Activating Communities
Open Data User Research to Support Complete Neighborhoods in Madison, WI

January, 2018
Project Overview
Project Background

Madison established an open data ordinance in 2012 and subsequently launched a city open data portal.

Since that time the city has published 136 datasets on the portal; however after some initial success with the civic hacking community, much of this data has gone largely unused by community groups.

The city sought to make its data more usable and ultimately impactful to the public. In 2017 Madison reached out to Bloomberg Philanthropies’ What Works Cities initiative for help. With the support of What Works Cities, the City of Madison engaged the Sunlight Foundation to help strengthen its open data initiative through a Tactical Data Engagement project.
Project Partners

Sunlight Foundation

The Sunlight Foundation is a national, nonpartisan, nonprofit organization that uses the tools of civic tech, open data, policy analysis and journalism to make our government and politics more transparent and accountable to all.

Sunlight’s Open cities team works to help cities become both data-driven and data-democratized. Through participation in the What Works Cities Initiative Sunlight Open Cities helps U.S. cities craft meaningful and sustainable open data policies and helps connect those policies to resident need to drive successful open data practice.

Reboot

Reboot is an innovation agency dedicated to social justice. We are experts in design for the public good. In partnership with leading organizations, we deliver interventions that make development more inclusive and government more accountable.

As part of Reboot’s Governance program, we work to make open data matter for communities, bringing together government, civil society, citizens, and the private sector to design policies and programs based on real user needs.
Why Open Data?

- Fundamental component of government transparency
- Enhances understanding of government decision-making
- Expands knowledge of government services and transactions
- Improves access to government processes and decision-makers.
- Facilitates non-government actor’s ability to participate in government decision-making
- Supports non-government actors’ ability to utilize empirical approaches to community problem solving
The Tactical Data Engagement Process

Madison engaged Sunlight to implement Tactical Data Engagement process (TDE)

- TDE is a four-step process to help city halls go beyond simply providing access to data to proactively supporting data’s use by external community partners.
- The “Find” and “Refine” steps focus on exploring community information needs.
- The “Design” and “Implement” steps focus on targeted action to support specific community users of open data.
FIND A FOCUS AREA: Complete Neighborhoods

- Project focus area was determined based on an analysis of public input from the Imagine Madison process and an online survey.
- To identify overlap with city strategic goals, Sunlight also reviewed the city’s “Roadmap to Outcomes”.
- Based on this analysis, the City of Madison decided to research how open data could help community actors advance “complete neighborhoods”.

![Diagram showing steps: Find a focus area, Refine use cases, Design a plan, Implement an intervention. Engagements: by observing the community, by interviewing stakeholders, by coordinating with target users, by collaborating with actual users.]

Activating Communities | OVERVIEW
REFINE OPEN DATA USE CASES:

Open Data User Research

• Research to identify current and potential open data user-needs is a critical component of the TDE process.

• Sunlight engaged Reboot to support design research during the “Refine” stage to better understand potential users and applications for City of Madison open data.
Research Overview
Research Objectives

• Surface and understand current and potential data users working on issues related to access to services and community spaces, transportation, and housing, and their:
  • Perceptions of open data
  • Usage and access habits related to open data
  • Perceptions and knowledge of Madison’s Open Data initiative
  • Needs related to using City of Madison open data to answer key questions and solve problems

• Identify opportunities for the City of Madison to support users working on neighborhood development issues to use open data
Methodology

Design Research

• The research team conducted a two-week design research sprint, speaking with 36 respondents to understand how users and potential users of open data make decisions and solve problems to gain a holistic understanding of these users’ operating contexts. Specific methods included:
  
  • Semi-structured, open-ended conversations, generally one hour in length
  
  • Observation of how people access and use open data, general data, and information
Respondent Selection

• Respondents were selected based on their relationship to “Complete Neighborhoods”, and how they contribute to the broader equity agenda in Madison

• Respondents were identified and contacted based on recommendations from earlier key informant interviews, through neighborhood association and nonprofit contacts provided by the City of Madison, desk research, and snowballing

• Field research took place between November 5 and 17, 2017
USER INTERVIEWS
36

OPEN DATA EXPERIENCE

MALE RESPONDENTS
54%

TYPICAL INTERVIEW
60 minutes

FEMALE RESPONDENTS
46%

DAYS IN MADISON
13

STICKY NOTES USED
990*

USER GROUPS

INDIVIDUALS

PROBLEM-SOLVING
16%

COMMUNITIES
ORGANIZING
16%

PROFESSIONALS
INVESTIGATING
41%

BUSINESSES
OPERATING
5%

CIVIL
SERVANTS
22%

*Approximation

Activating Communities | RESEARCH
Madison’s Open Data Users for complete neighborhoods
Intro to User Personas and Journeys

• Design tools to understand and illustrate data use cases, challenges, and opportunities

• Personas and journeys are composites, based on findings from user research, and do not represent specific individuals

• To help illustrate observations and recommendations use the personas and journeys as grounding devices
Meet Madison’s Open Data Users

THE Community Activist
Robert, 62

THE Large Nonprofit Project Manager
Anna, 47

THE Small Community-Based Organization Director
Barbara, 41

THE Connector
Sylvia, 39

THE Disseminator
Julia, 27

THE City Staffer
Doug, 43
Anatomy of User Personas

• Research showed that a person’s networks and technical skills significantly impact their data use.

