Participatory Data-Gathering and Community Building

Emily Puckett-Rodgers, Denise Layton, and Kat King

University of Michigan, USA

Introduction

The Library Environments department at the University of Michigan Library in Ann Arbor, Michigan, facilitates user- and data-driven research to inform projects meant to create safe, welcoming, and accessible library spaces. We also lead strategic space planning efforts to transform our buildings so that they better represent and support our expertise, tools, collections and the needs of our academic community.

Because the scale and distribution of our services, spaces, and collections spans nearly a dozen buildings or spaces across multiple campuses, our small team relies on a community-centered effort to achieve our work. This paper will describe our distributed team and consultation-based approaches to large-scale strategic data collection and assessment. We will describe how we built our network of partners within the library and provide examples of our programs and their impact to date.

Why This Work

University of Michigan Library hosts over 4.2 million users per year with 736,641 square feet of public, collections, and staff space, including two 24/7 locations. In 2015, the library began embarking on an organization-wide effort to shift the way we work across our administrative divisions, departments, and units to create value for our community. As part of this work, our organization is committed to building a culture of assessment, engaging in data-driven decision-making, and in embodying a set of service and space design principles that are user-focused. In order to achieve these commitments, the Library Environments department developed a series of programmatic and department-level goals to guide our efforts. By developing thoughtful and consistent approaches to evaluation and assessment that span our organization, we can hold ourselves accountable to our commitments and to these goals.

The library's Operations division (which oversees the management of our buildings and spaces, access services, campus partner outreach and engagement, and physical collections management) has created a set of data-focused goals with associated programmatic investments to support staff involvement in realizing our institutional commitments. Our division goals are to:

- Seek continuous improvement in customer service, communication, and intercultural competence based on our principles for good service by collaborating with our colleagues and embracing diverse work styles
- Continue to make our library spaces, services, and collections welcoming, accessible, and safe for our diverse library colleagues and our community of scholars
- Strive to stay forward-focused by managing staff resources, including developing documentation, budgets, schedules, and positions, in an intentional but versatile way based on data-driven decisions

Our Portfolio

Before our department existed, the library approached our space investments across our buildings and data-collection within our division from an opportunistic and often piecemeal approach. Data was not always used to inform decision-making and there were several different processes by which we made changes to our spaces, services, and collections.

In 2016, the Library Environments department was established to facilitate strategic directions and resource investment in our space design and planning efforts across our major library buildings housed on four campuses. The efforts led by the Library Environments department directly support our division- and organization-wide goals and we strive to enable our colleagues to proactively participate in achieving these goals in their work based on the research we conduct and the data we gather.

We spread our impact by working in many directions, both within departments and units and at an organization-wide level. Within each portfolio area, we work on different programs and projects in a prioritized, collaborative way. Our portfolio covers the following sets of activities:

1. ***Strategic Space Planning***—Our team collaborates with library departments and units regarding strategic design or renovation of library space and associated service development. Within space planning, we also help teams to better understand the workflows of their space to help determine how we redesign our public and staff spaces.

2. ***Collections, Services, and Building Assessment***—We provide critical needs assessment by gathering, analyzing, and synthesizing data and generating reports, recommendations, or materials needed to facilitate decision-making.

3. ***Wayfinding***—We conduct user research, foster communications, and develop appropriate signage standards across physical and digital library spaces to improve access to resources, services, and expertise.

