Self evaluation and Community Development Corporations: the utility of robust management information systems

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George N. Reuter

B.A. Philosophy
Haverford College, 2008

SUBMITTED TO THE DEPARTMENT OF URBAN STUDIES AND PLANNING IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF

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Abstract

Many community development corporations are broadening their program components while seeking efficient and effective ways of measuring their impacts. Recent advances in information technology have created "cloud" database platforms that are well suited for tracking individual information, and are customizable, extensible, and have built-in reporting functionality. Are these comprehensive individual level data systems feasible for CDCs to implement, and what utility do such systems provide for program improvement? I examine these questions using case studies from Greater Boston organizations that have begun to implement these types of systems.

I find that all organizations' initial system setup required intensive staff time, as well as consulting support in a range of domains. The direct cost of setup varies substantially ($8,000 -$100,000), and depends highly on the degree to which consultants are used. Although organizations are primarily motivated by an interest in understanding and improving their programs, they also believe that funders and partners will increasingly require data-driven evidence of program impact. Overall, organizations believe their new data systems are worthwhile investments that save substantial staff time in reporting and provide a richer understanding of programs.

There are several best practices or recommendations for other CDCs or community based organizations. 1) Developing a database cannot be done in isolation, and requires a team with a breadth of expertise (technical, evaluation, program knowledge). 2) Be prepared for iteration: data systems will need continued changes and refinement as programs change. Organizations should have a plan to address these changes, including adequate staffing. 3) Before developing a data system, substantial strategic planning should be completed. Without agreement on metrics, and an understanding of the activities that will lead to intended outcomes, it is easy for organizations to waste time developing a system that collects information of little value.

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I. Introduction

Community development corporations (CDCs) are increasingly interested in finding more efficient and effective ways of measuring their impacts. This interest in evaluation is motivated by a commitment to do the best work possible to improve neighborhoods, as well as by funders who tie grants to specific performance outcomes. However, the development of an evaluation framework and appropriate data system can be a significant burden on CDC staff.

Creating an evaluation platform is made more complex by the increasing breadth of CDCs programs. Many organizations, who early in their history focused on affordable real estate development and/or homebuyer counseling, are now expanding their programming to address a broad variety of community concerns. Community engagement, leadership development, job placement, workforce development, and asset building programs are some of the many programs that are being integrated into CDC's missions. Effective program evaluation must track the individual services related to each program, as well as the outcomes, preferably in an integrated fashion. Staff should be able to quickly understand all the programs a residents has participated in, and the impact of that bundle of services. Program managers and board directors require aggregate information about the types and intensity of services clients receive, and to what extent different program combinations create the intended outcomes. Fundraisers and grantwriters require the same information in order to tell the organization's story, and argue for the necessity (and effectiveness) of integrating a broad set of "comprehensive" community development programs.

Simultaneously, funders have higher expectations for evidence of program effectiveness. Increased reporting requirements mean that staff have to spend more time collecting and recording information about their activities. Multiple funders may support an individual program, and each funder will likely require slightly different information that may vary by time period or outcomes of interest. Many organizations existing tracking systems have little reporting flexibility, which makes each report time intensive. This "external

pressure" is significant, as organizations who are unable to provide reliable information may find it difficult to obtain future support. In an interview, one staff member at a large CDC funder admitted that, "There has always been pressure from funders, although in many cases, funders are more sophisticated [than in the past] about what they want. They know the language of outcomes now." Another CDC funder noted that this trend is likely linked to the "venture philanthropy, social-entrepreneur part of the world, which is committed to measurement and more quantifiable results. That kind of framework has affected the philanthropic world, and to some extent, the public sector as well."

Recent advances in information technology have created "cloud" database platforms that are 1) accessible, 2) customizable, and come with a variety of 3) built-in reporting functionality. Some of these applications are built especially for nonprofits (e.g., Efforts-To-Outcomes, NonProfitEasy, Convio) and others may be adapted from their initial private sector purposes (e.g., Salesforce.com). In general, a cloud-based system is a software package that is hosted by a provider and accessible online, instead of being installed on local computers. Cloud based systems tend to have ongoing fees that include a level of user support and ongoing updates and improvements. Each of these attributes supports more efficient, useful data tracking efforts. An accessible system is convenient and makes it possible for all staff members to enter and retrieve information. Cloud systems are certainly convenient, as the browser based software enables employees to work at home or on the road (given security restrictions set by the organization). The user interface is another important aspect of accessibility. For example, page layouts should be legible (preferably attractive!), laid out in a sensible manner, enable quick data entry, and be searchable. Without a strong user interface, staff can easily enter information incorrectly, or if the process is too cumbersome, skip entry completely.

Most cloud systems enable organizations to customize the programs and fields being tracked, both during initial setup and an ongoing basis. Customization is a critical feature as organizations' programs change, and so do their measures. Although many CDCs, and nonprofits in general, track some similar information (e.g., grants and donor management, basic contact information for communications), inevitably certain programs require unique data. There is no one-size-fits-all pre-configured data tracking and evaluation system.

Customizability is not an attribute unique to cloud based data systems, and all systems vary with respect to how easy it is to make changes without degrading existing features. Many cloud systems aim to create easy "point and click" interfaces that allow someone with minimal training to make useful modifications. This customizability tends to differentiate the product from standard desktop database software (such as Microsoft Access) that require more knowledge to customize. In addition, enhanced customizability makes it easier to track individual level information alongside project-based or place-based information. An individual client can be tracked as a member of a household, a tenant in a property, and a resident of a community. Aggregating information at each of these levels may be important, and a fully built-out relational database will make this possible.

The advanced reporting capabilities of these systems are a major benefit. A well-designed data system makes it possible to get constantly up-to-date reports on the current status of activities with little more than a click of a button. Users can then quickly filter results, based on time periods of interests or further characteristics (e.g., enrollment in another program, progress on certain metrics), in order to surface the most relevant information. Although this is not a feature unique to cloud based systems, many have this functionality, and emphasize the advantages of live information and quickly customizable reporting or "dashboards" as main selling points.

Are these comprehensive individual level data systems feasible for CDCs to implement, and what utility do such systems provide for program improvement? I examine these questions using case studies from organizations that have begun to implement these types of systems. Together, these cases provide examples for what the data system development process looks like, the resources that organizations needed, and their motivations. All three profiled organizations now recommend similar data system efforts to their peers, and believe the result to be well worth the investment in time and money. I seek to shed light on the challenges and the advantages for organizations that undertake this work, and create a resource for future CDCs who consider expanding their data system and evaluation framework.

The next three chapters provide an overview of the increasing program breadth and data complexity of CDCs work (Chapter II), a summary of why nonprofits undertake evaluation (Chapter III), and best practices in data system development (Chapter IV). After explaining the methodology (Chapter V), chapters VI through VIII present each case study focusing on: a) an overview of the organization's programs and history, b) their motivations for evaluation and developing a new data system, c) the degree to which the data system development fits into an evaluation framework or strategic plan, d) an overview of the data system and the development process, and e) the perceived values and problems associated with the new data system.

