



*DATA INTEGRATION ACROSS  
JAIL & HOMELESS SERVICES  
BLUEPRINT FOR SUCCESS*

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MARCH 2019

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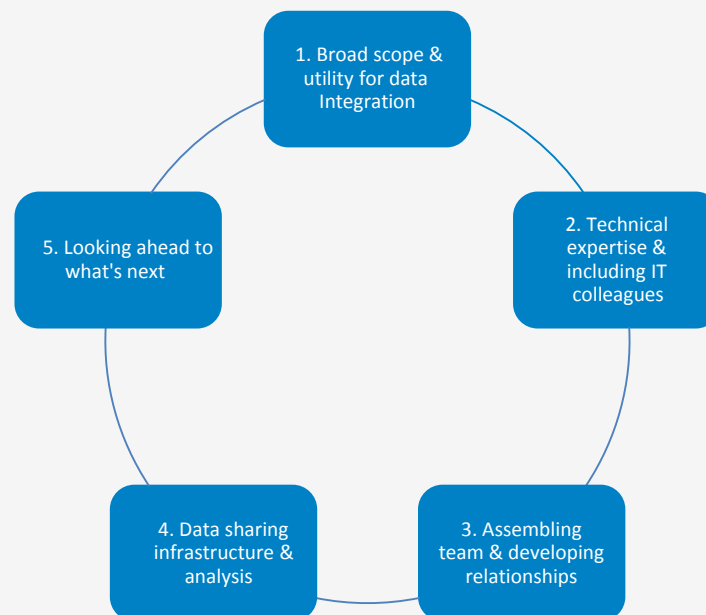


## *SUMMARY & BACKGROUND*

CSH selected the Center for Data Science and Public Policy (DSaPP) at the University of Chicago to develop a web-based data integration tool, which was completed in 2018. The tool connects county jail administrative data from the justice system to homeless system data, through communities' Homeless Management Information Systems (HMIS). The tool utilizes a matching algorithm developed using machine learning, which can match the integrated data by personal identifiers and report the overlap between systems to administrators. The data match can be done repeatedly over time, and can be used to understand the service profiles of persons who have long histories of engagement with these systems, advance policy, and programmatic solutions to address the needs of these persons and system service gaps.

Four competitively selected communities deployed and piloted the data integration tool. The communities, Boone County, Missouri; Clark County, Nevada; McLean County, Illinois; and Salt Lake County, Utah represent a cross section of the country, complete with nuanced local politics, technical and administrative barriers and opportunities, distinctive geography, and scale.

Despite the differences in implementation, common themes did emerge. The challenges, advice, and insights of the communities are compiled and highlighted into five key themes and lessons learned that might advantage others' data integration projects.



## *Lesson One: Broader Utility of Data Integration*

Each community had a different motivation for deploying the data integration tool. The tool offers a way for communities to start integrating data systems, quickly show value to stakeholders, and, hopefully, scale data integration into other sectors, such as the public and private healthcare systems.

The matched data can be used to spark other projects and connections across sectors. For example, as the initial matching was completed, McLean County was able to dispel anecdotal reports of jail bookings spiking in the summer months. In Salt Lake County, the matched data was set against behavioral health system data, confirming a significant overlap in participants and setting in motion policy development and further data integration conversations.

The data integration platform can add value not only as a bridge to link homeless and justice systems, but the work involved in setting up data sharing agreements can create change even in the event of substantial barriers. Clark County, which ran into data sharing walls due to a state statute barring sharing of historical criminal history data in addition to jurisdictional challenges with having four jails within the county, turned the energy into a successful Bureau of Justice Assistance (BJA) grant to unify and coordinate jail data systems across the county. Communities have used it as a communications and policy tool, emphasizing challenges and opportunities to use data to streamline systems and develop programs.

Communities have explored and found success in the tool's potential and flexibility as:

1. a platform to broaden the data integration work already underway in the county;
2. a lab to test hypotheses about these two systems and the people engaged in them;
3. a springboard to a larger conversation to break down system and service silos through data analysis and policy development; and,
4. a way to focus conversations around housing resources for a population demonstrably using multiple systems.

