Field Scan of Civic Technology

Prepared for Living Cities by OpenPlans, November 2012

Summary

Civic technology – the use of digital technologies and social media for service provision, civic engagement, and data analysis – has the potential to transform cities and the lives of their low-income residents. Under commission from Living Cities, a consortium of 22 of the world's largest foundations and financial services companies working to make cities places of economic opportunity for low-income people, we interviewed 25 people with expertise in cities, issues facing low income people, and technology in June and July of 2012. This Field Scan presents our synthesis of these interviews – in effect, a snapshot of the civic tech field.

Participants identified civic tech as a fast-moving field with considerable but nascent potential to transform lives and cities. Promising initiatives are emerging, such as the movement towards open civic data, powerful technology solutions such as 311 and Open311, and new approaches like hackathons and the Code for America fellowships, which engage technologists in the development of civic tech solutions.

However, participants also agreed roundly that the field has considerable challenges to work through in order to reach its full transformative potential. The innovators we spoke to are navigating complex challenges in the course of identifying and scoping out issues, engaging with parties to the issue at hand, developing tools whose use tangibly improves realities on the ground, and ensuring that these tools can be maintained over time.

The interviews surfaced a number of structural and relational barriers facing those seeking to build technology tools that improve lives and engage people in urban issues. For example, building effective tools requires a deeper exploration of community needs than is commonly the case in civic technology development or in community engagement efforts more broadly. Cities that would otherwise develop civic tech solutions and integrate them into their existing systems face constraints including data privacy rules, extreme budgetary pressures, and a mismatch between the skills required to do this work and the skills their staff currently have. And the mechanism for disseminating and learning about existing technology tools are not yet as robust as the field needs them to be. None of these barriers makes civic tech impossible, but they do make it more difficult.

In addition to identifying barriers, interviewees suggested some approaches to advance the transformative potential of civic tech in cities. In order to ensure that civic tech solutions address real problems, technologists, cities and communities must collaborate more deeply around the development of these solutions. Approaching solutions in an agile, lightweight way – developing and testing solutions incrementally in order to fail small and learn fast – is important

in order to get tools in use quickly. Creating a supportive community of users, technologists, vendors and city staff accelerates innovation by increasing the sharing of ideas, success stories, and lessons learned.

Interviewees also identified work needed to make the civic tech ecosystem more supportive of the transformative outcomes we all seek. For example, interviewees cited the need for better means to share and evaluate existing civic tech tools, such as peer networks and product reviews. In addition, work is needed to create a more robust marketplace of vendors providing civic tech products and services. Furthermore, significant work is needed to develop the infrastructure (data policy, technical standards, etc.) required to support many civic tech solutions and make them portable from city to city. A broader, more collaborative effort is needed to address these systemic issues.

This document is not intended as an authoritative portrait of the field, and additional research and exploration are needed to better understand these issues and potential solutions. But this scan should serve as a useful starting point for those seeking to understand the current state of practice in this field. Stay tuned for more from OpenPlans and Living Cities as we capture and share our learnings from ongoing work in this space through the end of 2013.

What's the Purpose of this Field Scan?

Technology and social networks are changing many aspects of how we live, work and play. Unfortunately, this has yet to spill over significantly to change the relationship between city residents and their governments, or to improve the lives of low-income people.

We define "civic tech" as the use of technology by cities for service provision, civic engagement, and data analysis to inform decision making. This field scan set out to gather opinions on the current state of practice in the field of civic technology from the perspective of twenty five local and national leaders in civic tech, in local government, and in nonprofits working to address social equity issues. Through these interviews, we asked for input on the following topics:

- The current state of the civic technology field, including examples of civic tech making a difference in cities, and specifically around the lives of low income people
- The potential for civic technologies to advance more transformational change, and
- Barriers to deeper impact and wider adoption of civic technology, and strategies to address these barriers.

This scan is intended to inform the work of Living Cities and its members, as well as others interested in harnessing technology to advance transformational change in cities and communities. Below is a summary of key themes from the interviews.

