The Good User:
Tech-Mediated Citizenship in the Contemporary American City

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Abstract
Digital networks have transformed communication patterns in American cities. Cities throughout the country, including New York, Chicago and San Francisco, have opened "innovation" offices that focus on open data and civic applications; IBM has started the Smarter Cities initiative that seeks to enhance "infrastructure, operations, and people;" and philanthropic foundations such as Bloomberg and Knight are investing significant amounts of money in government and civic innovation. Technological metaphors abound in the enthusiastic rhetoric of urban innovation. Metaphors of service systems, hacking, and users are consistently used by government and industry to describe new urban systems and explain urban problems. While there are unique affordances of thinking about cities as programmable systems, there are dangers of conflating the technological with the social. Citizens become users and the public sphere becomes a prescriptive network. In this chapter, we analyze the rhetoric of innovation within the emerging field of digital cities and governance. We seek to problematize the neoliberal interpretation of the citizen/user, which, as an independent actor within a relatively stable network of technological tools, is a construct of specific values of efficiency and commerce defined in the private sector. Too often, apps are designed and systems developed for the good citizen/user, an individual carefully mapped to networks that is motivated primarily by a desire for efficiency. We posit an alternative to this rhetorical construction that builds on the affordances of digital networks but instead focuses on citizen action as defined by Hannah Arendt: that lasting political action is about acting or designing for beginnings—not strict ends in themselves—and is productively unpredictable, playful, and in flux.

"…we are making government more user-friendly…"
-San Francisco Mayor Ed Lee in "A Start-Up Called Government," the first annual
report of the Mayor's Office of Civic Innovation

For the first time in 2012, the number of mobile phones in use in the United States

surpassed the population (CTIA 2012). According to a 2013 Pew report, nearly 60% of

cell phone owners classify their phones as smart phones (Smith 2013), suggesting a

significant shift in how Americans are accessing data and communicating with each

other. The data also suggests a shift in how Americans are participating in civic life –

how they get local news (Miller et al. 2012), communicate with government (Smith

2010), and connect with neighbors (Smith 2009). With the Internet playing an

increasingly significant role in shaping contemporary citizenship, active engagement in

politics, government, and community is now taking place online, just as it does in city

and town halls and community centers throughout the country. As such, governments and

other civic organizations are looking to the Internet as a digital alternative or

augmentation to place-based engagement. They are providing new services and

attempting to enhance old ones, so as to "keep up with the times," and maintain

government's relevance. At the level of city government, these conditions have

manifested a spate of "innovation" offices around the country that are charged with

inventing the intersection between new digital technologies, government services, and

city life.

While innovation offices within city government have taken many different forms

throughout the United States, there is significant overlap in their stated missions. They

seek to build internal technological infrastructure, promote values of data accessibility,

and forge private-public partnerships. Many of them are iterations or enhancements to

existing information technology offices (where the Chief Information Officer becomes

Chief Innovation Officer), while others sit within the mayor's office to facilitate greater

executive reach.[i] Most of these offices began with the charge of facilitating internal

government efficiency, including interdepartmental communication and procurement

processes; however, the intersection between government operations and citizen actions

quickly became an area of focus. As new technologies create new opportunities for

citizens to interface with government through accessing services (e.g. reporting potholes,

retrieving tax data, tracking city busses), citizen engagement has become a key concern

for CIOs, many of whom immigrated to government from the private tech sector.

Alongside this shift has been a growing trend in which metaphors originally constructed

within the sphere of web-mediated private sector customer services come to define both

technical and socio-technical systems in city government, in turn helping to construct the

landscape of possible government services and citizen actions based on neoliberal

attitudes working to promote values of efficiency, systematic predictability, and a

customer/service-provider relationship model.

