SMART CITIES, CONNECTED COMMUNITIES

Data-Driven Decision Making in West Baltimore for Smart Technology Planning
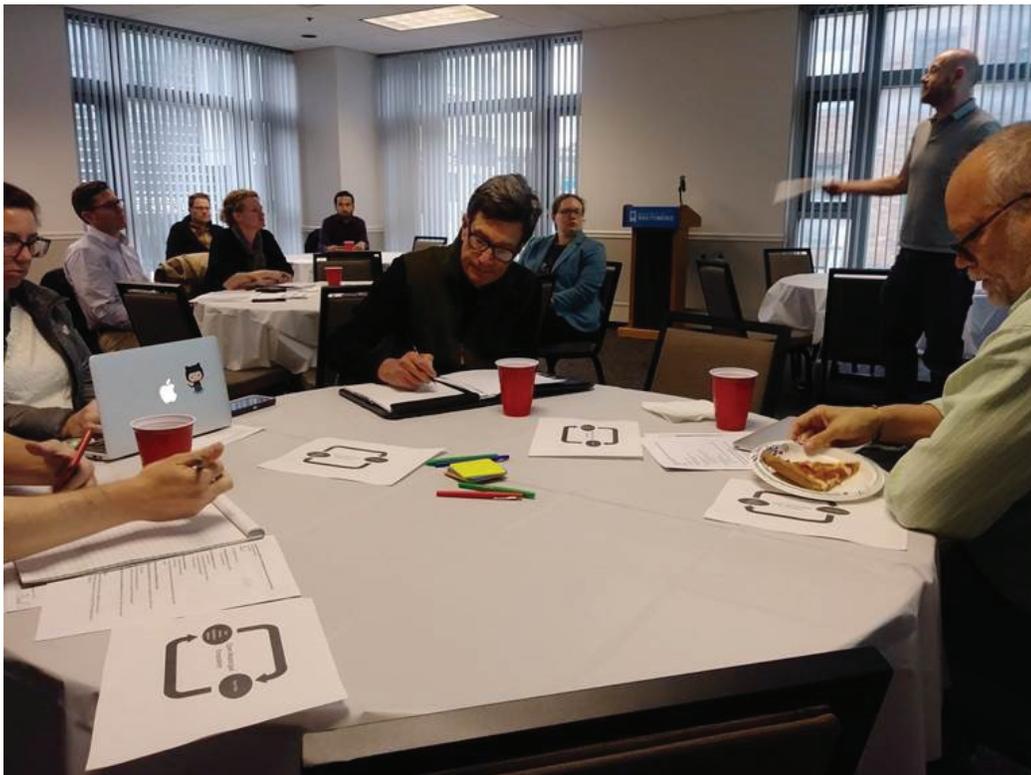
December 2018

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National Science Foundation Smart and Connected Cities Planning: How Can Investments in Smart Cities Technologies Improve the Lives of Low-Income Inner-City Residents? (CNS-1737495)

About the Project

Beginning in 2017, the Baltimore "Smart Cities Initiative" led by the University of Maryland's National Center for Smart Growth through a grant from the National Science Foundation sought to explore how smart technology could improve quality of life in Baltimore. The Baltimore Neighborhood Indicators Alliance (BNIA-JFI) at the University of Baltimore along with other universities including the Center for Government Excellence (GovEx) at Johns Hopkins University and Morgan State University collaborated with community-based partners in West Baltimore to understand how investments in smart cities technology could improve the lives of residents in low-income neighborhoods and outline a roadmap for city policymakers using the latest research in equity, health and urban planning.

The project team worked in three primary groups focused around issues of data access and use, community engagement, and technology strategies and innovations. This report presents the findings of the data access and use group.

About BNIA-JFI

The Baltimore Neighborhood Indicators Alliance at the University of Baltimore is the local data intermediary partner of the National Neighborhood Indicators Partnership (NNIP), which is a network of over 30 local urban partners coordinated by the Urban Institute to further the development and use of neighborhood-level information systems in local policymaking and community building.

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What is a Data-Driven Smart City?

As part of the data management team for the project, BNIA-JFI drew upon years of experience as a data intermediary for the City of Baltimore, and worked together with the researchers and community groups to learn about and better define how data can be used to help create "smart cities".

▶ **Smart Economy**—entrepreneurship, innovation, new forms of economic development such as sharing economy and open data economy

▶ **Smart Government**—e-government, evidence-informed decision making, transparency, participatory

▶ **Smart Mobility**—interoperable/multi-modal transport systems, sharing services

▶ **Smart Environments**—sustainability, resilience, renewable energy

▶ **Smart Living**—improving quality of life, increasing safety, reducing risk

▶ **Smart People**—informed citizenry, fostering creativity, inclusivity, empowerment

Source: Rob Kitchin (2018) "Data-Driven Urbanism" in *Data and the City*, Routledge, New York, NY

Using this framework for "Smart Cities" BNIA-JFI's mission clearly aligned with a focus on the concepts of *Smart Living* and *Smart People*. Since 2000, BNIA-JFI has released an annual *Vital Signs* report and open data portal which provides accessible, reliable and actionable data and indicators that describe social, economic and quality of life issues impacting the Baltimore City and its neighborhoods. The purpose of tracking key quality of life measures for neighborhoods is to help communities and community-based organizations understand the context in which programs and actions take place in neighborhoods and to make data-driven decisions about their neighborhoods.