The Current State of the Civic Technology Field

Respondents described a robust and evolving field, in which innovators are producing a diverse range of civic technology projects that are informing citizens, creating (in some instances) meaningful engagement and improving how cities work. Despite promising tools in many areas of city operations and civic engagement, these projects have limited impact relative to the field's perceived potential.

Who are the civic technologists?

Participants in civic tech come from a diverse range of organizations, including city staff in existing departments, staff in new positions to champion innovation and tech, non-profits and community organizations, software developers, data scientists and designers working in related and unrelated businesses, and freelance programmers.

Everyone sees potential in civic technology.

Outcomes enabled with better civic tech go beyond access to services and transactional relationships. Many tools and opportunities for civic engagement can be convened by or connected with government. Respondents identified ways in which cities could use technology to make more effective use of city governments' limited resources and encourage or support community-led activities: for example, where neighbors' reports concerning problematic vacant buildings can be used by cities, community groups and other stakeholders to prioritize the deployment of city inspectors and repair crews.

Over fifty examples of civic tech tools were given during the interviews, falling primarily into three broad categories:

- *Improving quality of and accountability in public service delivery* – Help city residents more effectively access and track responsiveness of public service delivery, facilitate resident engagement with government around service delivery issues, and streamline resident access to public services
- *Facilitating resident-driven improvements to neighborhood quality-of-life* – Enlist city residents to provide new data to support or inform government efforts, to organize community-based efforts based on that data, or to participate in the development of strategies and policies to address these issues more effectively, and
- *Deepening participation in public decision-making* – Developing more effective ways to collect meaningful resident input, especially from low-income people, and bring low-income people more deeply into public decision-making processes.

Some highlighted tools and processes were predominantly internal to cities, for example deep analysis of city data to provide faster insights for policy staff – though even some of these tools could potentially be opened to interested stakeholders outside city government.

Civic tech tools can go further.

Respondents generally agreed that the tools developed and in use in cities so far are demonstrations of the potential power of civic tech, but that these tools don't yet go as far as they might. The most frequently-cited criticisms of existing technology tools were that they focus on more transactional issues rather than on using technology tools to change the ways pressing problems are addressed, and that they tend not to be aligned with cities' and communities' most pressing needs.

Our interviews revealed strong agreement that most civic tech tools are not built in partnership with the intended users or in response to their pressing concerns. Without users involved in the design process, tools are built that don't serve real world needs, or they function in ways that are attractive to the developer but not relevant to those who are supposed to use or otherwise benefit from them. This issue is particularly acute for topics where the problem being addressed is systemic and not familiar to the technical community (e.g., access to nutritional support).

In the process of preparing this field scan, we spoke with staff at a range of cities and organizations. Although the field appears to be growing and attracting new participants, it remains nascent: relatively small, informal, varied in size and composition from city to city, and not yet as representative of the parties to the complex challenges it could take on as it might be. News travels slowly between the cities inside the informal civic tech network, and very slowly outside it. Respondents highlighted opportunities to improve communication between like-minded cities and spread the word faster to other cities.

CIVIC TECH IN ACTION

Improving Public Service Delivery: Bus tracking tools
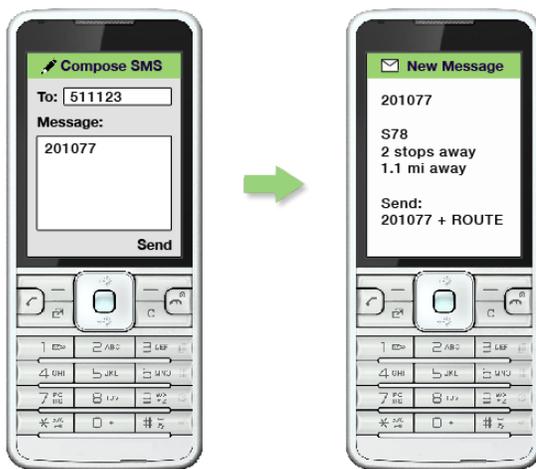
Simple bus tracking tools are probably the most widely-used civic tech solution today, providing updates on bus location by SMS and other methods to many transit riders. In NYC, over 1 million messages were sent to riders in the months after launching on Staten Island.