This can be seen in city 311 hotline and app services, which have largely adopted

the Customer Relationship Management (CRM) model originally conceived for tech-

mediated customer support and sales management in business, though some cities are

opportunely rebranding the "C" as "Citizen" instead of "Customer." New innovative city

tools are vigorously discussed in terms of the transactional and efficient "solutions" they

bring, borrowing lines from the Smarter Cities model as envisioned by tech giants such as

IBM. Municipal PR campaigns actively boast about hiring the "innovative, private sector

leader" needed to reconceptualize the city's thinking about civic technology. And the

very subjects of this innovation rhetoric are often conceived of with the same dual-purpose vision that currently dominates the field of private-sector technology services: the simultaneous customer of a system (demanding efficient services) and commodity of a system (as a producer of valuable data)—in short, the "user."

San Francisco's Deputy Innovation Officer (a former start-up consultant) exemplifies the new metaphors at work succinctly in the first-year report of that city's innovation office, titled "A Startup Called Government": "Cities are like living machines, and policy making in government is like writing the code that governs how a city operates. This city is the most complex machine I have ever had the opportunity to hack and it is what inspired my shift from the private sector to the public sector. #helloworld" (2013: 6).

We argue that the landscape of innovation within city government is on one hand positively transforming government operations and on the other creating normative values of citizenship that prioritize neoliberal efficiencies, individual citizen instrumentality, and prescriptive pathways to citizen action. We look specifically at innovation offices within municipal governments in the United States to understand how Silicon Valley enthusiasm about consumer-oriented technological innovation is effecting how cities are representing themselves and how city governments are conceiving of democratic governance. The result of this influence, we argue, is a conflation of terms, a semiotic slippage, where the citizen is instrumentalized and conceived of as a good user of a system, as if citizenship were merely acts of production and consumption. City governments consequently take on the role of "system administrators," and ostensibly seek to disaggregate the elements of a complex and dynamic system into measureable

and "hackable" parts in order to eliminate disorder, unpredictability, and inefficiency. The intentional blurring of the citizen with the user leads to a troubling simplification of democratic process, transforming deliberative dialogue, local meaning, and even place into predictable and pliable system components. Through this process, both city government and neoliberal ideology amplify their authority over the lives of citizens through an intensification of what Michel Foucault terms *governmentality*: the control of the possible forms of self-government and fields of action available to citizens.

As Internet scholar Yochai Benkler reminds us, the designers of human systems and tools tend to adopt "a straightforward, uncomplicated theory of human nature that reduces our actions as simple, predictable responses to punishments and incentives and helps us explain away confusing and even disturbing behaviors" (Benkler 2011: 18). But that does not have to—nor should it—always be the case. There are emerging alternatives that adopt a fuller conception of what tech-mediated citizenship can be. In fact, modern web-connected technology presents a unique opportunity for designing for a broader and more inclusive conception of citizenship within cities that has been vastly underexplored. As a pathway to begin thinking about this, we introduce the concept of *citizen action* that Hannah Arendt lays out in the *The Human Condition*: that lasting political action is about acting or designing for beginnings—not strict ends in themselves—and is productively unpredictable and playful, giving birth to a wide range of unforeseen developments and new possible actions. Citizen action in this view is a means with no neatly prescribed or induced end, which "no matter what its specific content, always establishes relationships and therefore has an inherent tendency to force open all limitations and cut across all boundaries" (1958: 190). This definition represents a fundamentally human act for

Arendt. Despite modern systems of governance and control, citizen action as Arendt puts forward remains possible. Designing for this type of citizen action can result in a system based not on the design of a single ideologically-rigid and dogmatic conception of what a citizen should be, but one founded upon the fundamental human condition of plurality—the fact that an infinitely varied set of women and men, "not Man, live on the earth and inhabit the world" (7).