• These personas highlight each personas’ networks and data diet, or capacity to work with various types of data.

• Additionally, each persona has superpowers—a unique value-add or characteristic that allows them to leverage open data to support complete neighborhoods.

• The complete personas can be found here.
Superpowers help to illustrate each persona’s strengths related to data and neighborhood development. Some personas are skilled with data. Others are well connected to the clients they serve.
These network graphs illustrate how connected each persona is within the neighborhood development “ecosystem.” Stronger networks enable access to information and help supplement skills and resources.
Data Diets illustrate the types of data each user relies on in their journeys. For example, some users rely on raw data because they have the skills to manipulate and analyze it. Others prefer pre-existing indicators and anecdotes to support their data use case.
Data Journeys

To further understand each of these personas, the research team mapped each persona’s “data journey,” highlighting how users interacts with data in their work.

The complete data journeys can be found here.
THE APPLICATIONS: Data Use Cases

**To prove my point**
Organizations or individuals use whatever data is available to support their argument, such as when advocating for a policy change.

**To make program decisions**
Organizations frequently use data to decide how to prioritize work and allocate resources.

**To support funding needs**
Both large and small organizations rely on data for measuring impact, communicating with funders, and winning grants.

**To serve my clients/beneficiaries**
Organizations or individuals use data to better understand the needs of clients and then to connect them to the appropriate services and resources.

**To inform strategy**
Larger organizations who typically work at the city, county or state level use data to set their short and long term strategies.

These data use-cases represent the different ways people use data in their neighborhood development work.
Opportunities & Challenges
For Impactful Data Use
FOUNDATIONAL OBJECTIVE: Supporting Madison’s Equity Agenda

- Help small community-based organizations and large nonprofits utilize neighborhood equity indicators and other open data to better meet the needs of Madison’s underserved populations and further more equitable neighborhoods.
  - The City of Madison is consistently ranked as having some of the best quality of life in the United States, but these benefits have not accrued to the population as a whole. Communities of color still continue to struggle in underserved neighborhoods.

**Secondary Objective**

- Advancing complete neighborhoods for all Madison’s residents
  - Help support access to diverse transit options
  - Help support access to housing for all residents
  - Help support access to fundamental services, amenities, and community gathering spaces

---

**From Race to Equity, in 2011**

- 54% of African Americans live below the poverty line
- 48.1% African American third graders fail to meet proficiency standards versus 10.9% white third graders
- $63,673 White median household income
- $20,664 African American median household income

*From Race to Equity, in 2011*
THE APPROACH:

Supporting Madison’s Nonprofit Ecosystem to Better Serve Communities of Color

• Dane County has more than 1000 nonprofits, most of them small, many of which try to serve marginalized communities

• Madison relies on nonprofits and community-based organizations to deliver support—around housing, services, transportation, and community spaces—to underserved communities

• These organizations may not always have capacity, skills, resources, or experience to use data, or to use it more effectively

• Providing support to these organizations to use data can help them to serve their clients more efficiently, influence policy, and support efforts to secure funding.
The Pain Points

Broadly speaking, there are common “pain points” that limit the ability of open data to support neighborhood development:

**Supply side** pain points that severely reduce the “usability” and trustworthiness of Madison’s open data

- Inconsistent standardization
- Lack of metadata and appropriate data documentation,
- Lack of a publicly designated point of contact for each data set

**Demand side** pain points

- Lack of time, resources, capacity, and experience for neighborhood development organizations to effectively use open data
- Insufficient networks within city data owners to access data and/or the metadata to make the city’s open data usable
- Insufficient networks with the connectors who can help access data and provide the necessary skills to acquire, analyze, and act on data

*Overarching Strategy: Strengthen Networks Across the Open Data User Ecosystem*
Strategy to Engage

Foster the “connective tissue” within Madison’s data ecosystem, among nonprofits and community-based organizations, connectors, and city data owners.

This will help organizations overcome the various pain points across the “data to action” pipeline, such as lack of access to data, limited skills or experience analyzing data, and weak networks.
Foster the “connective tissue” within Madison’s data ecosystem, among nonprofits and community-based organizations, connectors, and city data owners.