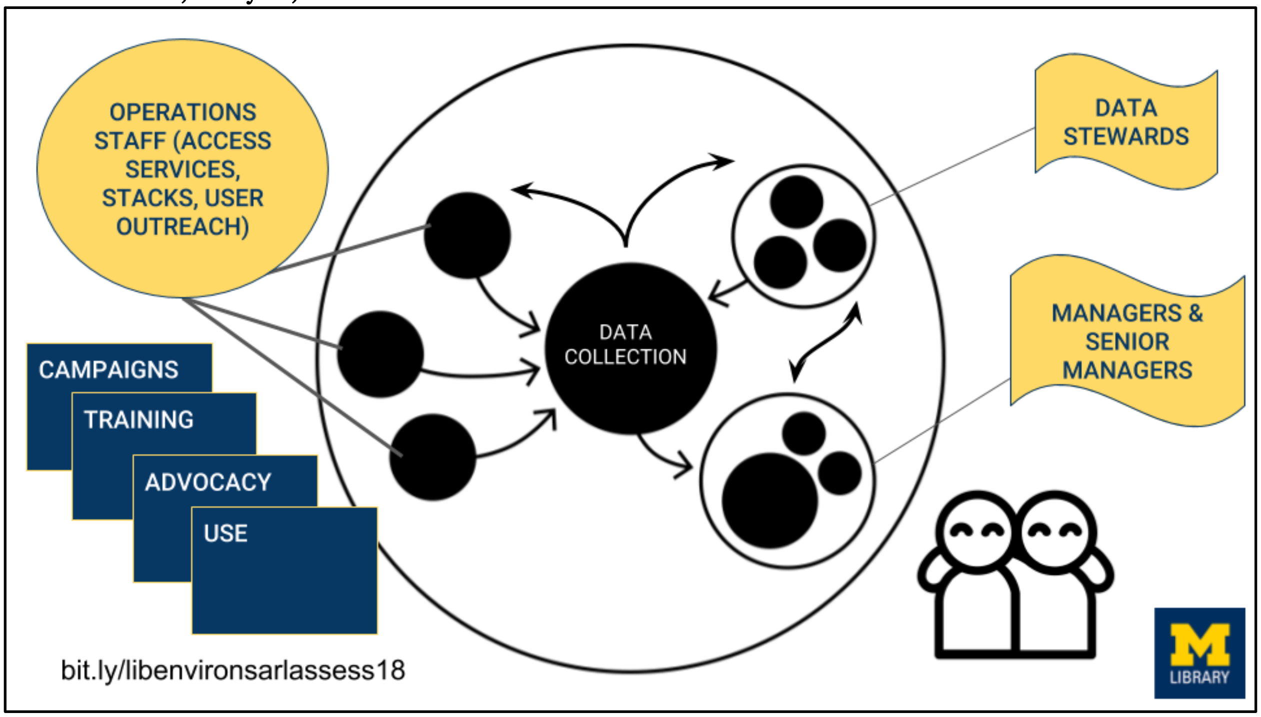
4. ***Communications and Process Improvement***—We collect, analyze, and communicate information to inform service, research, and policy development within the operations division.

Our team currently includes three full-time staff (department head, projects coordinator, research associate) and two student-staff positions. We each come from the information sciences discipline, but our expertise includes a variety of backgrounds and skills. All team members have experience and formal education in fields of human-computer interaction, particularly in conducting user experience research, in user-centered design, and in information architecture. Members have previous experience working in access services and circulation departments, in independent consulting to inform website design, and in conducting formal program evaluations. While we each have a primary responsibility for a portfolio area of our department, we work very collaboratively and strive to build on each other's individual strengths and expertise. We operate with an understanding of our functional roles but also take responsibility to lead individual projects based on our known expertise, capacity, and work style.

Our Approach

In our work, the specific projects our department works on change over time. What stays the same is our goals, our approach, and the values that drive our work. Our approach to collaboration intentionally considers the role and relationship of team members and what long-term goals there may be for the work at hand. While we do develop and deploy reports, communication plans, and space assessments to help inform decision-making, we strive to do so in a way that genuinely partners with colleagues and that is useful to both our organization and specific departments. For our work in evaluating our building use, service desk activities, and collections use, we have intentionally shifted the organization's approach to both our collecting and use strategies from an administrative-centered perspective to a user-centered perspective. We see this work as building community and capacity and engage in efforts to connect to managers, staff at-large, and through the creation of a "data stewards" team of staff who work in different departments across our division (see: Figure 1).

Figure 1: Slide from 2018 ARL assessment conference presentation illustrating community approach to data collection, analysis, and use.