In Chapter IX, I draw together the lessons learned from the case studies, particularly in regards to the reasons CDCs are undertaking these data system and evaluation efforts, the activities that are enabled by such systems, and the resources required to setup and maintain such systems. Finally in Chapter X, I provide recommendations for CDCs looking to develop systems, consider the increasing emphasis funders and program managers are placing on evidence based programs, and suggest further avenues of research.

II. CDC program components – Increased breadth and increased data complexity

CDC's data framework can be complex, and depends on their particular program mix. CDCs historically have focused on real estate development (Stoecker, 1997), but in the last 20 years there has been an increasing emphasis on "comprehensive" strategies for neighborhood revitalization (Zdenek and Steinbach, 2002). "Bricks and Mortar" is seen as one necessary, but not sufficient, component of making neighborhoods better places to live. Studies of CDC capacity have found that those organizations "participating in a wider variety of activities tended to have higher efficiency" (Cowan, 2000). And CDCs have risen to the call, broadening the sector's service profile substantially.

Each year the Massachusetts Association of Community Development Corporations (MACDC) surveys their 90 member organizations to determine detailed information about their programs and accomplishments. The results are tabulated and profiled in an annual "GOALS report" and data appendices, which are published online. The most recent 2013 report (providing information about 2012 activities), demonstrates the breadth of services being addressed by CDCs. Sections of the report profile rental and for sale housing production, commercial real estate development, open space development, workforce development and job training, community leadership training, small business assistance, youth programs, and housing stabilization services. Many CDC's report activities in each of these categories. In order to assemble this outcome and output data, a typical CDC may be tracking:

- Real estate projects currently in development
- Asset management, tenant information, and property performance
- Event participation, community organizing and leadership tracking
- Client intake and interests tracking
- Membership information and referrals
- Classroom attendance and outcomes
- Public benefit application management

- Fundraising and grants management
- Job placement and workforce development
- Financial operations
- Free tax preparation registration and Earned Income Tax Credits, and
- General contact information of neighborhood residents, private and public partners, and funders.

As most CDCs are "place-based", an individual resident or family may participate in multiple activities. A single person may be a CDC's tenant, enroll in leadership training, apply for public benefits, and return to the organization each year to have their taxes prepared. In addition, these components can be analyzed at various levels: individual, household, property or development, neighborhood or community, and over time. Ideally, CDCs should be able to get to aggregate and disaggregate data at these levels with minimum effort and without repeat data entry.

The types of information collected for each of these programs can be divided into two general categories: outputs and outcomes (Weiss, 1998). Outputs are the simple enumerations of the number of people served or the activities conducted. For example, the number of classes taught, students enrolled, or public benefit applications completed. Most organization's existing processes include tracking outputs for all of the domains listed above (real estate projects, event participation, classroom attendance, etc), as they are regularly requested by funders or used in informational brochures. However, the rigor of outputs collection and tracking can vary drastically. For example, a program manager equipped with a simple spreadsheet may maintain an aggregate notation of the number of participants by quarter or month. This allows for reports of the total clients or participants based on the timespans of the original spreadsheet. Unique counts of participants in the program, which count a person who participates in both quarters 1 and 2 only once, may be difficult or impossible when these aggregate methods are used. Similarly, cross-participation (students who took both class A and class B, or students in class A that also are tenants) or historical tracking at the individual level may be impossible. A more robust outputs tracking system in a relational database will allow detailed information to be tracked at the individual level. This allows future reports to be created that change the timespan, or aggregate the counts based on new categorizations (e.g., the total unique people in either

class A or class B). Maintaining accurate, highly reportable outputs that can be cross-referenced across all of an organization's services and activities is a substantial task. Thankfully, the information recorded for outputs is quite similar, regardless of the nature of the program: 1) person or recipient of service (could be an organization or place), 2) person who delivered service (staff member or organizational department), 3) type of service (e.g., type of class, application, residential unit), and 4) date and duration of service delivered. The systematic review of outputs or activities is sometimes referred to as "process evaluation" (Jacobs and Kapucik, 2000).

Outputs alone usually fail to capture the reason for a program's existence, which is a goal more lofty than "serve 500 clients". Outcomes, represent the "so what" for a program – the intended gains, or losses mitigated, for clients or communities from the program. Although outputs for every program have a similar form, outcomes are much more diverse. Classes may seek increased knowledge or changes in behavior (e.g., less risky credit practices), public benefit applications may seek to increase client's net income, community organizing events may be oriented to developing stronger community leaders. Every organization and program defines these core outcomes a little differently. For example, every community organizing program involved in leadership development must define what a "leader" is, and how that concept will be operationalized. Financial outcomes often focus on changes in behavior (e.g., increasing savings per month), or major milestones (purchasing a home, finding a better job). The complexity and variety of outcomes tracking, makes it difficult to implement well without a strong data system. In addition, outcome evaluation may be largely meaningless without a thorough understanding of outputs (a "process evaluation"), as the causal explanation for outcomes will be completely unexplained without an understanding of the program services (Jacobs and Kapucik, 2000).

The measures mentioned above focus on outputs and outcomes at the individual level. However, CDCs often seek to improve neighborhoods, municipalities or regions. For example, affordable real estate development by CDCs typically aims to 1) provide affordable housing opportunities for low-income or other population targets while either 2a) preserving affordable housing in higher-housing value areas or 2b) spurring further

investment by the private sector in weaker markets. Goals 2a) and 2b) are place-based outcomes that cannot be measured by simply aggregating the results from individual services. CDCs often use publically available data (e.g., home sales, census data, voter enrollment) or self-collected surveys (e.g., trash/community cleanliness, resident satisfaction) to understand place based impact.

Entering and maintaining these disparate pieces of information, which involve several departments within the organization, is no small task. CDCs in Massachusetts typically have a staff of 5-25, and often have no single person dedicated to centralized evaluation or data systems development and management. IT support is regularly provided by consultants, so there may be no in-house expert recommending technology solutions. Most evaluation efforts and data are therefore managed by program managers with oversight from senior staff or the executive director. The lack of a centralized evaluation framework and database system often leads each department or program to collect just the information it needs to meet known reporting requirements. The selected systems (often just a spreadsheet program), typically do not have the flexibility to be easily adapted to create reports for other purposes.

III. Why nonprofits use evaluations

Nonprofits undertake evaluation efforts for a range of reasons, which are often related to program improvement goals or accountability benchmarks. Two main competing theories, rational choice theory and agency theory, are frequently used to explain the motivations for nonprofits to conduct evaluations.