## *Lesson Two: Deploying the Integration Tool Requires "IT"*

A minimum degree of technical sophistication is required to successfully deploy the data integration platform and communities stressed the importance of ensuring Information Technology (IT) experts are brought to the table from the very beginning. The tool is meant to be deployed and hosted locally, making it easier for communities to monitor and maintain the system, as well as ease much of the data use agreement paperwork. Some communities found it difficult to communicate the technical requirements of deploying the data integration tool to their IT colleagues. Extensive systems documentation, methodology, and setup instructions for the installation and use of the data integration exists and can help convey minimum requirements to IT<sup>1</sup>.

### Titles of Potential IT Allies

- Directors of IT/Data Management
  - System Administrators
- Desktop Support Specialists
- Data Analysts/Scientists

### Topics of System Requirements

- Linux Server Environment, particularly Ubuntu
  - Amazon Web Services (AWS)
- Application Containerization (Docker)
- Cloud Storage and Databases

<sup>1</sup> For more information on the tool technical requirements, setup instructions, and specifications: <https://dssg.github.io/matching-tool/admin/install/>

The initial technical requirements can seem like a big hurdle to clear, particularly if one is not technologically inclined. Rest assured most IT business units will not be daunted by words like “server”, “the cloud, and “Linux”. The tool works best when hosted on servers locally, so buy in from your IT department is key. Probably the best person to seek out after IT management is your System Administrator. If you’re unclear who that is, they are often the same person who resets forgotten passwords! The major requirements for successful setup are server space, preferably running Ubuntu, which is a type of operating system for servers and is most compatible with the tool. Through Docker, the tool, and all the code needed to run across different computers and settings, is packed into a “container”. Software containerization is a reliable way to standardize, secure, and shrink the system resource requirements of applications.



### *Lesson Three:*

## *Assembling a Team & Developing Relationships*



Every community shared the insight that a data integration project requires strong partnerships across the entire community.

Not only in the homeless and justice systems, but also from elected officials, IT specialists and data gurus, community advocates, peers and persons with lived experience.

Even relatively low barrier and easy-to-use technology projects of this type require the support of the highest levels of government leadership to be successful, in the form of a project champion.

In Boone County, the project had the support of a County Commissioner. While in McLean, the County Administrator and Chief Information Officer were involved intimately. In Salt Lake County, the County Mayor was deeply supportive, delegating the leg work to the lead for the Criminal Justice Advisory Council and a key county data administrator.

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The project champion is a community's spokesperson, driver, cheerleader, and optimist. Potential champions include judges, mayors or high-level mayoral staff, county commissioners, police chiefs and sheriffs, mental health professionals, and other elected and non-elected government officials. In the counties for the data integration project, the champions understood the potential and purpose of data sharing and was able to carry that enthusiasm forward to their peers and colleagues to open doors and opportunities for the data integration project, which the project management team may not have been able to alone.

An engaged project champion is a valuable asset to move the project forward, but not on their own. The project management team needs to support the champion with evidence. As the data integration tool is established and deployed, the project management team should demonstrate the value and translate that into targeted talking points and audiences the champion may be able to reach out to and influence.

### ***Working with Continuum of Care (CoC)***

The community's Continuum of Care (CoC) lead agency and Homeless Management Information System (HMIS) administrator are the representatives of a community's homeless system. As an important reminder, the lead agency and HMIS administrator may be the same organization or it could be two distinct organizations, each may require a data sharing agreement. Leveraging existing relationships with the CoC and bringing key persons to the table from the initial project start are the easiest ways to obtaining agreement to integrate HMIS data. Data sharing is becoming a more common practice across the country, particularly with HMIS data. U.S. HUD has signaled their encouragement to share data responsibly with partners to coordinate homeless services, prioritize, and house the most vulnerable persons.

Some CoCs may be more reluctant to share HMIS data and/or may have a client release of information (ROI) that is restrictive. In these cases, additional education is necessary to ensure CoC boards, leadership, HMIS committees and data administrators are aware of the uses of the HMIS data and the goal of the community to understand the overlap of homeless and justice systems. Close working relationships with the CoC, attending and speaking at CoC meetings, and leveraging your project champion may help overcome the initial reluctance.