These valuable tools help riders get around, with reduced anxiety, thanks to the simple delivery of essential info. But they are not intended to change fundamentally the way public transportation is designed, operated or accessed. Those interviewed in this scan hoped that tools such as these will be supplemented by civic tech approaches oriented towards more transformational outcomes.

For an example of a bus tracking tool, see MTA Bus Time at http://bustime.mta.info/

Barriers to the Transformative Potential of Civic Technology

Civic tech takes place in the context of other ongoing challenges for cities and communities. Understanding these challenges will help the field build more impactful civic tech tools. In this section, we outline aspects of context that respondents highlighted.

Local governments are constrained.

Cities face financial and operational constraints that inhibit impactful civic tech work. Building new technology solutions is a complex task, requiring city staff to work across siloed departments, deal with issues around sensitive information (e.g. medical records), and address operational matters such as work rules. On top of that, they have to navigate the complexities of engaging with external stakeholders (described in the next section) in order to develop solutions that address real-world needs. As a result, many leaders within city government may hesitate to explore technological solutions that would otherwise deliver considerable public value.

Financial pressures were an oft-cited barrier to getting started. In today's fiscal climate, leaders within local government have to be more effective with fewer people and resources. This pressure should, at least in theory, encourage experimentation with civic technology, but it also makes it difficult to identify the resources necessary to undertake the work, even when there is a clear longer-term return on investment. It also reduces city staff's bandwidth to design and implement these projects, and undermines existing civic engagement work (one city interviewed, for example, had recently cut nearly their entire communications and community engagement staff).

CIVIC TECH IN ACTION

Facilitating Resident-Driven Improvements to Quality-of-Life: Chicagobuildings.org

The Chicago Buildings map provides city residents with access to data about vacant units. Community groups and others can use this data to inform efforts to return these properties to productive use.

The map was created by the Open City team, led by Derek Eder. The team combined datasets and mapped them, to provide coherent information in an easy-to-navigate format.

See Chicago's Vacant and Abandoned Building Finder at http://chicagobuildings.org/

Concern about handling more resident input was another barrier raised by local government interviewees. Creating civic tech tools that increase civic engagement can generate input that city officials feel unprepared to address. Civic tech can assist with this to some extent – for example, by providing analytics tools to help cities make meaning of this input – but it also creates new demands on city resources by giving people more opportunities to engage and expect a response. City leaders need support in order to work through this challenge.

Cities also have to balance the need for finding better ways to serve residents with simply maintaining existing services. Within many city departments, staff are focused on maintaining the level and quality of existing services despite layoffs and budget cuts, and on trying to avoid falling further behind the technology curve compared to the private sector. This focus makes it difficult to work strategically for long-term change. In addition, due to the hiring requirements necessitated by current technology systems and underinvestment in staff training, city staff often have skills that may not be well-suited for work with recent tools and approaches used outside government.

Cities are further constrained by relationships with their current technology vendors, many of whom wish to continue to sell the same systems that are already in use and may not be incentivized to offer better tools. The cost of making changes to these systems often prevents cities from opening their data, from integrating new civic tech innovations into their operations, and from making changes to business processes "captured" within those technology systems.