Rational choice theory asserts that nonprofits undertake evaluations in order to understand what activities or decisions will lead to the achievement of organizational goals (Wildavsky, 1972). The premises of rational choice theory are that nonprofits 1) act rationally in their own self-interest, and 2) it is in nonprofits' interest to achieve the social goods that are set out as goals. These two premises result in nonprofits seeking to conduct evaluations, in so far as it can be shown that evaluation helps managers improve decisions (Carman, 2011). Capacity – in terms of technical expertise, time and money – is the main limiting factor for the amount of evaluation. Many advocates for nonprofit evaluation presume nonprofits operate with rational choice theory, and therefore focus their efforts on developing tools "designed to make evaluation and performance measurement more accessible to nonprofit and public managers" (Carman, 2011). If an evaluation tool is relatively easy to use and provides information that allows for better decision-making, nonprofits will use the tool.

A data system is one of the tools that may be used for evaluation. A nonprofit following rational choice theory will select a system that enables managers to make better decisions. These decisions may be short term, which is sometimes called productivity management, or long-term strategic choices that alter the program substantially. In either case, program improvement is a priority, and potential higher costs for a particular system may be considered "worth it" if the lessons learned from the system result in significantly more impactful programs.

Agency theory is a major competing explanation of nonprofits' interest in evaluation. Agency theory describes situations where the connection between two organizations is best described as a relationship between a

"principal" and an "agent" (Bogart, 1995). Agents act in service to the interests of the principals, even when there are certain interests or goals that conflict (Eisenhardt, 1989). For a nonprofit, the principals are an organization's funders. If a funder requires a nonprofit to develop a performance measurement in order to receive funding, than the nonprofit will do so as long as the funding is more than the cost of doing the evaluation. In these cases, it is logical for the nonprofit to minimize the cost of program measurement, subject to meeting the criteria set out by the funder.

The primary role of evaluation in agency theory is accountability to funders, which may represent individual donors or organizations. Agency theory implies that nonprofits will only adopt new data systems that make it less costly to assemble the program measurements required by funders. That is, given the choice between two data systems where:

- System a) Returns the information required by funders, is cheap, provides little information that supports nonprofits program improvement, and
- System b) Returns the information required by funders, is more expensive, and provides additional information that support nonprofits program improvement

Nonprofits will choose system a), unless they can find a funder who is interested in obtaining the additional information provided by system b), and that funding will be at a level that compensates for the additional expense. An evaluation that is motivated merely by agency theory will only be as robust as the funder requires, and will be perceived as providing no further benefit (beyond continued funding) to the nonprofit.

Another useful framework is the "stewardship" model, which can be thought of as arising from an agency model, when the interests and goals of the funder and nonprofit are closely aligned (Caers, et al., 2006). This results in nonprofits who are pursuing an evaluation because they recognize that it may help them make better decisions and improve programs, but also are interested in contributing to the funder's collection of information (and not merely in exchange for a grant). The latter motivation may be based on support of the funder collecting best practice information for the sector as a whole, distributing that information out to its network, and thereby maximizing the public benefit.

This is not an exhaustive list of nonprofit evaluation motivations, and few, if any, nonprofits' evaluations are ruled by only one of these or other theories. For example, a particular program measurement required by a funder may not be perceived as a core goal by the nonprofit. This conflicting vision of goals may be best modeled by agency theory, which suggests the nonprofit will meet the funder's goals with minimal cost and no other considerations. However, the same nonprofit – and potentially in relationship to the same funder – may have other goals that are closely shared, resulting in an interest in evaluation that is better characterized by rational choice theory or stewardship theory. Moreover, a nonprofits interest in evaluation may change. Carman describes nonprofits whose use of evaluation information changed as it was implemented, "…from being consistent with the predictions of agency theory to being consistent with stewardship theory" (2011).

In an interview, one professional evaluator, who has worked for a major CDC funder for a decade, agreed that staff at CDCs are motivated by more than agency theory, and that there is often a developmental process. Although there is certainly funder pressure, and some evaluations that are mandatory may be ill-received, many organizations embrace evaluation even after initial resistance. Once more, the resistance that does exist tends not to be about the fear of discovering low outcomes, but the time and competencies involved in doing evaluation well. "Groups see the value, they get it intellectually, but when it comes to doing it they are uncomfortable asking clients or people in the community to give them information. People aren't articulating to their clients why it's valuable to ask these questions, they feel like they're imposing."

A nonprofit's selection of an evaluation data system will depend on their motivations. Organizations driven by an interest in program improvement goals (based on rational choice theory), may be willing to invest more time and resources in a data system that can be shown to provide useful feedback on program operations, including productivity and program effectiveness. On the other hand, an organization that is more focused on meeting the requirements of a particular funder or grant, may seek the most cost effective system that can return the required information.

IV. Best practices for management information systems and implementation

There is broad agreement that some type of management information system (MIS) is useful for operating effectively. Good data systems enable better decision-making and are necessary for reporting. "There's really no excuse for not having operational systems that are commensurate with the complexity of a CDC's activities…A strong management information system is especially important. How else, for example, will you track what happens to the people you are helping to leave welfare or get jobs?" (Zdenek, 1999).

However, there is also skepticism about the amount of investment to make in data systems or other technological solutions. Many nonprofits and philanthropies fear "that a dollar spent internally is a dollar wasted, [and] have neither the organization nor the systems to manage their knowledge properly" (Capozzi, 2003). Data systems are seen as a burden that divert resources away from delivering core program components. Additionally weak management support for data systems leads to low adoption, especially when compared to for-profit organizations (Zhang, 2010). These pressures result in data systems that are tailored to narrowly "satisfy reporting requirements for program performance evaluations" (ibid).

The result of this nonprofit MIS skepticism, is a "siloed" approach to knowledge management: "[an organization] might invest in a new technology…without reflecting on the process…or the strategy" (Capozzi, 2003). The primary source of information, even if some kind of simple recording system is utilized, are the individuals who run the programs. The most efficient way to retrieve information is to ask the manager for it – this is simply not efficient for a program(s) at sufficient scale. "Staff members [spend] endless time looking for information, and experts [are] constantly answering the same basic questions" (ibid).

In practice, there are several disadvantages to the siloed evaluation and reporting structure:

- Program information and data are typically only known by individual program managers. "Institutional Knowledge" is usually weak.

- Since program managers have a range of evaluation expertise, the quality of evaluations and data systems will vary by department and change significantly with staff changes.
- Weak institutional knowledge means changes in staff have a significant impact on the delivery of services, and understanding of the program (new staff often required to completely re-learn existing relationships from scratch).
- Weak institutional knowledge makes it difficult for senior staff members, executive directors, or boards to provide meaningful oversight (Fox, 2013).
- Different programs or departments have a limiteed understanding of what other groups are actively engaged in and accomplishing. This leads to weak integration of services, and fewer insights into how programs could be improved.
- "Cross-reporting" across different departments is usually difficult or impossible.

In contrast, centralized data systems that record information at the individual level for all programs:

- Build institutional knowledge through systems that create transparency and accountability horizontally (between departments) and vertically (up the management chain), often through "dashboards" or real-time reporting structures.
- Transparency leads to a stronger understanding of what activities are being conducted, whether those activities match the organizations' theory of change, and what areas need more attention.
- Changes in staff have less impact on the delivery and evaluation of services, since activities, progress, and goals are clearly documented and retrievable.
- As institutional knowledge grows, areas of potential improvement are more easily identified and can be addressed.