We intentionally develop guides, tools, and resources for our colleagues to use and we employ a "train the trainer" model in our work to build capacity for using applied methods and resources across the organization in different settings. Our work is intentionally framed around principles of service design and design thinking in alignment with library-wide strategic efforts and in partnership with other departments in our organization.

This approach enables us to:

- Increase the amount of data we can collect, how many times, in how many places
- Grow skills, knowledge, and time we can spend on data analysis
- Make intentional service change decisions based on data

We will review this process in the following sections, outlining the ways in which we have engaged our colleagues and the processes we have employed in using, understanding, and collecting data that helps us better understand our services, collections, and building use.

Collecting and Sharing Data that is Relevant and Useful

We started our operations data program with the goal of developing a sustainable data evaluation and reporting plan to facilitate strategic decision-making and resource allocation for the operations division. In the past, individual units or teams within operations have collected or used data for specific process-based purposes, but we did not have a culture of data use or sharing which allowed us to easily consult the data we had collected when making decisions. Collected data was stored in different locations and it was not always clear what was available, or how reliable it was. Our departments and divisions suffered from a lack of data literacy, making it hard for teams to use data to help answer questions, especially if it was pulled from and only available as large CSV files pulled from databases.

We first engaged senior managers (department heads) in the operations division, asking them to identify what they wanted to know about how patrons were using the library based on the services they provided or the resources they used or developed. From these conversations we identified three core research questions:

- What are people doing in our buildings?
- How are our collections moving across our libraries and shelving facilities?
- What is happening at our service desks?

These questions guide our collection strategies and how we compile reports. Because we worked with our primary stakeholders—our division's senior managers—to develop them, we know that they are relevant to the decisions that our managing colleagues make around the services the operations division provides.

Our department's challenge was to find a way to take ownership of our data without gatekeeping it. We wanted to manage the data we were collecting in a way that engaged the whole division in processes that built capacity and expertise, and made it clear what data we had, where it was, and how it could be used. We aimed to make the data accessible and readable by anyone within the organization by reformatting and structuring our spreadsheets and putting them on our staff intranet.

Routinely, we seek feedback from managers on the content and usefulness of the reports we are generating and the data we are collecting. This has helped us iterate and refine what and how we present information to our colleagues. For example, when we first started making reports we would show only the totals of activity we saw during a certain time period (see: Figure 2). Feedback about these reports helped us understand that we needed to provide markers for context to aid interpretation. This meant adding the room capacity as a comparison to total number of people in a room. We also began to offer visualizations that compare data across different time periods to show peak activity compared to a more average activity, giving more context to the numbers we provide (see: Figure 3).

Figure 2: This visualization does not provide any context around how many seats were available.