CIVIC TECH IN ACTION

Deepening participation in public decision-making: Change by Us
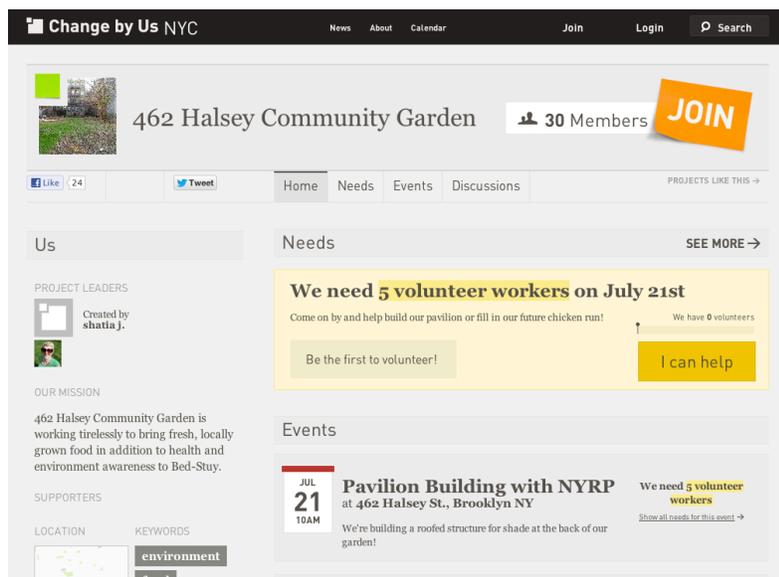
Change by Us helps citizens to find and engage with community projects. NYC and Philly, with Local Projects and Code for America.

As an organizing platform to create projects and gather support, Change by Us helps residents of NYC and Philly find resources and projects to participate on. It's an example of a civic engagement tool that enhances the existing work that community organizations are engaged in.

See Change by Us NYC at
http://nyc.changeby.us/

Low-income people are hard to reach with technology alone.

As suggested in an earlier section, civic tech tools have the potential to improve the lives of low-income people in a number of ways. However, these tools often fail to reach the populations they are intended to benefit. To better understand this challenge, civic tech for low-income people must be considered in the broader context of their interactions with technology and with government.

First, low-income people do not always have access to the same technologies, potentially including smartphones, mobile web and broadband access at home, as people with higher incomes. Tools that rely on these technologies are likely to reach fewer low-income people less of the time than technologies (e.g., SMS, cable television) that are more ubiquitous in low-income communities. Unfortunately, many tools intended to benefit low-income people are developed without regard to this reality. Cities can address this barrier by learning which technologies their communities use, and then tailoring their offerings accordingly.

CIVIC TECH IN ACTION

Deepening participation in public decision-making: Mi Parque

Mi Parque enables a community to create and share their vision for a superfund site, in Little Village in Chicago. A bilingual digital placemaking tool, it supports idea gathering and community building.

Mi Parque is an example of a strong civic engagement project that also provides data for better city operations. The app is also an example of tools that emerge from new approaches to generating ideas – it was built by a student team in response to the Apps for Metro Chicago challenge.

Read more about Mi Parque at
http://miparquelv.wordpress.com/

Even if more tools were tailored to these more widely-used technologies, there are other reasons low-income people might choose not to take advantage of the tools, including awareness of the services, willingness to share information, trust in the quality of information found online, familiarity with online resources, language skills and reading comprehension, and so on. Furthermore, many potential users, having had previous negative experiences with government, such as poor quality-of-service, unpleasant encounters with local officials, or conflicts over land in their communities, may have a lingering mistrust or hostility towards government and other stakeholders who engage with government. These challenges are not unique to low-income people or communities, but some may be especially pronounced in some cases. Addressing these challenges requires cities to take different kinds of approaches to community engagement than might work in more affluent communities.

Better structures are needed to translate the energy of civic tech into impactful, sustainable solutions.

Energetic, enthusiastic volunteering in 'hackathons' and other partnerships are not enough to create sustainable change in cities. Although hackathons are popular, their approach to problem solving is not always driven by community needs, and hackathons often do not produce useful material for governments or citizens in need. The efforts of activists in the civic tech community need to be supported and guided by cities and communities, and better mechanisms are needed to help civic hackers identify more pressing problems to fix.