One of the byproducts of thinking through the lens of innovation is a reconsideration of the constituent parts of the system being innovated. In the context of the American city, innovation offices are founded on the notion that government can impact big systemic problems by introducing disruptive processes or technologies into a normally intractable system of governance. When that system is conceived of as civic life generally, the necessary move is to consider the citizen a user of that system with consistent, instrumental needs. We will explore the social costs of innovation by examining the rhetorical shift from citizen to user. We consider specifically how the conceptualization of the "good user" delimits the possibilities of civic action-taking and citizenship in the contemporary American city, and we suggest that through subtle transformations inspired by Arendt's definition of action, there might be ways to innovate and liberate at the same time.

Data-Driven Cities and Civic Laborers

City innovation offices, founded upon the infusion within municipal IT departments of private sector models of innovative efficiency, have roots that trace back

to the earliest semblances of IT use in city systems. However, it is not until the early

1990s that the current model of city innovation begins to take hold.

One of the first major instances of a city actively publicizing its ability to leverage

private sector innovations occurred with CompStat in New York City. Originally

developed for the NYPD in 1994, CompStat aimed to modernize the department through

a "continuous improvement of performance" by employing "a variety of corporate

strategies" to make its organizational structure more efficient (O'Connell 2001: 8). At the

core of CompStat is the requirement of routine data-based meetings where field

commanders were mandated to both report and react to data generated from their

precincts. This data results from a requirement that all precincts record a number of crime

statistics on a neighborhood basis. The reaction to the data would trigger a street-by-street

response, with the goal of rewarding commanders not on the number of arrests their staff

made, but on a drop of specific crime statistics.

Winner of the 1996 Innovations in American Government Award from the

Harvard Kennedy School of Government, CompStat represents one of the first major city

systems to fully embrace an emerging focus of the private sector: the collection and

leveraging of big data. Soon, this data-driven approach to service management was

adopted by other New York City departments—"ParkStat" for the Department of Parks

and Recreation, "TrafficStat" for the traffic division, "JobStat" for the Human Resources

Administration, and "HealthStat" for health insurance enrollment—and other cities

throughout the U.S. Then, in 2000, the City of Baltimore adapted the CompStat model

into CitiStat, the first time a major American city has attempted to organize all its major

services under a single digital system. CitiStat, winner of the 2004 Innovations in

American Government Award, originally made use of existing data streams collected by 16 agencies across the city. However, CitiStat soon made two paradigm-shifting enhancements to the system.

The first was the opening of a new, citizen-sourced data stream that soon became a core of CitiStat data collection. This 311 citizen-reporting hotline—similar to 911 but for non-emergency calls—was first implemented in the City of Chicago in 1999. But unlike Chicago and the many cities that soon adopted the 311 approach, CitiStat linked the call-in data to the core of everyday city service management and elevated it as an essential city data stream. The second new development CitiStat made was in opening up the data to the public. While CompStat and the other municipal data-driven management programs initially focused only on internal accountability, CitiStat began publishing its data online in citizen-focused reports. This helped usher in a new age of e-Reporting that soon spread to the related data programs in New York, Chicago, and elsewhere.

Unsurprisingly, the private sector—whose tools, methodologies, and metaphors made much of these data-driven programs possible—was at the forefront of touting these innovations. In 2003, the IBM Endowment for The Business of Government sponsored a report praising CitiStat and the City of Baltimore for becoming "increasingly customer-friendly" as a result of its data-driven programs and "the higher level of agency performance in delivering critical goods and services to citizens in the metropolitan area" (Henderson 2003: 6).[ii] Here and in official releases from city governments through the U.S. adopting these services, we see "customer" and "citizen" used interchangeably. And in another IBM-sponsored report, the author considers the near-ubiquity of private-sector titles such as CIOs and CFO within city agencies, and brazenly suggests a new CDO—

Chief Democracy Officer—position in order to help their agencies better "participate in the democratic process" (Lee 2004: 25). Within this literature, the notion of democracy comes to mean good customer service, without any reference to democratic process or representation.

This confluence of data-driven customer service management, citizen contributions and data reporting, and the increase of both official and rhetorical public-private partnerships paved the way for the subtle transformation of citizens not just into customers, but also into newly-realized system commodities—*civic laborers*.