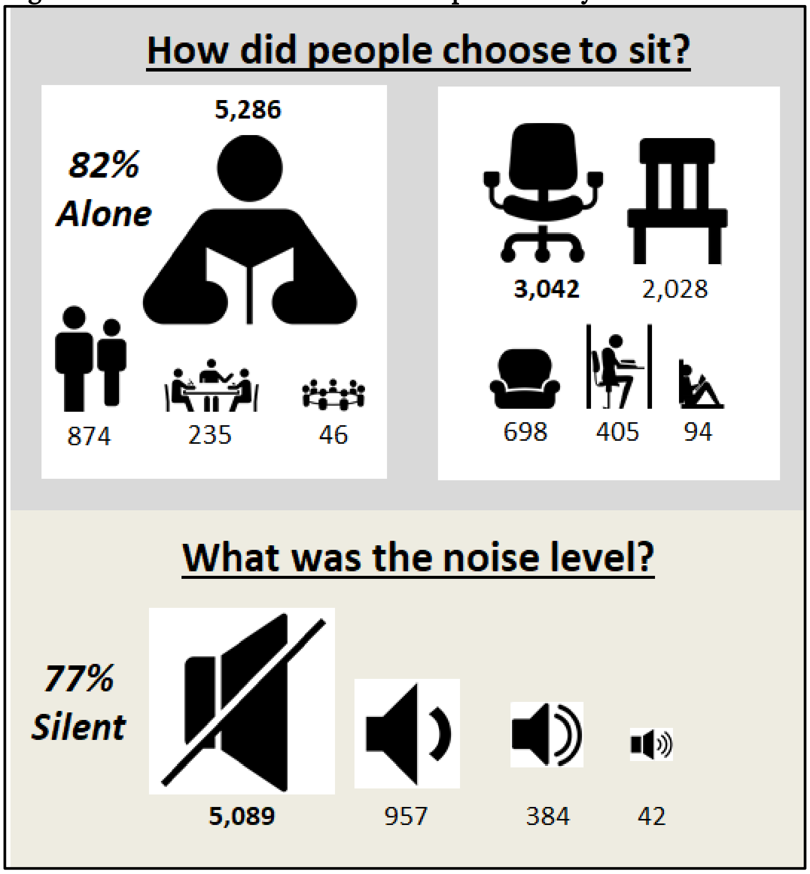
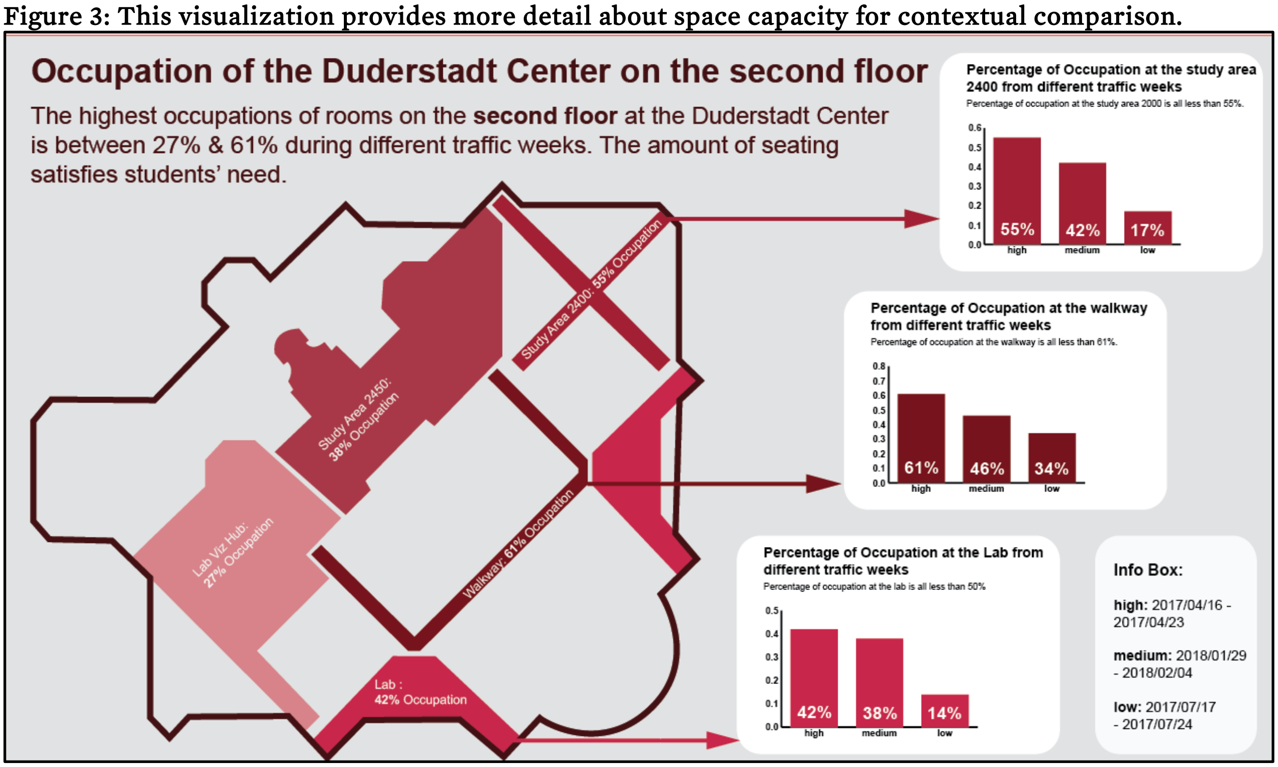


Figure 3: This visualization provides more detail about space capacity for contextual comparison.