**Overarching Strategy:** Strengthen Networks Across the Open Data User Ecosystem

**Approach:**

Strengthen relations between the city and potential users to:

- Facilitate access to data and technical capacity
- Surface data use cases to guide the city’s strategic engagement with community-based organizations.
  - For example, participate in public events to identify and strengthen networks with potential users or host “open data” trainings

**Approach:**

Establish and support “data intermediaries” to help fill skills and capacity gaps for organizations and individuals with less experience or time to use data

- Madison has a number of organizations and individuals that have already begun to fill this role.
- The city can help facilitate these connections between community-based organizations and these connectors

**Approach:**

Establish a mechanism, such as public steering committee, to help guide the work of the city to better assess and respond to the data needs of organizations working on neighborhood development and equity issues.
THE PROCESS:
Understanding the Data Pipeline

1. Acquiring Data
2. Analyzing Data
3. Acting on Data

Moving from data acquisition to using it for impact is a three-step process. Each step requires a certain set of skills and networks.

Under each section, user research observations are detailed, followed by “strategies to engage,” which detail strategies the city can take to facilitate organizations and individuals working on neighborhood development to better acquire, analyze, and act on data.
Strategies for Strengthening Data to Action
1

Acquiring Data
Observation 1:

**Skilled data users know how to find the data they need.**

- They know who to speak within the city, and where to look for data
- Many have established formal data sharing agreements
- Occasionally, they access city data informally through relationships with city staff (Note: This is not advisable because organizational turnover can lead to loss of access to data.)
Observation 2:

Successful data users have the time and resources necessary to acquire data.

- They recognize the importance of data to support their work, and can either commit the time or financial resources to getting the data they need.

- Neighborhood development organizations frequently have limited staff and budgets, which limit the time and resources that can be committed to acquiring data.

Robert is willing to put the necessary time toward gathering the data he needs. Anna’s employer, recognizing the importance of that data, is willing to devote resources to ensure she can access the data she needs.
Observation 3:

**Academics, large nonprofits, and motivated community members are more likely to use data to inform action.**

- They are more likely to have the time and resources as well as clearly defined use data use cases
- Smaller community-based organizations typically lack the skills, expertise, or clear use case

Robert, Anna, and Sylvia have identified clear use cases for data, and, as a result, are more likely to devote the time and resources into acquiring that data.
Observation 4:

Awareness about Madison’s open data portal is low, particularly among less skilled data users.

- For more skilled data users, it lacks key components to make it a useful source of city data, such as metadata, collection methodology, and a defined point of contact.

- The Neighborhood Indicators Project is better known, although not necessarily widely known, among the neighborhood development community.

As the strongest data user in the group, Sylvia is the only persona with knowledge of Madison’s open data portal. However, given its limitations, she typically goes right to the source of the data to answer any questions she may have.
Strategy to Engage 1:

Facilitate access to city and other data sources relevant to neighborhood development organizations.

Define a communication strategy that positions Madison’s open data initiative not just as a supplier of data (i.e. the data portal) but as a “connector,” helping to support data users to find and analyze data.

- Identify and engage potential and existing connectors and disseminators

- Direct outreach to nonprofits to better understand their individual needs, and to facilitate linkages with data connectors

- Establish relationships with community-based organizations to better understand their concrete data needs. For example, Neighborhood Resource Teams could be an entry point for the city open data initiative to identify and engage with community-based organizations

The Barbara–Sylvia collaboration helps to introduce data into Barbara’s CBO. Without this connection data would have continued to be inaccessible.
Strategy to Engage 2:

Increase value and relevance of city data to neighborhood development organizations.

- Revise the city ordinance definition about “incomplete data”
  - City data is rarely complete but this definition is limiting the release of potentially useful information. Allow for publication of “less than complete” data with proper documentation
- In collaboration with relevant neighborhood development organizations, review potential data sources to prioritize release as well as granularity of data, and documentation/training/instruction needed
  - In some cases, there may be a strong case for publishing more granular data
  - When more granular data is too sensitive for publication, facilitate the establishment of a data sharing agreement to ensure confidentiality.

Using data to understand the neighborhoods in which Barbara works requires hyperlocal data. She and Sylvia understand there are challenges in acquiring data, and would welcome imperfect datasets over no data at all. Doug as a “data owner” could also be an important point of contact to decide what data can be released and how it should be documented.
Strategy to Engage 3:

Increase user confidence in city data.

- Respond to any requests coming through the open data portal as quickly as possible
- Publish requests and responses for public viewing
- Publish methodologies, data dictionaries, metadata and other data documentation along with data

Doug would be excited to see the “Report a Problem” system grow, and become part of Madison’s open data.
Analyzing Data
Observation 5:

Successful data users either have or can access the technical expertise to analyze data.