Scholars have developed guidelines for MIS that intend to be used for evaluation purposes. Courtney and Collins describe "Principles of a 21st Century Child Welfare Outcome Measurement System" that are broadly applicable to nonprofits and organizations seeking to use data systems to understand their programs (1994). The four principles are that data systems should:

1. **Allow for longitudinal tracking of individuals and families**: cross-sectional information is also useful, but time-series information is critically important to understand the effects of long-term program involvement. Without this level of information, it is difficult for program managers to determine the effectiveness of a program.
2. **Include information about all services utilized**: this touches on the inadequacies of siloed approaches to data collection profiled in detail above.
3. **Be user friendly**: the basic premise of this guideline is that the information a system reports will only be as good as the information that is entered by staff. Many areas can effect usability: overall layout and readability, search functions, duplicate detection, quickness of entry, and overall system speed can impede staff use of the system and degrade the quality and quantity of information recorded. Notably, the first two principles are in conflict with the demand for user friendliness: longitudinal and broadly collected data are more complex, and require more data entry. This suggests that system designers need to balance these principles carefully.
4. **Be information rich with broad categories of measurements**: Basic demographic data and program participation information is not enough to understand the complexity of many service oriented programs. Detailed outcome information, based on program components, is necessary.

Jacobs and Kapuscik add a fifth principle for strong data systems, which although difficult, is also pertinent to CDCs and many other nonprofit organizations (1998):

5. **Data systems should enable the integration of data from other service agencies:** Partnerships and collaborations are critically important to address many of the obstacles that individuals face. Sharing information (with appropriate privacy measures) supports clients who may be facing

challenges in a range of interrelated areas (housing, education, child care, employment and workforce development, etc.).

Given the clear advantages of the centralized approach, how does an organization go about implementing such a system? In a report profiling the development of MIS for afterschool programs, the National League of Cities (NLC) notes that: "The first rule of management information systems, then, is not to begin any discussion by talking about management information systems" (Kingsley, 2012). The point is that before creating any kind of system, an organization must have a clear understanding of its program components, logic model and program measurements. These imply a shared understanding of the goals and vision for the organization. No effective data system can be built without this significant thinking done in advance. The NLC report sketches out a six step process for development, summarized below:

1. **Conduct a self-inventory:** What systems are currently being used? Why? What works well about them, and what does not? This step can generally be completed by staff members, who often know the current system's greatest weaknesses.

2. **Develop shared measures and outcomes:** Define the core measurements that are going to be used for each department, and establish benchmarks. Organizations typically use formal strategic planning processes or develop program logic models. Creating a "data dictionary", which lays out the intended goals and how they will be measured, may be helpful, and make it easier for future staff members to quickly understand the operating structure. Similarly, at this point the development team should have an understanding of what ideal "reports" would look like. What information will be included, at what levels (individual, project, neighborhood), and what time periods (rolling monthly reports, calendar years)?

3. **Describe the high-level business requirements for a system**: What functionality is needed in the database? Who will need to enter information into the system? Who will need to see information in the system? Will the system need to sync with other required or partner systems? Are there security or privacy concerns that need to be addressed?

4. **Design the MIS** utilizing consultants or existing staff. This is typically the step when consultants enter the process, who may have expertise with a particular product and system design. However, staff still play an integral role, as consultants may have relatively little program "content" knowledge.

5. **Pilot the system:** There will be technical issues and glitches. Extensive testing of the system, preferably with real users and data, is always necessary.

6. **Expand and regularize:** Make changes to the data system, and expand functionality. This step implies consistent revisions to the system, well past initial launch.

The final step in the process is critically important. Data system development, like a program itself, is an ongoing process that requires continued thought, maintenance and improvement.

V. Methodology

I use a case study methodology, based on semi-structured interviews with CDC staff members and document review. Interviews were conducted at the organizations' place of business and focused on: 1) detail about the program mix of the CDC, 2) type and history of databases utilized and why, 3) different reporting activities that are enabled by the system, and 4) resources needed to implement and maintain the system. The full interview protocol is included in the appendix. All interviews were recorded (with permission), and then reviewed for pertinent features. Quotes were provided for review prior to publication (no substantial changes were requested). Executive Directors of the selected organizations were initially asked to participate, and were asked to identify staff members knowledgeable about their data system(s). Six interviews in total were completed, each lasting between 30 and 90 minutes. Follow-up questions for clarification were generally conducted via email or phone. For each organization, I reviewed brochures, strategic plans, organizational profiles available online, tax form 990s, and web pages. These sources provided an overview of organizational goals, the operating environment, and staffing.

CDC's were selected in eastern Massachusetts, and all had recently developed new data systems aimed at program evaluation. These CDC's were chosen because they provide a full range of services, including traditional affordable housing development, community building, and asset building activities. This means that they are facing complex data collection and evaluation efforts, that include output and outcome measures in the range of areas outlined in Chapter II. Table 1 provides an overview of the selected organizations' outputs and capacity. All of the statistics in Table 1 are drawn from the Massachusetts Association of Community Development Corporations annual GOALS survey. The advantage of this source is that all of the member organizations submit their information using the same definitions and parameters. Throughout the individual case studies, documents or information directly from the respective organizations are utilized for numbers – there may be some conflicts between the organization and GOALS information due to differing definitions or the availability of more recent information.

Table 1: Summary information from The Neighborhood Developers (TND), Lawrence Community Works (LCW) and Urban Edge (based on data from 2012 calendar year)

	TND	LCW	URBAN EDGE
Founding Year*	1979	1986	1974
Number of Employees*	16	39	32
Operating Expenses*	$1,971,062	$2,589,333	$2,594,354
Total Rental Units	263	139	1,248
Volunteer	283	100	40
Total Members	353	5,134	1,720
Total Leaders	112	268	149
Homebuyer Training	5	256	410
Youth Program	81	140	29
Family Asset Building	1,222	1,083	351
Foreclosure Counseling	-	289	241
Housing Stabilization	-	-	176
Jobs Created	648	-	100
Total Families Supported	2,262	1,907	2,640

*From Giving Common, all other data from MACDC GOALS 2013 Data Appendix

All the agencies are mature organizations that have been operating for more than twenty-five years. Each organization is guided by a board of directors that includes substantial representation from community members. They each describe themselves as place-based organizations that seek to provide services to both their tenants as well as residents in their target neighborhoods. The Neighborhood Developers (TND) serves communities in Chelsea and Revere; Urban Edge (UE) is based in the Roxbury neighborhood of Boston; and Lawrence Community Works (LCW) concentrates their activities in the former mill town, Lawrence. The size of the staff at these organizations are in the medium to large side for CDCs in Massachusetts, as are their operating budgets. All three organizations are supported by the Neighborhood Reinvestment Corporation (d.b.a. NeighborWorks America), a congressionally funded organization that provides underwriting and technical assistance to a network of 235 CDCs and other community-based nonprofits across the US. Notably, NeighborWorks requires from all of its members: significant quarterly and annual reports, annual certified audits, and on site reviews of members' finances, board governance and program impacts on a regular basis.