Reports with more context have been received by our colleagues and have sparked ideas from them about what kinds of additional information we can pull from our data sources to answer their questions. Continuing to talk to managers about what they need has also promoted buy-in and engagement for this effort.

What and How We Collect Our Data

Our co-created research questions also guide what sources we use to collect data. By combining multiple manual and automated data streams, we are able to see the use of our spaces, service points, and collections through different lenses (see: Figure 4). We can also compare some data points across our collection areas. For each stream, we have cultivated the type of information we collect, balancing the level of detail we can achieve with technology or staffing constraints.

Figure 4: This table lists our six main automated and manual data sources. Each source is collected with different frequencies and levels of granularity.

		Time			Patron			Materials		Location		Activity	
		Day	4 Hr block	Min	ID	Type	Count	Type	Specific item	Building	Room	Type	Specific goal
Manual	Desk Tracker	X	X	X			X	X		X	X	X	X
	Gate Count	X	X				X			X			
	SUMA	X	X				X	X		X	X	X	
Automated	Circulation	X	X	X	X	X	X		X	X			
	Hold Requests	X			X	X	X		X	X			
	Public Computer Use	X	X	X			X			X	X		

Our manual sources have required the most refinement and collaboration with staff who do the collecting and managers who schedule the data collection along with other responsibilities. For each one, we started with an initial tool and list of details we wanted to collect based on our guiding questions. We then piloted the process at one of our locations for a short period of time before refining the process based on feedback and then expanding more broadly to other locations and across different shifts.

Detailed Building Counts: Suma Initiatives

The process that has required the most coordination, testing, and refinement is what we call "Suma Initiatives." While we collect data like building counts, gate counts, and service point transactions on a daily basis, in order to answer the question, "What do people do in our buildings?" we needed to collect more detailed information. Suma Initiatives are week-long efforts to collect information about how our patrons are using our spaces. In designated spaces, counters use an iPad and the Suma Application (developed by North Carolina State University) to note whether people seem to be working individually or in groups, what kind of furniture they are using, and what they are actively focused on (whether it is books, personal technology, another person, library technology, or something else). This information helps us to better understand what our building looks like during different times of day, during different traffic weeks throughout the year, as well as how people are using our current configurations of resources. It also provides us with data we can review to determine priorities for additional, more resource-intensive studies, such as observations or focus groups.

This effort takes a lot of work. We are collecting data in six buildings, across 212 timeslots, in each of our three week-long initiatives a year. Fifty-seven students and full-time staff are involved across all operations departments. Some staff conduct just one count and others conduct up to 10 throughout the week. To make sure we collect quality data, we need staff to have sufficient training on how we are using the Suma tool, and make sure that we are adequately staffed for both the counts and at our other service points or in other areas of responsibility during this time. Most importantly, staff need to be able to see how the data they are collecting is being used to help keep them motivated to collect the data accurately. They also need to understand broadly what we are trying to accomplish with this work to help them make judgements about how to record what they see.