Instead of internal municipal staff alone contributing to help city services function at a basic level, a broadening of responsibilities occurred so that citizens became increasingly responsible for continuing basic city processes, from inspections to data collection to simple neighborhood maintenance. This new citizen role is a central tenant in the various 2.0 movements (Gov 2.0, City 2.0, etc.) that innovation offices both adopt and create. Citizen mobile reporting apps and APIs such as Citizens Connect and StreetCred in Boston, NYC 311 in New York, or Chicago Works in Chicago outsource the identification of problems directly to citizens. The citizen/user is allowed by these systems not to take action, but to contribute *labor* as Hannah Arendt defines it. According to Arendt, to labor is "meant to be enslaved by necessity, and this enslavement was inherent in the conditions of human life" (1958: 83-4). Labor is the basic contribution to the maintenance of survival. No longer needing to attend extensively to biological survival, modern labor in post-industrial nations can be equated to the continual repetitive processes with which the status quo of any system is maintained. Beginning in the 1990s, citizenship as defined by municipal governments, is increasingly understood as the

contribution to these basic processes and procedures—with municipalities being largely responsible for the tools that enable this.

Michel Foucault reasons that if governmental power is subsequently to be extracted from and solidified through labor, then "labor must first be constituted before it can be exploited: that is, that life time must be synthesized into labor time, individuals must be subjugated to the production circle, habits must be formed, and time and space must be organized according to a scheme" (Lemke 2000: 10-11). In constructing this new type of civic labor, we see this criteria appearing very clearly in citizen reporting apps and APIs which increasingly employ techniques such as rewarding time spent in civic labor through the production of new reports, hyping the faster and more personalized delivery of services to citizens after they themselves have delivered the data, and incentivizing citizens for practicing "good" reporting habits.

Not only can outsourcing labor to citizens increase efficiency and decrease costs for government if done correctly, but it defines citizenship in transactional terms and as something done purely "in service" to the basic continuation of the status quo of the city and its existing power structures. The view of citizens as civic laborers, we argue, is central to the semiotic slippage on which the city innovation offices depends.

The Rise of the City Innovation Office

E-government, Government 2.0, open government: these are all terms used to describe the "digital revolution" in government function and operation (Misuraca 2009; Poje 2011; Ressler 2009). Chun et al. (2010) identify several stages of e-government, ranging from the basic digitization of government records, simple web-based transactions

with available data, to more complex transactions such as paying taxes and fines. These early stages of e-government were focused solely on the efficiency of transactions at the municipal level, as we saw with the first 311 services. The current stage, they argue, is focused on interaction. It is about the quality of citizens interacting with government and the opportunities for collaborative decision-making through social media and open data. This is in part driven by the Obama administration's 2009 open government initiative, which established three principles for governing in the digital age: transparency, participation and collaboration. According to the document, governments should make more data available to the public; they should make it easy to access basic services and information; and they should foster possibilities for inter-departmental and inter-agency collaboration. The initiative was directed to the federal government, but it has served as a justification for municipal government to devote resources to "opening up." As these principles of open government translate to the local level, they have maintained their focus on internal efficiency and appropriation of private sector rhetoric, but have been refined to focus on direct service provision and citizen participation.

In Chicago, the Department of Innovation and Technology was introduced in 2008 "to add innovation to the charter of the former Department of Business and Information Services," which had formed a few years earlier with the combination of the Department of Business and the Department of Information Services. Three new officers were introduced: John Tolva, formerly the Director of Citizenship and Technology at IBM, became the Chief Technology Officer; Jason DeHaan, founder of the startup OpenTable, continued to serve as Chief Information Officer; and Brett Goldstein, formerly in charge of predictive analytics with the Chicago Police Department, became

the city's first Chief Data Officer. The new position of Chief Data Officer was created to "promote transparency through open data, construct a comprehensive strategy for citywide data usage and storage, enhance department technological collaboration and facilitate data-driven decision making through data analytics, including groundbreaking predictive analytics." The stated goal of the office, under Commissioner Brenna Berman (touted in press releases for her 10 years of experience with IBM) is "to enhance delivery of City services through easy, reliable, cost-effective and secure access to information and to promote Chicago's advancement through technology."