### ***Seeking Out Traditional and Non-traditional Partners***

Leveraging your champion, how can the project draw in other partners? How centralized is the community's justice data? Are there multiple law enforcement agencies and jurisdictions that have different systems that cannot speak with one another? Does the local VA Medical Center have a place at the table or could provide expertise and support on data sharing or privacy concerns? What about local colleges and universities?

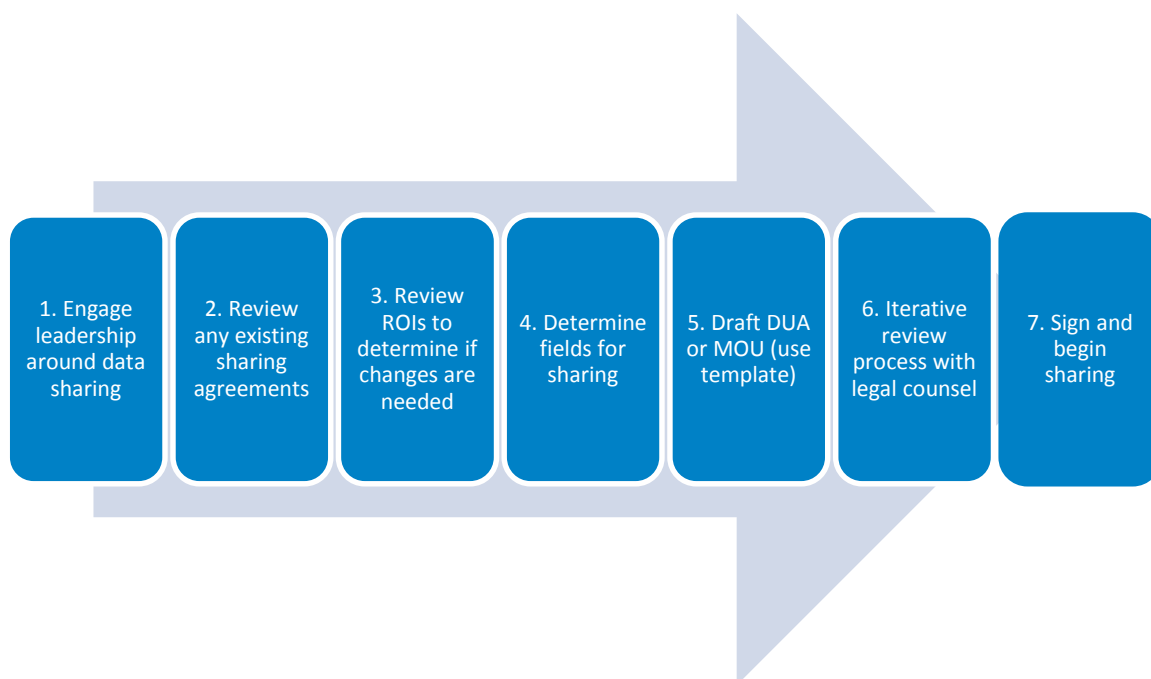
The pilot communities were very creative in growing their project circles. One community had a very positive relationship with the VAMC administrator who was both a technical and programmatic support. Others leveraged justice and behavioral health committees whose responsibility it was to divert persons with severe mental health issues from jail. McLean County's Criminal Behavioral Health Coordinating Council and Salt Lake County's Criminal Justice Advisory Council have been powerful allies in advocating for cross systems data sharing and promoting evidence-based practices like diversion from jail and supportive housing.

## Lesson Four:

# Streamlining Data Sharing Agreements & Analyzing Matched Results

Both the justice and homeless systems must be able to contribute data on the person-level with identifiable information included, such as names, dates of birth, and social security numbers. Pilot communities experienced a number of challenges obtaining permission to receive data from these systems, though with persistence and legal counsel they were able to obtain the necessary documentation to move forward.