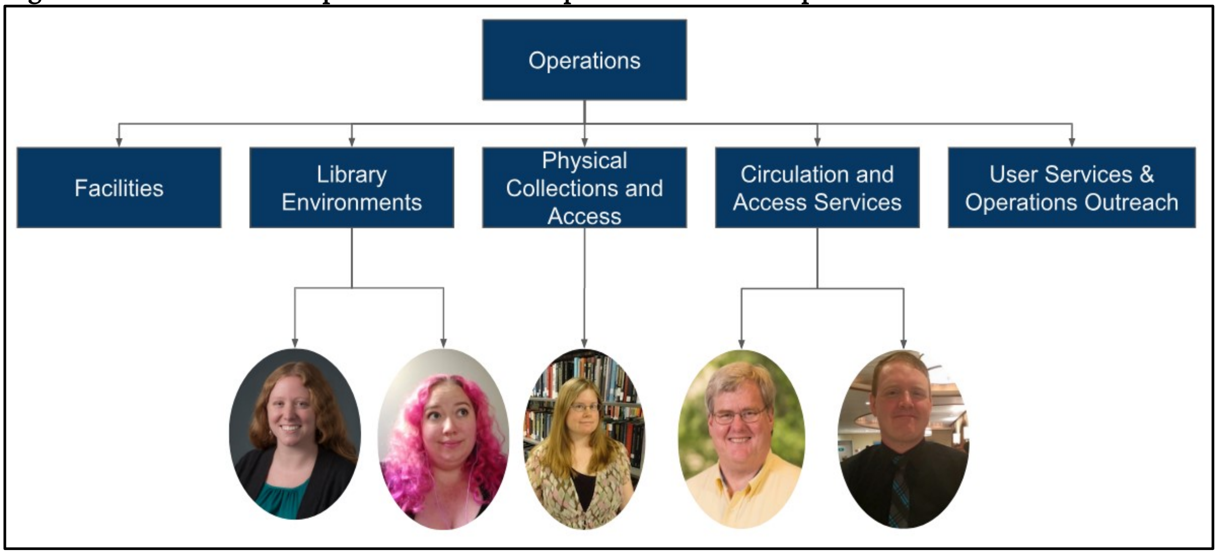
Data that is Understandable and Timely

From the start of this effort, we wanted the data and the output to be available to all staff as they need it or would like to review it. The first way we tried to do this was by sharing raw spreadsheets of data or short, general reports. We soon learned that the level of detail we were sharing was both too much and too little, and that we needed a more flexible option. We imagined creating spreadsheets that were like a dashboard that could be manipulated and changed to give managers the information they needed. We had thousands and thousands of data points to analyze and organize and we needed more dedicated staff time to help do this, so we formed the data stewards team.

Data Stewards

Early in this process, our department formed the data stewards team to help us in three ways: to review the data we have collected for quality assurance, to help develop reports to share back to our colleagues, and to provide feedback related to our data collection efforts (what is working or not in terms of our department's education or communications efforts). Team members have varying experience working with data (collecting, organizing, and using to inform decisions), a professional or personal interest in enhancing their data analysis and visualization skills, and, importantly, they each come from different operations units or departments and work different shifts in different locations. Team representation includes the Access Services Department and the Physical Collections Management department (see Figure 5). Working together, the team has standardized collections processes across locations and developed new processes for transforming specific data types from raw CSVs into more useful collections of tables and graphs that communicate what the data means. Example projects have included creating a single point for entering gate counts, automating the calculations needed to get clear visitor numbers by location and time period, and working to transform our data collected at our information services desks into dynamic spreadsheets which allow service point managers to see what has been happening at the desks they supervise.

Figure 5: Data stewards represent different departments within Operations.



The team has built up our querying capabilities so that we can provide reports on demand in addition to our self-use spreadsheets. On-demand requests come from across the organization, from our executive council, our associate university librarians, and from other department heads. We have also developed a semester report of use trends we plan to regularly share with both the division and the organization. In these ways, we are able to customize information for a manager who might want information to inform a project or service point while also being able to show longitudinal change in use over time for all of our services, spaces, and collections.

Lessons Learned

We have taken an iterative approach to establishing our data program. Our first year focused on envisioning and defining the program and the data we were gathering, including: identifying the research questions we wanted to begin answering, restructuring the ways in which we gathered the data, evaluating our data sources, and launching our first version of data collection with staff across our division. In our second year, we focused on reflecting and refining the process, including: developing reports to share out to staff-at-large, investing in our data stewards team, creating more training materials, and streamlining the data collection process for our staff.