In New York City, Rahul Merchant, former Chief Technology Officer for Merrill Lynch and Chief Information Officer for Fannie Mae, became the city's first Chief Innovation and Information Officer in 2012 in the Department of Information, Technology and Telecommunications (DoITT). In 2011, New York City consolidated its digital public engagement strategy with the creation of NYC Digital (part of the Mayor's Office of Media and Entertainment), the publishing of the "Road Map for the Digital City" document, and the hiring of Rachel Haot as the nation's first "Chief Digital Officer." DoITT aims "to facilitate a more transparent and open government to increase civic engagement. Through New York City's open data policy – a citywide set of standards and guidelines – DoITT is presenting information through raw data and ensuring that New York City government is increasingly accountable and open for future generations." Concurrently, NYC Digital aims to streamline "digital communication with the public and creates meaningful public-private partnerships that serve New Yorkers and support local industry."

And in San Francisco, where Jay Nath (a former enterprise software consultant) was appointed Chief Innovation Officer in 2012, much of the focus is in creating data marketplaces where the private sector can more directly engage in creating innovative solutions for the city: "Changing our open data policies will unleash the creativity of the private sector so they can help us improve City services that impact our lives, from transportation, to how we access our parks, to how we request services."

New technologies are disruptive technologies that force institutional change (Bower & Christensen, 1995). But when institutions change, all corresponding parts need to accommodate those changes. When a business changes its culture by adapting to disruptive technologies, their customers need to change with them. Likewise, when a government changes its internal operations to accommodate technological practices, it is either responding to changes in citizen activities or necessitating a shift in citizen activities.

An attempt at redefining the relationship between government and citizens is exemplified in the first year report of San Francisco Mayor Edwin Lee's innovation office, where he states proudly that he is working to "make government more user friendly." This, according to the document, is the result of providing better services, being more collaborative with the private sector, and opening up more opportunities for citizen involvement. The first section of the report, called "A New Government Interface" explains that the office plans on "leveraging best practices from our experience in the private sector" in order to improve city service delivery and "citizen engagement," defined as follows:

Channeling the passion and skills of San Francisco residents is a powerful tool in

addressing persistent civic challenges. As great ideas often come from outside of

City Hall, each citizen, organization, and government employee is an essential

component in our City's innovation ecosystem. It is critical that we work together

to create new approaches to problem-solving for a better San Francisco (2013: 3).

Similar statements are prevalent in innovation offices throughout the country. While

highlighting the collaborative modality of innovation as a means of empowering citizens,

we'd argue that in many cases city government is masking its authority under this

promise of collaboration as it redoubles its hold on power by dispersing it to the

governed. To illuminate the means and implications of this, it is productive to consider

Michel Foucault's concept of governmentality.

Neoliberalism and Governmentality

Foucault uses the concept of governmentality to refer to government as "a

continuum, which extends from political government right through forms of self-

regulation, namely 'technologies of the self'" (Lemke 2000: 12). Governance is not

simply the act of a superior governing force making people do what it wants—it is

"always a versatile equilibrium, with complimentarity and conflicts between techniques

which assure coercion and processes through which the self is constructed or modified"

by the subject him or herself (Foucault 1993, cited in Lemke 2000: 4-5). Because power

at its core is simply about the guidance of actions, government power can be maintained

far more efficiently and pervasively not through external force, but by tacitly managing

the possible forms of self-government and fields of action available to citizens. Thus, a

true neoliberal transformation of government signals "not a diminishment or a reduction of state sovereignty and planning capacities but a displacement from formal to informal techniques of government and the appearance of new actors on the scene of government (e.g. NGOs), that indicate fundamental transformations in statehood and a new relation between state and civil society actors" (Lemke 2000: 11). This proliferation of governmentality with special focus on efficiency is precisely the means by which neoliberal ideology gains power, for it is only when all actors in a society, from government to individuals to organizations and collectives, act to increase their efficiency through autonomy, leanness, and cost-benefit optimization that neoliberal governance is optimized. Many government organizations are leveraging technologies and Internet tools designed for the very purposes of increasing overall efficiency and forms of self-examination, self-regulation, and autonomy.