Data sharing between systems often will require either a Memorandum of Understanding (MOUs) or Business Associate Agreements (BAAs); the project with the University of Chicago used a DUA template<sup>2</sup>. If a county has a standard data sharing template and/or one that has been used in previous data sharing exercises, that is a good place to start. It is recommended that the initial project team include cross-system partners to assist in navigating the particular privacy and data sharing rules of the community, including a review of existing releases of information (ROIs) that may need to be revised. Legal counsel can be brought in either at the beginning or later on, once the team has a data sharing draft worked up (the pilot communities did this both ways with positive results), and will often have a number of comments to pass back and forth in an iterative process. The process to draft and execute data sharing MOUs can be lengthy; one community observed that it is important not to underestimate the time commitment needed to execute the agreements. For agreements between homeless and jail data, a short timeline is two to four months, and it could take as long as six months. See figure below for an overview of steps to executing a data sharing agreement.



<sup>2</sup> DUA Template: <https://dsapp.uchicago.edu/home/resources/legal-agreements/>

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Once the tool is provided with data, it will automatically sort, link, and report on the data match (it also has a mechanism to report on file upload errors). The tool operates with a number of “schemas,” that is, an organization and method of a database for how data will be stored. The data integration tool’s schemas collect quite a bit of detail which is needed to not only link records successfully between data sources, but also to preserve the possibility in the future to uncover critical insights with the wealth of detailed data or incorporate and link additional sectors’ data, such as healthcare or child welfare. In addition, since the schemas define data elements, tables, and data relationships in detail, the documentation may be helpful in setting up DUAs with partners, as it will explicitly call out the data elements required to power the data integration tool.

Once the data agreements are signed and the tool is able to match data between the systems, results can be analyzed. If using the tool, the front end displays the overlap between systems along with a sortable list of individuals and their frequency of use; the data files are also downloadable for more in-depth analyses. The initial match is an exciting opportunity to test team hypotheses about the two systems and the overlap population. There is also an opportunity here to determine to what extent external programs and policies are having on the data results. Boone County found a preponderance of jail bookings with same day entries and exits, suggesting a lot of people bond out of the jail. This was identified as likely the activity related to being a large university town. Boone also noted lower frequency of jail interactions for people with extensive homeless histories, and noted that police had been instructed to reduce the amount of people experiencing homelessness being transported to jail. On the flip side, in Salt Lake County there were relatively higher numbers of people intersecting both systems. This was in large part identified as due to a local effort called Operation Road Home to reduce the amount of street homelessness in a specific area.

To obtain these kinds of insights, communities can approach their data quite broadly at first. Analyzing basics like number of people who have experience in both systems, the number of system interactions, lengths of time in each system and in total, demographics (gender, race, age). Analysis often will extend to just mean, median, and mode, highest and lowest values and yet still yield sometimes-surprising results, which may inform more analysis and point to recommendations on program implementation and prioritization of resources<sup>3</sup>.

As the initial match is made, project leads should be mindful of other opportunities to incorporate other systems’ data. Health systems, hospitals, and public health agencies are natural next steps to incorporate into the data integration platform, should funding become available.

## *Lesson Five: Taking It to the Next Level*

CSH’s technical assistance to the four communities also included support in designing a supportive housing intervention that could be implemented via a performance-based contract or Pay for Success approach. As they analyzed the results from the tool, they also worked to use this data to define a group of individuals whose outcomes could be improved through connection with supportive housing. For example, in Boone County the sample data returned 395 individuals who had spent at least one day in jail and one day in the homelessness system within the past five years. This figure was used as a starting point for discussing the ideal size of the population enrolled in a new supportive housing initiative. Likewise, Salt Lake County identified a potential target population as the 260 individuals who have greater than 200 days spent in emergency shelter *and* 200 days spent in jail in the past five years. This includes 88 individuals who have spent over 300 days in emergency shelter *and* 300 days in jail in the past five years.