Data-sharing among multi-sector actors in communities can be a strategy for knowledge management to establish common understand among potential collaborators (Iyer 2015). To tackle complex situations like those that can occur within urban neighborhoods, data-sharing can help different people and groups move through a process from mere *interaction* to *collaboration* to *innovation*. To assist in progress through these stages, data that measures effectiveness of city services and improvement in quality of life can promote citizen participation by demonstrating how use of data can establish a democratic space for engagement.

As part of the data management team for the project, BNIA-JFI developed a collaborative decision-making process that utilizes existing community-based data resources to assess the needs of residents in low-income community and develop plans for how data from smart cities investments can be integrated in future plans and actions. Simultaneously, the Center for Government Excellence worked to prepare a guide, [First Things First: Laying the Foundation for a Smart City](#), which captures the experience of partners in Baltimore and other cities around the country in laying the foundation for a "Smart Cities" approach that meets the needs of residents and improves city service delivery.

The Approach

BNIA-JFI coordinated a series of two workshops with community organizations in West Baltimore, the Heritage Crossing Residents Association and the State Center Neighborhood Alliance. The first workshop aimed at showing communities what data exists about their neighborhoods and invited attendees to identify issues of concern that may or may not relate to smart technologies. In the second session, BNIA-JFI staff helped community members use and explore open data portals that provided insights into the concerns expressed in the first meeting.

Community Concerns

At the start of the session, the participants were asked what they hoped to get out of the workshop. Participants indicated that they were interested in learning more about:

- Online resources that could be used to leverage funding and grant opportunities;
- Where to find information on how to assess data quality and data use;
- Ways to visualize information for setting goals and identifying strategies;
- Using data to brainstorm and learn; and
- Access and synthesize information from different online sources

Community Training Sessions

Session 1 – Presentation of Available Data and Breakout Group Discussion (March 2018)
The first session with community participants introduced residents to data that is available for the community through BNIA-JFI's annually produced Community Profiles and the Baltimore City Planning Department's American

Community Survey neighborhood profiles for 2000-2010. Community members were shown trends as well as relative values of indicators with respect to citywide averages and neighboring communities.

The workshop participants then broke out into small groups to discuss the indicators shown in the presentation and to identify concerns the community had that could be solved with access to more data and information.

In the presentation, BNIA-JFI highlighted several trends in the greater Upton/Druid Heights and Midtown Community Statistical Areas, including teen birth rate, property crime rate, chronic student absenteeism, unoccupied housing, and travel time to work. Emphasis was placed on how administrative datasets from Baltimore City agencies can be analyzed to create community indicators that can be tracked over time.

Following each presentation, participants were given an opportunity to discuss questions, issues they wanted addressed, and information they would like to have about their respective communities. **Table 1** details the questions, ideas, issues raised by the residents. Following the breakout discussions, residents shared their thoughts and ideas with the larger group.

Table 1: Community Training Discussion Topics for Heritage Crossing ("HC") and State Center Neighborhood Alliance ("SC")

Local Economy/Labor Force Participation	- How can "big box" stores, including full-sized grocery stores, open in the community- what is the needed market demand? (HC) - Business revenue: How much income is being generated in corner stores? (HC) - What is the spending power of the community? (HC) - What is the business owner turnover rate? (HC) - How many community members work near the neighborhood, particularly young adults? (HC) - What is the current employment and wage rates of workers who live in the neighborhood? (HC) - Issue: Commercial businesses illegally dumping food waste into the community (HC) - How many residents in the area are state or federal employees? (SC) - Where do residents in the community commute to? Within Baltimore, surrounding counties, Washington D.C.? (SC)

Community Development and Demographics	• How can the median household income be raised to be comparable to the city value? HC)
	   • How many new residents, at what income levels, would be needed?
	   • How can property taxes remain steady despite new community investment and increasing neighborhood home values?
	• How can the community learn about new residents as they move into the community? (HC)
	• How do water bills in the community differ from the average bill for Baltimore City and other jurisdictions? (HC)
	• How can Heritage Crossing market itself to middle and upper income households to encourage investment in the community? (HC)
	• How many people move to Baltimore City every year? (HC)
	   • Are they homeowners or renters?
	   • What is their socioeconomic background?
	• How many residents in the neighborhood are living in group quarters? (SC)

Community Engagement	• What is the best way to digitally engage with the community to inform residents about events? (HC)
	   • Newsletters
	   • Community website
	   • HOA membership list
	• How can the community participate in arts-related programming, such as Light City or transformative art? (HC)
	• How can the community become a Healthy Neighborhoods site? (HC)