In each cycle along the way, we have improved and built on our process. We now have two years' worth of data to draw from and compare to, something we did not have at all when we were starting this program from scratch. It was really hard to be transparent and build trust when we were just trying to figure out what we were doing and did not have anything to compare to. However, at the end of our second year, we can share trends, answer questions, and use the data to inform resource-based decisions.

Some applications of our data collection efforts have resulted in the following:

- Characterizing and describing how much square footage we have devoted to more collaborative and more individual study spaces and what that supply and demand looks like throughout the day and the week
- Adjusting service hours at specific locations based on traffic, interactions, and requests
- Using building data to communicate to campus partners and other library service providers about traffic expectations across the semesters in specific locations
- Identifying trends in directional questions to inform signage content, location, variety, and amount
- Using building count data to inform student staffing budget allocations and using transaction data to support library recommendations when collaborating with campus service providers at a shared campus information desk
- Understanding occupancy for a floor in one of our library buildings to plan for renovations and improvements

Understanding the Landscape

When our department first started, there was a lot of groundwork to lay. We were establishing a more comprehensive approach to all areas of our work and working from limited data collection efforts from the past. Reviewing previous data collection efforts and current practices and habits allowed us to better understand where we were starting from. Since data collection in Operations had previously been scattered across the division and it took time to identify what data there was, and how people were using it (or not). At first, many staff did not understand why we were doing this work or that this was not a one-time effort, but a programmatic activity that would be part of their regular workload. Many had participated in "data collection" but had never seen it used to inform decisions and so did not take our requests to collect data very seriously. We still struggle with getting staff to help us collect data regularly in some buildings across some shifts. It took time to communicate across various levels of the organization in meaningful ways and to understand what was working and what was not in terms of our communications and data collection strategy.

Establishing Norms by Modeling a Team Approach

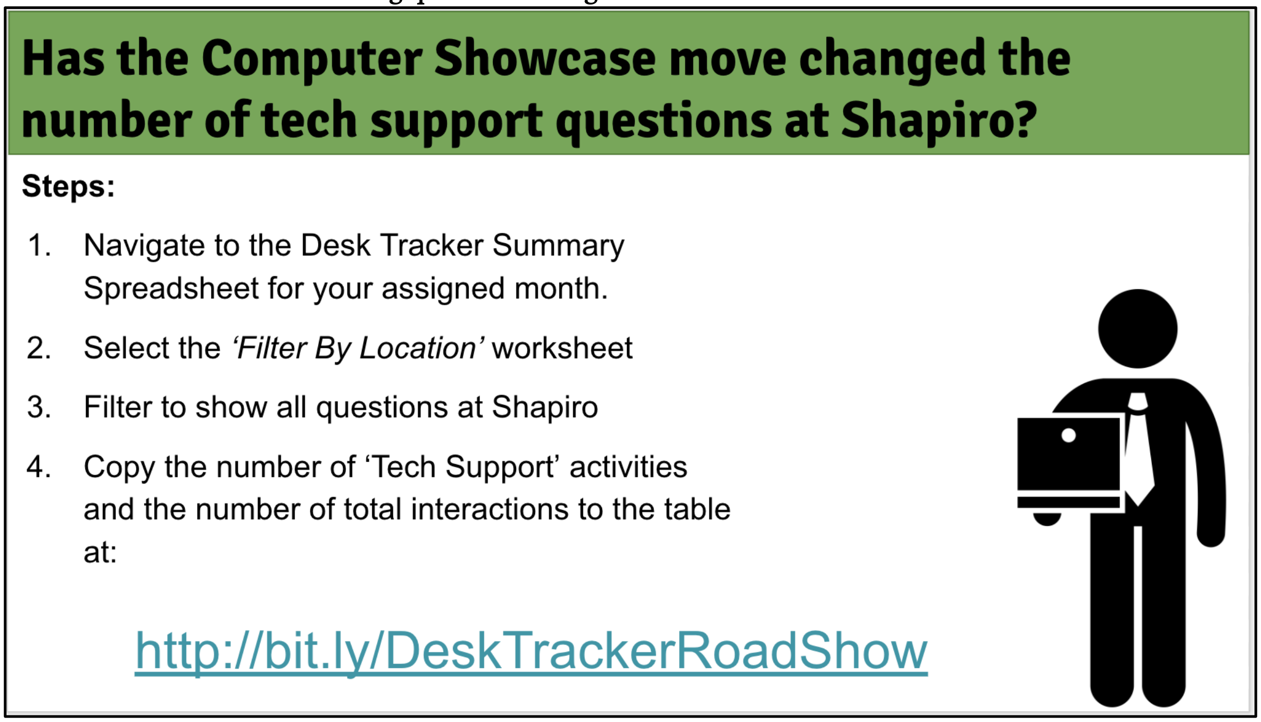
How we do our work in our department is important to us. One way of spreading communication norms and different ways to work is by modeling that ourselves. This means organizing effective and timely meetings, tracking work of teams, proactively seeking feedback, following up with results, updates, and information, and making reliable timelines. This builds our credibility as a team and as a department and also shows others how to get more done effectively in a team-based model. The data stewards team model included establishing new norms of communications, expected output, and investment. This cross-departmental team has been instrumental in the success of our data collection efforts, especially because they work in different settings and with different colleagues than our department and can serve as connectors between our department and colleagues collecting data for this effort. They help our department hold ourselves accountable to our intentions of transparency, participation, and creating a data gathering program that is useful, timely, and relevant to colleagues across the entire organization.