Although the organizations share similar program components, there is substantial variation in program size. Urban Edge has a rental apartment portfolio about five times larger, and provides larger scale housing counseling services (foreclosures counseling, homebuyer training, and housing stabilization services). Lawrence Community Works, known for its network organizing model, has the largest membership (5,134), and a substantial asset building program composed of matched savings accounts, financial education, and adult basic education. The Neighborhood Developers has the smallest dedicated staff and does not offer homebuyer counseling services, but has the largest asset building program (see a description of the CONNECT partnership in the case study) including a substantial workforce development collaboration.

These organizations have adopted two different data system platforms. TND and UE both use Salesforce.com, which is a cloud-based Customer Relationship Manager software that was originally developed for businesses sales teams. Founded in 1999, Salesforce claims to be the largest cloud computing company, with over 100,000 customers and more than 12,000 employees (www.salesforce.com/company). The Salesforce Foundation is the primary giving arm of the company, and is dedicated to a "1/1/1" strategy, which dedicates 1% of the company's time, equity and product to philanthropic initiatives (www.salesforcefoundation.org/). In practice, the Foundation provides up to ten free user licenses to 501(c)3 organizations who apply through an application on their website (additional licenses are available at an ~80% discount). Organizations that receive the free licenses may choose to access the standard Salesforce.com platform, or a pre-configured "Non-Profit Starter Pack" that is oriented around individual donor and grant management. More than 20,000 nonprofits use Salesforce.com, and there are substantial networks of "Salesforce certified" third party consultants and developers who provide services to nonprofits and other users. Salesforce also awards competitive grants that include money and employee time to help nonprofits setup and customize the platform (none of the case study organizations received this support). Many organizations choose to set up Salesforce by themselves, through the point-and-click customization options, or by hiring consultants. Salesforce also hosts the "AppExchange" which allows users to install more than 2,200 third party applications (e.g., mass email or event management programs such as Constant Contact or Event Brite, connections to other products like Gmail or Microsoft Office, data cleaning and deduplication

products). Salesforce does not provide telephone support to nonprofits, and offers an online case resolution for technical issues only (product failures and system outages). Nonprofits looking for assistance in customization or training must seek out a consultant, or the advice of online user-supported message boards.

LCW also has experience with Salesforce, but chose to move to a different provider, NonProfitEasy.com (see the case study for more details about LCW's choice). NonProfitEasy is a comprehensive cloud-based database software that is specially developed for nonprofits, and targeted as an affordable solution for "small and mid-sized" organizations. Off the shelf, the product includes management of tasks, membership, volunteers, events, donors and grants. Subscriptions to the service includes some support for customization, as well as extensive on call user training and help. Additional fees are associated with modules that go beyond the base package, and are implemented by NonProfitEasy staff. Pricing starts at $20 per month for an account with 1 user and less than 1,000 contacts, and go up to $300 per month for unlimited users and contacts. NonProfitEasy was founded in 2008, and has a staff of approximately 50.

Cloud based data management systems is a fast growing sector, with many options that are built for nonprofits or have more general uses. Some charge a premium for off the shelf functionality that match common nonprofit processes (e.g., basic case management or donation management). The review of all of these products is outside the scope of this paper, but two other options are especially notable given their size and similarity: SugarCRM and Social Solutions Efforts-to-Outcomes. SugarCRM is a cloud-based general use Customer Relationship Management tool, similar to Salesforce, but built on "open source" code (see www.sugarcrm.com). This means that any developer can contribute and extend the product, and Sugar generally places little restrictions on these modifications. Support offered through the company are similar to Salesforce.com. Efforts-to-Outcomes (ETO) is cloud-based software, developed and maintained by Social Solutions, that is targeted for government and nonprofit uses. Founded in 2000, ETO is a popular product with several 1,000s of client organizations. The product is primarily built around measuring program outputs and outcomes, as opposed to the other products mentioned whose base products are more oriented to fundraising tasks (before customization).

VI. Case Study I: The Neighborhood Developers, Inc

Organizational profile and history[1]

The Neighborhood Developers, Inc (TND) is a community development corporation based in Chelsea, MA and founded in 1979. For approximately its first 25 years, the organization focused on the development of affordable housing particularly in two of Chelsea's most distressed neighborhoods. In the mid 2000s the organization created two new departments, Community Engagement and Resident Asset Development, which together with Real Estate Development form the core of TND's activities. In 2009, TND expanded services to Revere, MA which is the city directly adjacent to the north. TND's mission, retrieved from their 2010-2014 strategic plan, is (The Neighborhood Developers, 2009):

> To build vibrant and diverse neighborhoods with homes that are affordable to families with a mix of incomes, where people choose to invest in the social fabric, economic opportunities, and built environment.

TND's community engagement program develops local leaders and builds stronger social connections between residents, to institutions (e.g., municipal government) and to place. Its program components include formal leadership training workshops, community planning, and relationship building events (block parties, community parties). Currently, the organization has two dedicated full-time staff members, who coordinate their activities with a network of community leaders. In 2012, the program reached approximately 1,200 unique people and major outcomes included the completion of two public parks, the design of a new neighborhood gateway, and a neighborhood resident satisfaction survey (The Neighborhood Developers, 2012). The program engages both tenants and the broader community in its programs.

The resident asset development program supports residents' efforts to reach financial goals. Early in the program's history, this meant financial education courses (money management, credit courses, etc.), matched

[1] The author worked at The Neighborhood Developers from 2009-2013 and was substantially involved in all aspects of the development and maintenance of their data system.

Table 2: The Neighborhood Developers Program Components and Staffing

Department	Program Components	Staffing (FTE)
Community Enagement	Leadership training, participatory planning, community building	2
Real Estate Development	Largely affordable rental apartments, with some market rate apartments and homeownership opportunities	3
Resident Asset Development/ CONNECT	Free tax prepation, public benefit applications, financial education, skill building (GED, ESL, computer training), financial coaching, workforce development, housing and academic counseling	5
Fundraising	Individual donors, grantwriting	1.5
Administration	Oversight, accounting, communications, support staff	6

savings program (e.g. Individual Development Accounts), public benefit applications, and free tax preparation. Since 2012, TND has led a collaboration of six organizations called "CONNECT" which seeks to co-locate employment, education, housing and financial stability programming. The six organizations are (www.connectnow.org):

- Bunker Hill Community College: provides financial aid, adult basic education and college coursework
- Career Source: delivers job placement services and career counseling
- Centro Latino: teaches english as a second language, adult basic education, and computer classes
- Metro Credit Union: provides customized financial products
- Metropolitan Boston Housing Partnership: assists clients to maintain affordable housing and
- The Neighborhood Developers: affordable housing, financial capabilities and benefits screening

New services, provided by partner organizations and an expansion of TND's resident asset development department, include workforce development and job placement, one-on-one financial coaching, housing search and counseling, ESL/GED and skill training courses, and academic and financial aid counseling. TND expanded its offices in 2013 in order to accommodate all these services in the same location. The programs are tracked together, and built on top of the database created by TND. Some organizations submit their data to be uploaded into the central database, while others directly enter information into the shared system. More than 2,400 unique individuals accessed these programs in 2012 (the first year of full operations for the collaboration), and CONNECT expects to serve approximately 4,000 annually. The CONNECT program draws TND tenants as well as residents from Chelsea, Revere, East Boston and surrounding areas.