Innovative civic tech projects are often not sustainable because they depend on the energy of a few city staff or community volunteers. Most new software developed in partnership with cities is open source, which can make for easier trial adoption and lower lifetime costs. Open-source software is not, however, a complete solution in and of itself: cities still need assistance in the complex process of deploying and customizing software, and later long-term maintenance, training and support. There's no 'plug and play' for cities to pick up new technologies, though tools listings like Code for America's Civic Commons address some of the complexity around picking a tool. A broader array of service providers must be cultivated in order to meet this need.

Further, cities and civic hackers are reinventing existing solutions more often than necessary. As mentioned earlier, news of innovations often travels slowly, leaving would-be innovators unaware that their ideas may already exist as products. In addition, building something from scratch is often more appealing to software developers and project teams in cities. It is also sometimes easier to get external funding for new work since the process of creating something new can be higher profile. Finally, solutions are generally customized for use in a single city or context, to the point that they have to be redeveloped for use in a different city.

Fortunately, our interviews revealed some ways to get around these challenges. More information about tools and successful models can encourage re-use of existing tools, reducing wasted effort and resources. In addition, some cities are beginning to collaborate around the development of standard data protocols, which would allow solutions developed in one city to be

more easily repurposed for use in other cities (and for developers to build new solutions on top of the existing standard).

Suggested Approaches to Advance the Transformative Potential of Civic Tech

Respondents were invited to give their ideas for the best approaches to increasing civic tech activity and fulfilling the potential it offers. Responses covered best practices to involve citizens in designing tools, approaches to increasing capacity within cities, building a community of users, sharing lessons, and broadening the 'ecosystem' of civic technology.

Build civic tech through co-design.

Involving people in tool and process development leads to better outcomes. The solutions produced will be more effective, and users will already have a sense of ownership from being involved as co-creators. Involving users ensures that the tools are addressing actual, pressing problems. The process of exploring needs and testing different approaches leaves the technologists better informed for the next round of work.

Successes in civic tech to date have been tightly integrated with an existing real world process (e.g., social service agency intake) and a pre-existing community of users. Starting with the people who are already addressing an issue is generally more effective than tackling an issue in isolation. "Social infrastructure" like events and workshops are as important as technical tools, because they can bring developers and community leaders together.

Build capacity inside cities.

Organizations need capacity to engage with new ideas. Limited capacity makes it hard to develop strategy – in government, non-profits and community associations alike. Capacity comes from staff within the city, and partnerships externally.

Within cities, champions are essential to drive civic tech forward. A point person within the city who has support from elected officials and senior staff can catalyze activity within departments and the wider community.

Software development is risky. Designing to avoid all risk of failure limits the agility of new projects, so cities should find approaches that make failure acceptable, primarily by making projects smaller. Total failure can often be avoided by working incrementally, and testing incremental, partial versions of tools with real users. Cities can be more innovative by adopting approaches to absorb risk that would otherwise fall on individual departments, as has been done in the New Urban Mechanics Office in Boston and comparable offices in cities including Philadelphia and San Francisco.

Cities should reach out to a broader range of stakeholders in the development of technologies to address existing problems. For many issues they face, existing software procurement approaches have not been effective, and cities have yet to engage successfully with the vendor

community to produce and integrate (particularly open-source) civic technology solutions. Finding new partners, and engaging existing partners more effectively, to work on technical problems can bring in new thinking that complements the skills within the city departments. A starting point is to open up data: access to information energizes advocates and civic hackers, and can be done incrementally.

Some interviewees identified procurement as an issue for cities, because the limits of the existing system create a burden that prevents innovation. Fixing procurement is hard for any one city to do on its own; some city leaders we talked to were eager to find ways to work with their counterparts in other cities to identify areas of shared pain and easy starting points for reform efforts.

One opportunity is around standards: where technical standards exist, purchases should be standards-compliant in order to enable greater exchange of components within each city's "stack" of existing technology solutions, to reduce dependence on any one vendor's offerings, and to make it easier for civic technologists to make and re-use tools. Cities are already collaborating around standards and taxonomies, to ensure the outcomes are in line with multiple cities' needs. Increasing this kind of collaboration will produce long-term benefits for cities.