Growing Pains and Scaling Up

Our progression of work has accelerated with each cycle and iteration of effort but was a slow effort to start. This is especially true because our department is a newly conceived department and has a portfolio of four domains of work that can include several active projects within each area. This cyclical approach can feel very slow and ambiguous, especially for the dozens of full-time and student staff collecting the data and learning and relearning some of our data collection methods. However, the work we put in to balance time to create templates, documentation, drafts, and tests got us started down the path toward a strategic approach to this programmatic effort. Adding in a few quick wins along the way, including showcasing the data and recognizing individual contributions, helped our department and our division colleagues stay motivated. Now that we have established this work and can look back to how we communicated it, how often, and how well, we have been able to tighten our cycles of testing and implementation. This has resulted in more outward evidence of the impact we are making that have culminated in winter 2019 into our first quarterly report for our division. The data collection activities have also become a more normal and expected part of routine work for many staff across our departments.

We continue to face challenges of scale and in communicating our work to our colleagues. In our second year, we realized through a series of feedback sessions and discussions we needed to invest in a literacy campaign for our managers and our staff about how to engage with the spreadsheets and data reports we were sharing. This resulted in the “data literacy roadshow” (see Figure 6), a learning exercise our department staff created for managers and their supervisors with hands-on activities to help them understand what data was available and how it could be used. It was well received and created the basis for additional learning modules the data stewards team is helping to create for our staff and student staff that will be integrated into our general training programs.

Figure 6: An example slide from the Data Roadshow which taught staff how to use the data by focusing on hands-on activities answering questions using the data.



We still have some gaps in how staff understand this program and their role in it, but by showing both the results for our work and decisions from this work, we are illustrating the value of this effort and have received positive feedback from colleagues. Finally, while we are well established within the operations division and as partners in some strategic cross-divisional initiatives, there are many departments across the library that are not as well-aware of our department's work, scope, and who we are.

We are making intentional efforts to change this in our third year through advocacy, training, communications, and collaboration efforts. Our department is energized by our collective efforts in this work and the data is becoming more relevant and useful in strategic efforts. It is becoming more normalized for our division to ask for data reports and to give us feedback on what works and does not work in our programmatic efforts. We also learn a lot from our colleagues about how they work, what they value, their challenges, and how they impact the campus community we all serve. In this way, our department and our division is connected to our academic community in ways we otherwise would not be. We can better tell and understand the story of the University of Michigan Library, our collective role in it, and the impact we make in partnering with our community of scholars to create, share, and use knowledge to make changes in the world.