TND's real estate development activities include a scattered site portfolio in Chelsea and Revere, with a mix of three-to-six family buildings and larger ~30 unit developments supported by Low Income Housing Tax Credits. Although the organization has primarily developed affordable rental residential properties, they also have completed for sale and market rate homes and commercial space during the last 10 years. At the end of 2013, the organization had 302 units in its portfolio, which were managed by a third-party property manager.

Administrative staffing includes the executive director, director of finance/operations, an accountant, an office manager, a part-time grant writer, and a communications/evaluation specialist. IT support (both hardware and software) is provided by a third-party consultant.

Motivations for evaluation and data system

In 2008, TND began seeking a data system solution. The relatively young community engagement and resident asset development programs managed their contacts using a system of spreadsheets. Typically this was organized as one sheet with centralized contact information, and then a series of sheets that noted the contacts who attended particular events or participated in a program. These sheets were managed within each department, and there was no formalized structure. Executive Director, Ann Houston says "There wasn't any systematic way that information was tracked…There was a constant effort to reconcile, in so far as we did [try to coordinate the spreadsheets]."

Some information was recorded in aggregate (total event attendance), while others provided more detailed individual-level information. The two primary functions were 1) keeping a record that could be used for call-lists, door-knocking or other communication efforts and 2) providing basic counts needed for reporting requirements. The data sheets were stored on a shared server accessible to all staff members. In theory, this would allow departments to coordinate their contacts and services. In practice, formatting choices and the length and complexity of the information meant that departments' information was necessarily interpreted by department staff.

In interviews, staff highlighted the following primary reasons for seeking a data system: 1) cumbersome and time consuming reporting, 2) coordination of contacts accessing multiple services, 3) the need for more robust fundraising management and 4) the need for a central location for all contacts for communications purposes (physical and email mailing lists for event invitations or other organizational news). Although purposes 1) and 2) are related to the needs of funders, external pressure for improving tracking was not cited

as a main factor. TND was generally able to provide the information funders asked for, although it sometimes required significant staff time to aggregate measures in the correct formats.

Evaluation framework and strategic plan

TND undertook a comprehensive 5-year strategic planning effort concurrently with the selection and development of a new data system. The strategic planning process included staff, board members and residents, and was facilitated by a third party consultant. The final document, published on TND's website, identifies four core goals, each of which is broken into key objectives and intended impacts (The Neighborhood Developers, 2009). Annually, TND develops organization, departmental, and individual workplans. The organizational workplan benchmarks and metrics are largely based on the intended impacts detailed in the strategic plan, and the departmental and individual workplans are "nested", such that an individual staff member can identify their own contribution to the department's goals and the department's contribution to the overall organization goals.

The strategic plan explicitly emphasizes TND's interest in evidence based programs,

> "[TND] grounds our work in research, best practices and a commitment to continually learning from our experiences and refining our priorities, programs and methods."

And:

> "[TND approaches] the coming years with a willingness to make changes, to add or eliminate programs and approaches in order to maintain a commitment to excellence and vibrant neighborhoods."

In a conversation with Houston, this interest in constant improvement, and its dependence on high quality data and evaluation systems, surfaced repeatedly. "The challenge is that it requires a specialized skillset: it

requires a level of analytic thinking, and an ability to translate organizational goals into specific measurable components."

TND thus explicitly sought to build a system that would enable both strong external accountability to funders, and provide internal accountability (between departments and to board members and senior staff) to do the best work possible.

Data system profile and development

TND selected Salesforce.com as a system platform, and began customizing the system in late 2008. The provider was selected after a minimal review of competing products. The Directors of the Community Engagement and Asset Development programs led the search process and based the decision mainly on price (up to 10 licenses would be issued for free) and peer experience and recommendations. No other platform was seriously considered.

TND hired a consultant, again based on peer recommendation, to provide initial setup and training. The organization sought and received permission from Lawrence Community Works to use the architecture they had set up with the same consultant as a template for their own. The training provided by the consultant included:

- Four hours of in-person user training provided to the staff members in the community engagement and asset development departments
- Three 4-hour "administration" training sessions that were delivered via webinar to two staff members (office manager and a fundraising/administrative staff member)

Table 3 The Neighborhood Developers data system details

Product	Salesforce.com
Date Started Using	2009
Users at Startup	~5
Users in 2014	30
Setup costs	~$15,000
Ongoing Fee	$600/month

User training focused on the basics of using the system, including contact entry, custom searches, and reporting. Administrative training included an introduction to adding fields to the data system, revising page layouts, importing and exporting data, and more advanced reporting. The initial setup and training from the consultant was approximately $15,000.

The earliest goals for the system were to provide a centralized location for all the organization's contacts. In early 2009, in-house staff managed the initial import of contacts using exports from email programs and the ad hoc spreadsheets tracking community engagement and asset development activities. From that point on, the database was treated as the one best central location for communication purposes. Mass emails, physical mailings, and call lists were generated using the information in the new data system.

Further customization of Salesforce continued in early 2009, all led internally by TND staff. The initial template was found to be unsuited to many of TND's internal processes. Revisions were completed incrementally and generally focused on one department at a time in the following order:

- Asset Development (classes, public benefits, free tax preparation)
- Fundraising (grants and individual donors)
- Community Engagement (events, membership tracking)

Department directors worked with a single staff member who eventually became the designated system administrator. Typically, new customizations were determined by looking at departmental workplan goals (themselves drawn from the strategic plan) and "back-mapping" to the fields and records that would be

required. Using this iterative process, these departments were fully integrated within approximately six months of launching the system. TND has continued to make changes and expansions to the system throughout the last five years. Small field changes (revised picklist options, page layouts) are often made several times a month, and larger modifications (new membership forms, new programs or program benchmarks) are completed roughly annually in response to changes in the workplan or changing program goals. These revisions are made by in-house staff.

In 2012, the same salesforce consultant was hired to coordinate problems unique to multi-organizational data systems (privacy concerns, regular multiple import and exports) that arose from the CONNECT collaboration. A grant funded the database improvements, which amounted to another $15,000. At this time, the data system expanded from approximately 15 regular users to 30 users, including representatives from each of the six organizations, and all staff members at TND. The expansion also disproportionately increased the ongoing license fees, as Salesforce provides only the first ten licenses for free, followed by a discounted fee of $30/user/month (full price would be approximately $130/user/month). This means that at startup (with roughly 5-8 active users) TND paid no monthly license fee, whereas at full implementation (15 active users) TND paid $150/month, and after the CONNECT expansion the organization now pays $600/month.