Building a community of users around civic tech.

Like cities, other organizations need help building capacity too. Problem solving where there's existing energy will support solutions that build on this foundation, rather than needing to start from scratch.

It is effective to seek out citizens in places they already go, and to communicate through technology they are already using. For example, since many people already have cable TV, what innovations are possible with information delivery by cable TV?

Cities are already using community-based partners for outreach and engagement, such as churches and grassroots service providers. Cities with growing tech sectors can convene civic-minded software developers with these partners around particular challenges, and can also seek deeper partnerships with local software companies.

Strong partnerships inside and outside government helps to stimulate a positive cycle of using civic tech for local analysis and empowerment. Rather than passively reporting issues, citizens and community organizations can be empowered to collect data, carry out analysis and put forward positive visions for local change. 311 and other city data can support these efforts, from simple verification of existing issues reports to preparing comprehensive local plans backed by residents' insights on existing conditions.

Sharing successes and failures.

Information sharing around civic tech is limited, which makes it hard for cities or communities to discover and evaluate potential opportunities. Telling stories from projects helps others get started, and sharing failures helps others avoid the problems that caused a project to fail.

Some organizations already act as disseminators of information, like research groups and national partnerships, with dedicated processes for 'scribes' to gather findings throughout. Sharing can happen at all stages along the technical spectrum, from discussions of data standards through to organizing methods.

Building an ecosystem.

The 'ecosystem' of civic tech involves people, data, and tools working together to create positive social change. Within a city, data is produced by the city and people, and fed into different analytical tools. The insights gained are used by the city and other groups to drive policy, local action and advocacy. Between cities, lessons and tools are shared to enable re-use and progressive enhancement of tools and methods.

Within cities, relationships between the city and other groups can stimulate the ecosystem and help deal with funding and capacity gaps. For example, in Chicago the city works with several organizations, including the Smart Chicago Collaborative, Metro Planning Council, and LISC, and informal civic hacker groups. Each tackles different aspects of common challenges around livability and community empowerment, from access to internet and basic digital literacy, through to complex analysis with open data.

Technical standards help stimulate the ecosystem, because they help drive compatibility. For example, a tool that follows the Open311 standard to show charts of 311 reports can be used in any city with a 311 system producing standards-compliant output. A collection of many small tools that are standards-based can be used by communities in different locations to address particular issues. Cities can also benefit, taking a tool developed in one location and deploy it locally, without needing to build something new.

Long term, the ecosystem of civic tech should mature to include more successful businesses, and more competition between businesses. A healthy civic tech ecosystem can incorporate the approaches of community-centered technology design into the way that cities function.

Conclusion

Our findings from this field scan point both to the transformative potential of civic technology and to the barriers – both within cities and at a broader, systemic level – to realizing that potential. Living Cities is interested in deepening its understanding of these issues and learning more about what others in the field are doing to address them in order to identify specific issues Living Cities and its networks might take action to address. Consequently, this paper is meant as a starting point for broader dialogue. We encourage you to reach out to us or to Living Cities with reactions and ideas.

Field Scan Participants

Living Cities and OpenPlans are grateful to all field scan interviewees for their participation and thoughtful input.

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Damian Thorman, Knight Foundation

John Tolva, City of Chicago, IL

Adie Tomer, Brookings Institution

About Living Cities

Founded in 1991, Living Cities is an innovative philanthropic collaborative that harnesses the collective knowledge of 22 of the world's largest foundations and financial institutions to benefit low-income people and the cities where they live. Living Cities deploys a unique blend of grants, loans and influence to reengineer obsolete public and private systems and connect low-income people and underinvested places to opportunity.

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About OpenPlans

OpenPlans builds open source software to help cities work better. We collaborate with the public sector to create technology for more efficient, responsive, and inclusive government. Our tools address difficult transportation and planning problems — from multi-modal trip planning to public input on infrastructure projects.

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