This has become a guiding ideology for innovation offices. With the appearance of allowing citizens more of a role in "their government," innovation offices are outsourcing tasks traditionally performed by the government to citizens, while increasing the state's power through seeding its ideas and values of proper citizenship and the proper functioning of the city. To this end, innovation offices are both leveraging pre-existing private sector systems that citizens are already habituated to (and which create behaviors already fine-tuned for consumer/producer efficiency), and designing new systems to increase governmentality that employ techniques of behaviorial modification. The notion of "nudging" people as an approach to social policy was popularized by economist Richard Thaler and former Administrator of the White House Office of Information and Regulatory Affairs, Cass Sunstein. Nudging seeks to alter "people's behavior in a

predictable way without forbidding any options or significantly changing their economic

incentives" so that "consistent and unwavering people, in the private or public sector, can

move groups and practices in their preferred direction" (Thaler and Sunstein 2008: 6;

58).[iii] With this subtle coercion of citizens into governing themselves through the

internalization of mechanisms of control that support the functioning of neoliberal

governmentality, the citizen takes on the qualities of a user: predictably acting within a

pre-defined system and able to act primarily in their own self-interest.

Civic Action and Meaningful Inefficiencies

Citizen actions prescribed by new technologies do not simply realize a normative

ideal of the good, dutiful citizen; they are, instead, constructive of norms. As we have

described, in many contexts citizen engagement has become conflated with good user

experience of a complex urban machine, and government has become associated with a

data-driven business that is providing the most efficient solutions for its customers. It is a

prevalent false assumption to think that designing for the user is the same thing as

designing for the citizen. Users are functional actors in a prescribed framework, whereas

citizens can be understood as active participants in the production of a framework. The

metaphors and tools that innovation offices rely upon enable efficiency and increase

neoliberal governmentality precisely because the citizen is transformed into the *hackable*

user of a rational and rationalizing system.

But democracy is not always rational – it can and should be a sometimes chaotic

system with unpredictable occurrences. Democratic contexts are not composed of a series

of individual actors, but a cluster of relationships. Civic engagement scholar Peter Levine

defines a civic relationship as one that involves "identities, interests, private concerns, and personal stories, [but] they are not *simply* personal" (2013: 56) Democracy must allow for some unpredictable and chaotic, novel action to occur, in which even "the smallest act in the most limited circumstance" and even "one deed, and sometimes one word, suffices to change every constellation" (Arendt 1958: 190). Action, as Arendt defines it, is the birth of a new political current, as small as a word or as large as a declaration, that reverberates through a human collective and interacts with everything and everyone, often imperceptibly. Allowing the freedom and providing a medium through which these waves can flow enables the chaotic emergence of new ideas, new experiences, and new actions that a single individual, group, or data model could never achieve. The consequences are "boundless, because action, though it may proceed from nowhere, so to speak, acts into a medium where every reaction becomes a chain reaction and where every process is the cause of new processes"; and, no matter what its specific content, even the smallest action "always establishes relationships and therefore has an inherent tendency to force open all limitations and cut across all boundaries" (1958: 190). The job of city systems should be to promote and curate this action while at the same time establishing stable "islands of predictability" through institutions, laws, and promises (1958: 244).