Today, changes to the system are managed by two staff members, whose explicit responsibilities include maintaining the utility of the system, determining what the data are saying about the program and training staff. Both staff members also have other responsibilities (including communications work and evaluation). Generally data entry is completed by the staff member who is associated with the activity (e.g., a financial coach enters the information about their coached clients). Occasionally, volunteers or interns are used to enter information such as attendance at a large event or membership forms.

Table 4: Programs included in TND database (year of completion in parentheses)

All programs:	Contact information (2009) Organization information (2009) Mass emails (2009)
Community Engagement:	Leadership tracking (2011) Membership (2009) Event attendance (2009)
Resident Asset Development:	Public benefit applications (2010) Classes* (2009) Employment services* (2012) Financial coaching (2012) Housing counseling* (2012) Matched savings* (2009) Peer suppor groups (2012) Free tax preparation (2011)
Fundraising:	Grant opportunities (2009) Grant reports (2012) Individual donations (2009)
Real Estate Development:	Project summary (2014)

** service and data partially provided by a partner organization*

Perceived value and problems

The use of a comprehensive data system has had an impact on the organizational culture. A common phrase at the organization is "If it's not in Salesforce, it didn't happen." The phrase emphasizes two characteristics: 1) the data system is *the* central repository for information, and all staff are held accountable to what "the numbers" show and 2) the data system should be aligned to what the organization is trying to accomplish.

The key advantages of the new system include: 1) better and timelier reporting, 2) stronger data-sharing, and 3) more reliable and interpretable program data. Each of these is elaborated on below.

Prior to the Salesforce system, reporting was completed on a quarterly and annual basis, primarily for the purposes of individual funders. As mentioned above, reporting was a manual, time-intensive process of comparing spreadsheets. Small changes in the report criteria (what dates to consider or activities to include) required completely starting over. This significantly curtailed data exploration, and the possibility for learning meaningful information about programs beyond the core metrics used for specific grants. The new system enables standard relational database reporting, that allows for changes in date ranges or other criteria with a few clicks. Houston explains, "it is a game changer to begin to be more data driven. This is a different way of working." The new reporting functionality greatly enhances staff member's abilities to explore the data for patterns that impact program implementation. For example, a community engagement staff member may pull a list of members who were active six months earlier but have not been involved recently.

The centralized nature of the data system has made sharing information about particular contacts or activities much easier. For example, when looking at a potential acquisition, a real estate staff member could pull a list of community engagement contacts who live on the street that may be able to provide information about the property. While meeting with a client, a financial coach might check on the public benefit application that was completed by another staff member. The grant writer can look at an organization and quickly see how many contacts have attended TND events. Retrieving this information previously would have likely taken multiple emails, and a substantial amount of time.

Finally, having a single system that all staff enter data into standardizes the information, easing interpretation. A side benefit is that the effects of staff-turnover can be mitigated, as the information is no longer in an individual's head, but is readily accessible and interpretable. From 2009-2013, TND had four different Director's of Community Engagement, with very little time for knowledge transfer or cross-training. Although the lost-value of existing relationships is a major issue for community engagement work, having data about the critical contacts in TND's network made it much easier to step into a new role.

Data quality does remain a challenge for TND, particularly the potential for duplicate contacts. With a large database that is shared by several different programs (and organizations), duplicate entries are a major

concern. TND is able to mitigate this problem by 1) hard blocks that automatically stop apparent duplicate entries from being saved into the data system (e.g., TND's system does not allow two contacts to be entered with the same email address), and 2) periodic duplicate detection that uses multiple fields to identify potential duplicates (e.g. individuals with similar names with matching addresses or birthdays) and 3) manual identification of duplicates. The effects of duplicate contacts are serious and unpredictable, as they can lead both to overestimates and underestimates. Overestimation is clear, as entering the same person's information twice may make a program appear larger. Underestimation is also possible, particularly when counting the number of people who are utilizing multiple programs. For example, if Brian Lewis is entered once as a student in a financial education course, and a new Brian Lewis record is created to track a public benefit application, then the aggregate information for each program individually may be correct, but the cross-utilization of the two programs will be low. Brian will be (accurately) counted in individual considerations of either the public benefit program or the financial education program, but will be excluded when considering people who participate in both programs. TND is developing better user training that reinforces "search before add", and stronger duplicate blocking rules.

Data entry is also a burden for staff. Generally this burden falls more heavily on staff who see more clients. TND has attempted to mitigate this by encouraging direct entry into the data system (rather than recording on paper and then transferring the information into the system), and avoiding double entry whenever possible (a fact should only have to be entered one time in one data system). There is also some learning curve, as individuals more familiar with the system are typically able to enter information and complete searches more quickly. Some of this additional time spent entering entry is balanced by substantially lower times reporting.

Houston explains, "It is incredible to be able to understand to what extent we are meeting are goals. I think our next real challenge is to use this data to correct what we do, and ensure we continue to learn from the data." Overall TND finds the adoption of a centralized data system to be a major advantage, and highly recommends similar frameworks to its peer organizations. Houston continues "It's the only way I can see of learning to make better choices. I think about the different approaches I've used over my career to try to

make change. If you just want to work and make money, you can do that a lot easier, but if you want to have impact this is the only way. You have to be able to measure, and you have to be able to learn, without just guessing."

VII. Case Study 2: Lawrence Community Works

Organizational profile and history

Lawrence CommunityWorks (LCW) was founded in 1986 by a group of affordable housing activists in Lawrence, MA. Like many CDCs founded during this period, early activities focused on the development and management of affordable rental apartments. In 1999, the organization brought in new leadership that sought to refocus the organization on "network building", which the Executive Director at the time, Bill Traynor, called the "development [of the city] is about building a human relationship community infrastructure that can, in turn, produce a bricks-and-mortar infrastructure" (Plastrik and Taylor, 2004).

The re-birth of the organization in 1999, and its development of a "network-centric" model broadened the types of services provided by LCW. As of 2013, the organization had a staff of 29, with four main departments: Asset building, network organizing, youth development ("Movement City"), and real estate development.

The asset building programs focus on "help[ing] families become both economically self-sufficient and civically empowered" (lawrencecommunityworks.org). Program components include matched savings programs (e.g., individual development accounts), homebuyer and homeowner classes, financial literacy courses, adult basic education (GED and ESL), and "lending circles."[2] In 2010, LCW expanded these services and developed the Lawrence Financial Stability Center, which is a one stop center that bundles these services with job readiness training.