Housing	• What will happen to vacant lots (recent demolitions) in the community – new construction, by whom? (HC) • How can the community track ownership information of properties that are unoccupied (HC) • How many homes are being sold for cash? (SC) • What is the historic tax credit usage in the community? (SC)
Special Populations	• How many sex offenders live in the community? (HC) • Are there any group homes for ex-offenders near the community and if so, how many residents live there? (HC) • How large is the homeless population? (HC)
Sanitation	• How much trash/recycling is collected in the neighborhood? (SC) • Are bus stops cleaner when the MTA provides trash cans? Analyze with 311 calls to report trash/illegal dumping (SC)
Health	• What is the prevalence of diabetes, HIV, and other diseases in the community? (SC) • How many residents are seeking treatment for opioids? (SC) • Who is accessing affordable health insurance options in the community, including Medicaid and Medicare? (SC)

Education	• How are schools in the community performing? (HC) • How many children are attending private school versus public school? (SC) • What are the factors that may lead to chronic absenteeism and how can it be reduced? (SC) • Idea: Analyze the road networks that children use to get to school and see how it relates to chronic absenteeism (calculate optimal routes in Google) (SC)
Open Data	• What are more up-to-date datasets for obtaining demographic data? (SC) • Can/will Baltimore Police share the initial versus final disposition of 911 calls on Open Baltimore? (SC) • What are the differences between having data and using data? (SC) • How often are open datasets updated? (SC) • How can we incentivize agencies to open their data? (SC) • How can local neighborhood organizations integrate their data and work into city datasets? (SC) • Integrate the 311 CitiStat databases to ensure the web app requests are being shared on Open Baltimore (SC) • Is there a better way for residents to track the 311 service requests? (SC) • Who is accessing the internet through smart phones/computers? Who would be the data provider to share this information? (SC)

Session 2 – Hands-On Computer Workshop Training (May 2018)

Based on the discussion topics and questions about data raised by residents in the first session, BNIA-JFI hosted a second session for Heritage Crossing and State Center Neighborhood Alliance to provide a hands-on online training to access data and other webtools that could provide relevant information for decision-making. These sessions, hosted on campus at the University of Baltimore, familiarized residents with sources of online, publically-available data that could be used by the communities for answering questions, planning and/or advocacy. The hour and a half long trainings were conducted in June 2018; outreach for the events was conducted by the community associations and through direct email invitation using resident/stakeholder contact information gathered at the first set of training sessions.

Each session featured three hands-on demonstrations of website tools to access data. Both of the hands-on workshops highlighted community indicators from BNIA-JFI's website (https://www.bniajfi.org), specifically accessing community profiles and visualizations including maps and charts, as well as Open Baltimore (https://data.baltimorecity.gov), demonstrating keyword searches, filtering, and viewing and exporting data.

Aside from the common websites demonstrated for each community, tailored information was provided based on the potential for answering questions identified in the first session. Because Heritage Crossing, indicated an interest in learning more about property ownership, residents were shown how to access property information through the Maryland State Department of Assessments and Taxation property search (https://sdat.dat.maryland.gov/RealProperty/Pages/default.aspx). For the session with State Center, participants learned how to create a custom query to access data on workers commuting outside of the neighborhood using the U.S. Census Bureau's Longitudinal Employer-Household Dynamics OnTheMap (https://onthemap.ces.census.gov/).

Key Takeaways

With or without the introduction of new smart technology in Baltimore, the engagement process used for this project revealed that several data sets and webtools currently exist with very limited community-based knowledge or training on how to access the information to address specific issues. The implication is that as new technologies are potentially introduced, special attention needs to be paid to the adaption and access to any resulting data so that communities can continue to learn about how to use the information to improve quality of life.

1. Engage with community members early to learn about challenges they see in their neighborhoods so that new technologies in neighborhoods can support the goals of the community
2. Ensure new technologies provide community members access to information about their neighborhood ideally within existing data portals, or allow community members the opportunity to provide feedback to data sharing platforms about what they would like to see made available
3. Establish open data protocols with vendors or city government to allow residents and stakeholders to evaluate the effectiveness of new technology community

Given the proliferation of webtools and open data portals that have been created by BNIA-JFI, higher educational institutions, governmental agencies, and civic technologists eager to use their technology skills to address Baltimore's quality of life concerns, a group of partners came together to establish the **"Crowdsource Data Tool Collective for Baltimore"**. The group

coordinated an event at the annual Baltimore Data Day workshop on July 13, 2018 and launched an online resource for everyone to view and keep track of new and existing applications using open data to improve the quality of life in Baltimore (https://citydata.tools). The aim is to continue to crowdsource, open compilation of existing tools that can be used by communities and enhanced by civic technologists and others at future events.

References

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More Reading about Smart Cities Developed by the Project Team