Co-founder and Executive Director of OpenOakland; Director of Research & Technology with Urban Strategies Council
13. Emily Tavoulareas	Managing chair at Georgetown's Tech & Society; Founding member of US Digital Service; Senior digital advisor at the VA
14. Kirsten Wyatt	Faculty fellow at Beeck Center; Executive director and co-founder of ELGL, the Engaging Local Government Leaders network