Modern web-connected technology presents a unique opportunity for designing for a larger and more comprehensive conception of citizenship based upon Hannah Arendt's notion of action. As emergent human systems themselves, cities are a natural fit for this type of citizenship—in fact, it is perhaps the natural state of cities or any self-organizing human collective: that "intricate ballet" Jane Jacobs conjures, "in which the

individual dancers and ensembles all have distinctive parts which miraculously reinforce each other and compose an orderly whole. The ballet of the good city sidewalk never repeats itself from place to place, and in any one place is always replete with new improvisations" (1961: 66).

The problem with many contemporary systems is that they too often view humans as interchangeable units, and that imposed *behavior* has replaced action. Arendt criticizes modern human systems for their tendency to illicit "from each of its members a certain kind of behavior, imposing innumerable and various rules, all of which tend to 'normalize' its members, to make them behave, to exclude spontaneous action or outstanding achievement" (1958: 41). In the modern American city, the civic behaviors increasingly imposed upon citizens through the scaffolding of new civic interfaces and tools are steeped in neoliberal values of efficiency, predictability, and individualism— precisely the behaviors that stifle action. What's more is that "recasting all complex social situations either as neatly defined problems with definite, computable solutions or as transparent and self-evident processes that can be easily optimized—if only the right algorithm is in place!—" is likely not even to achieve its predicted purpose, for the "solutions" are often more tied to techno-utopian values than the realities of a messy, real world democracy (Morozov 2013: 5).

It is perhaps an irony then that modern web technologies might be the most effective medium ever to exist to facilitate action as Arendt defines it. Open, inter-connected, mobile, complex, chaotic: the web provides potential for action not only for its ability to connect disparate people and to propagate ideas at an energy never before realized, but it is also perfectly fitted to integrate into the contours of a city—one

complex pluralistic system intertwined with another. *It is up to the designers of civic tools and systems to actively leverage web-based technology not for imposing behaviors, but for facilitating action.*

One way of starting to do this might be in designing and experimenting with what can be called *meaningful inefficiencies*: civic tools, systems, or events that temporarily halt normal civic processes and create a delineated time or place in which play, disorder, messiness, and the ability to experiment and fail safely are utilized in productive—though not necessarily practical—ways. The results of this play can be increased civic learning, reflection, and empathy—which citizens can then leverage in creating new actions in the normal processes of civic life. This can take many forms, including public art (Coverley 2010), civic games (Gordon and Baldwin-Philippi 2013), or other forms of playful interventions. "Emergent behaviors, like games," Internet critic Steven Johnson argues, "are all about living within the boundaries defined by rules, but also using that space to create something greater than the sum of its parts" (2011: 181).

As civic media scholar and activist Ethan Zuckerman writes, "vibrancy and efficiency may not be diametrically opposed, but the forces are clearly in tension" (2013: 220). This tension, we believe, is a productive tension; and it is only through designing for the play of these and the other forces that facilitate and are moved by human action that we can think about and build systems that "let our humanity find a fuller expression; systems that tap into a far greater promise and potential of human endeavor than we have generally allowed in the past" (Benkler 2011: 26). Instead of using civic technology to structure behavior so as to impose transactionality, efficiency, and predictability, we can

commission the chaos and emergent patterns of the city itself to codesign our systems,

and use citizen action to steer systems in new, unconventional directions.

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[i] The Mayor's Office of New Urban Mechanics in Boston is a good example of an office strategically positioned within the mayor's office. Philadelphia has both models. They opened an office of New Urban Mechanics within the mayor's office in addition to employing a chief innovation officer that sits within the information technology department.
[ii] Fittingly, the next major evolution of the "Stat" program was GovStat, a private company created by the Baltimore Mayor's brother for marketing the CitiStat model to governments throughout the world.
[iii] This approach to behavior change has recently enjoyed a surge of popularity. In the UK, the Behavioral Insights Team (sometimes called the "Nudge Unit") was established in 2010 through the Prime Minister's Office. In April 2013, it was announced that it would be partially privatized. In the United States, the Obama administration announced in July 2013 that it was going to establish a similar office.

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