- Few smaller organizations have staff members with skills and expertise to manipulate and analyze raw and geospatial data
- In lieu of these skills, they frequently rely on available indicators and anecdotes

Anna, Sylvia, and Julia have all demonstrated their advanced data skills necessary to make meaning of data, particularly raw data. Less skilled data users, like Barbara and Robert, are more likely to lean on anecdotes.
Observation 6:

Successful data users know who is responsible for collecting and maintaining data for the city, and are able to reach out to them for clarification.

- Smaller and less-connected organizations frequently have a weaker knowledge about who to call to help guide access to data
- Even among skilled data users, reported use/usefulness of city data portal is low

Robert, Julia, and Sylvia rely heavily on their points of contact to better understand the data they are working with.
Strategy to Engage 4:

Establish points of contact for city data sources so that people know who to contact about data.

- Helps build trust in the data itself
- Mitigates challenges relating to the lack of standardization and published methodology

Designated points of contact can support consistent data use by organizations, and prevent the gaps that currently arise in informal arrangements.
Strategy to Engage 5:

Enhance interpretability of city data.

• Establish best practices for standardizing published data. This includes standardizing data formats, and making data available in machine readable formats. The city should also publish metadata, data collection methodology, and information on when data was collected, and when it will be next updated.

For those using various datasets in complex ways it is invaluable that they use standardized data formats. When Anna begins analyzing many datasets their ability to work together will determine whether they are useful to her work.
Strategy to Engage 6:

Connect CBOs to technical expertise.

- Help build networks between CBOs who may lack data skills with potential data intermediaries, such as the University of Wisconsin, to provide data-usage capacity.

Barbara has a data use case but lacks the time and skills to actually put it use. She joins up with Sylvia to supplement her skills gap.
Acting on Data
Observation 7:

Successful data users have access to data at the granularity they need it.

- Granularity refers to the level of disaggregation of the data—the individual, household, block, neighborhood, zip code, city, county, state, etc.
- Currently, raw neighborhood-level data is limited.

Given Anna’s relatively large geographic focus, she can typically find at least some data that can meet the level of specificity she requires.
Observation 8:

Successful data users utilize multiple sources of data to improve their analysis and make their arguments more compelling.

- The data these users rely on comes from the city, the county, the school district, the Neighborhood Indicators Project, the American Community Survey, and even the Census.

- When providing support to potential users, be prepared to help them think beyond city data alone.

Anna and Robert rely heavily on multiple sources of data to build the analysis they need.
Observation 9:

Successful data users, in addition to their technical skills acquiring and analyzing data, are also strong communicators. They have the ability to:

• Mobilize support among relevant stakeholders
• Present compelling cases for their point of view that take advantage of quantitative and qualitative data
• Have a large network to draw on for intellectual and public support

Julia, Robert, and Anna are able to translate data into a compelling narrative to help bring about action.
Strategy to Engage 7:

Publish more indicator data, catered to CBO needs.

• For less data savvy users, indicators can offer insights and help inform decision-making with a lower barrier to entry.

Indicators are accessible to those with limited technical data skills. Barbara uses them in her grant applications.
Strategy to Engage 8:

Highlight successful data to action use cases.

• Showcasing open data use cases successes can raise awareness about how open data might support other use cases among potential users.

Robert gathers data about traffic patterns in his neighborhood to raise awareness and advocate for investments in his neighborhood by the city to change those traffic patterns.
Summary of Opportunities

Immediate Opportunities
• Support select neighborhood organizations who have clearly defined use cases to use city open data

Medium-Term Opportunities
• Address data supply issues
• Standardize and publish metadata for city datasets
• Designate a city point of contact for each city data set
• Revise city open data ordinance to allow for the publication of “incomplete” datasets

Long-Term Potential
• Establish a mechanism for strengthening networks between neighborhood development organizations, the city’s open data initiative, and existing and potential connectors
Looking Forward
WHERE WE ARE HEADED:
Design and Implement an Open Data Intervention

User personas and findings will inform next steps: designing and implementing an open data intervention to put research into action.

- Interventions are catered to target community users and can
  - Lower barriers to access and use of data for target community users
  - Document and incentivize desired uses for target community users
  - Create partnerships supportive of impactful open data application by target community users.
Thank You!

Sunlight Open Cities Team
opencities@sunlightfoundation.com

Reboot
hello@reboot.org

Researchers & Authors:
Reboot: Asch Harwood, Adam Parker, Panthea Lee
Sunlight Foundation: Stephen Larrick, Katya Abazajian, Noel Isama, Alex Dodds

Designer:
Adam Parker