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<sup>3</sup> Multi-System Data Links: Developing Supportive Housing Prioritization Criteria: [https://www.csh.org/wp-content/uploads/2019/02/CSH-Data-Integration-Summary-Analysis\\_FINAL.pdf](https://www.csh.org/wp-content/uploads/2019/02/CSH-Data-Integration-Summary-Analysis_FINAL.pdf)

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These potential target populations may reflect a particularly vulnerable group of individuals in greatest need of an intensive supportive housing intervention to end the costly cycle of incarceration and homelessness.

This focused approach to identifying a target population was coupled with extensive work with community stakeholders to design a supportive housing intervention with a targeted number of units over a one to five-year period. These targets were based not only on need but also on available resources and service provider capacity in each community. Communities also discussed how to define success for their identified target population and connect funding to the achievement of that success. In Boone County, this resulted in a procurement for a performance-based contract that will incentivize providers to support tenants in achieving housing stability. McLean County is implementing a Frequent Users Systems Engagement (FUSE) initiative and exploring future scaling via Pay for Success that would focus on housing stability and reduced justice system interactions among other potential outcomes.

### ***Final Advice from the Communities***

One community intimated that their mantra throughout the pilot was, “this is an iterative process.” It is! Communities prototyped, broke new ground, made new connections, implemented creative solutions, observed the results and made necessary adjustments. *The* major milestone is often completing the initial match and analyzing the results. What are the critical pieces, like data use agreements and funding, and who are the critical people necessary to achieve the data match? Collect only the necessary requirements to start the match and analyze results. This iterative approach may make it easier to operate small at first with minimal startup funding. Additional funding opportunities may be created from leveraging the data integration results and insights, like identifying high system utilizers and estimating cost savings, demonstrate to the project champion and other interested stakeholders the value of an ongoing match.

Communities stressed the importance of patience and persistence, data sharing agreements with partners may be one of the most significant and time-consuming challenges faced by the team. They also had a valuable solution: leveraging existing working relationships and making sure the right people were on the project management team and at the table from the start can overcome almost any problem. Once project funding is identified, and a project team established, ensuring decision makers are informed and delegate appropriate authority to ensure speedier progress without sacrificing guidance and support.

Without exception, each community credited their colleagues with the success of their pilots. They could not overstate how important it was to recruit talented and dedicated people from the start.

It is especially critical to seek out those with different perspectives and from different partners, technical acumen, and lived experience. The strength of the data integration approach, with an explicit goal to bring it to scale, is to broaden and diversify the user base to include multiple public sectors and systems, some whose roles may not be made apparent at the start. Data integration is fast becoming a powerful and recognized strategy to organizing and informing multiple systems and prioritizing critical housing and service resources to the most vulnerable people in communities.



## About Our Work & Funders

Since 2007, CSH has worked with more than 40 communities to implement Frequent Users Systems Engagement – or FUSE – initiatives, which utilize cross-systems data matches to target supportive housing resources for frequent users of multiple systems. Yet, many communities perform one-time matches to support a pilot, but do not continue the effort to further and more regularly integrate data; this leads to a lack of opportunities to scale supportive housing and to enact lasting systems change. In 2016, CSH sought support from Arnold Ventures under the Data Driven Justice Initiative to help move communities toward integration by creating an open source data integration tool to merge jail and homeless system data in an ongoing way. The goals for the tool were to be simple and easy to use; sustainable in selected communities and adaptable to other communities; and a platform for systems change.

This project was funded by Arnold Ventures and the Social Innovation Fund (SIF). The Social Innovation Fund was a program of the Corporation for National and Community Service (CNCS) that received funding from 2010 to 2016. Using public and private resources to find and grow community-based nonprofits with evidence of results, SIF intermediaries received funding to award to subrecipients that focus on overcoming challenges in economic opportunity, healthy futures, and youth development. Although CNCS made its last SIF intermediary awards in fiscal year 2016, SIF intermediaries will continue to administer their subrecipient programs until their federal funding is exhausted.

This material is based upon work supported by the Corporation for National and Community Service under Social Innovation Fund Grant No.16PSHNY002. Opinions or points of view expressed are those of the authors and do not necessarily reflect the official position of, or a position that is endorsed by, CNCS.