Network organizing is at the core of LCW's work, and seeks to "provide opportunities for community residents to build leadership skills, find their voice and personal power, and to engage in collective action for change" (Giving Common Profile). NeighborCircles, a program LCW created and has disseminated to

[2] Lending circles can be formal or informal groups of people who regularly place money into a common pool, which then can be loaned out for specific purposes as defined by the group.

groups across the country, are a series of fun dinners hosted by community residents in their homes. Each NeighborCircle is composed of 8-10 residents who meet three times over the course of a month for dinner and conversation. NeighborCircles often lead to specific projects (cleanups, tree plantings, safety/parking initiatives), and sometimes lead to larger "campaigns" that focus on pressing issues (e.g., parent education, municipal budget, and voter turnout and engagement). Leadership training is another core program, which is a 14-week series of courses that develops facilitation skills and encourages participation in Lawrence's civic life. LCW's network includes more than 5,000 members, including 1,000 who have participated in NeighborCircles and 100 trained leaders (Giving Common Profile).

LCW's youth development program, called "Movement City", provides academic and creative support for approximately 120 area teens (ages 10-18) each year. The program focuses on preparing students for post-secondary education while increasing youths' "self-esteem, confidence, efficacy, positive peer network…and attachment to school" (Giving Common Profile).

LCW has created more than 160 units of affordable homeownership and rental apartments. The real estate department has also developed green spaces, a 14,000 square foot community center, and more than 39,000 square feet of commercial space.

Table 5: Lawrence CommunityWorks programs and staffing

Department	Program Components	Staffing (FTE)
Network Organizing	NeighborCircles, leadership training, issue oriented campaigns	3
Real Estate Development	Affordable rental apartments and homeownership opportunities, green space development, commercial and community spaces	3
Asset Building	Free tax prepation, public benefit applications, financial education, adult basic education, homebuyer classes, lending circles	7
Youth development (Movement City)	Arts programming (dance, design, etc), Academic support (homework help), SAT and college prep	3
Fundraising	Individual donors, grantwriting	2
Administration	Oversight, accounting, legal, support staff	7

Motivations for evaluation and data system

In early 2007, the staff identified the need for a stronger data system. Prior to this period, outputs and activities were tracked using a combination of spreadsheets and custom Microsoft Access databases developed in-house. Departments managed their own information with little coordination, and data standards and reliability varied across the organization.

Salesforce.com was selected as a provider, based on peer reviews, and a third-party consultant was hired to setup the system. A series of interns and relatively short-term staff (none still at the organization) acted as system administrators and worked with the consultant to setup the structure of the new data system. In conversations, current LCW staff were unable to identify a particular process that was used to identify potential changes. The general sense is that department heads would contact the current system administrator, who would either make changes directly to the database, or contact the consultant. Gradually, modules for tracking grants, NeighborCircle participation, membership, and classes were built.[3]

Unfortunately, the ad hoc development process led to a system that was largely unusable. By late 2009, with the consultant no longer under contract, staff were very frustrated with the system. Duplicate fields had been added in different locations (presumably by the series of temporary system administrators), and it was often unclear where certain information should be stored. For example, there were two different places to record that an individual was a LCW member, and it was unclear when either or both should be used. Security had been setup such that it was extremely difficult for staff to see information that was related to programs outside of their department, even though that was partly the purpose of the system. Terri Bruce, resource development associate at LCW, explains that "IT consultants will admit that they are a 'smart hammer', meaning 'I have limited independent thought, but I will only hit the nails you tell me to hit.' It's the program staff's responsibility to tell a consultant what nails to hit." Communication between IT staff, or the people developing the database, and program staff (the users) is critically important. In this case, such

[3] These modules were the templates used by The Neighborhood Developers in developing their own data system.

communication had been weak, and the system failed to provide core functionality and basic usability (clarity, ease of entry, etc.).

The architecture of the database (the relationship between various tables) made it difficult for staff to create reports and extract needed information. Duplicate contacts and records were also a problem, which was partially attributed to volunteers doing a significant amount of data entry. In addition, although Salesforce provides a point and click interface for customization, the original consultant had written a significant amount of custom code. Over time, much of this custom programming was no longer suitable for the organization's current processes, but staff members had difficulty removing and revising the code without breaking other functionality. A second consultant was hired to provide assistance with programming work.

In 2010, the issues with the data system came to a head, and senior staff met to decide whether to hire a consultant to do a complete revamp of the existing Salesforce system or to start fresh with a new provider. They chose to start fresh. The main motivations for rethinking their data system were 1) poor quality of data (largely caused by a confusing database architecture), 2) insufficient reporting capabilities, and 3) the lack of help support available from the provider (Salesforce). Bruce said that senior management "thought we would have a six month lag to get a new system". Due to limited resources, staffing, and a strategic planning process, that wait turned out to be substantially longer (as profiled in the *data system development* section below).

Evaluation framework and strategic planning

The new database development process was significantly different than the one embarked on in 2007. Major changes were 1) the designation of one full-time staff person as a project lead, 2) the establishment of a "Data Work Group" (DWG) that guided the process and planned much of the needed customization, and 3) a thorough review of potential providers.

Assigning the role of system administrator to interns or relatively short term staff was perceived as a major drawback, as the one in-house "expert" on the system usually did not know the organization's processes well. Instead, the overall project manager for system development was assigned to a full-time staff person who was a member of the development (fundraising) team. This staff member organized the "data committee" (discussed below), coordinated and interview potential providers, and guided the overall database development. Although this person was not hired explicitly for this role, the selected staff member had a background in working with complicated data systems. In addition, as an existing member of the development team, she had written about and knew well the various components of LCW's work.

LCW convened a Data Work Group composed of at least one staff member representative from each department. The committee was charged with identifying the organization's core outputs/outcomes for each program, and determining the data that was being collected or would need to be collected in the future. A significant portion of this work also hinged on the completion of the organization's comprehensive Strategic Plan in 2012. Bruce, who was the designated project lead, explains "you can't design a data system, if you don't know what data to collect. You don't know what data you want to collect without a strategic plan. There is a logical order to which nonprofits have to do this work."

The DWG met weekly or biweekly, and the representatives would lead exercises in home department meetings that sought to formalize and make processes explicit. "Fishbone diagrams" were used to sketch how program activities were expected to result in the intended impact (this is a form of back-mapping). The representatives also used SIPOC diagrams to sketch out the Suppliers, Inputs, Processes, Outputs, and Customers for each program activity. Several participants commented that "Going to DWG is like going back to school." This careful review of organization processes was then translated into a symbolic database design specification.

One of the major features of the strategic planning effort, and which the DWG built off of, was placing increasing priority on outcomes rather than outputs. Bruce explains, "We were trying to get way from bean

counting- how many people we were serving – and getting to outcomes and impact. For example, what is the net effect of people learning English?"

Bruce also began researching potential providers. The prior experience with Salesforce suggested several key attributes. First of all, they wanted to use a product that would provide ongoing technical and configuration support. Salesforce provides some technical support and online training, but there is no configuration support, and no single person to call if a user has a particular issue. Secondly, they wanted a consultant that could commit to implementing the specification that the data committee and staff had assembled, with relatively minor changes, and create the needed reports with little ongoing effort. Finally, they wanted to work with a product/consultants that had extensive experience with nonprofits. Price, both for setup and ongoing maintenance, was also a major criteria. Bruce explained the importance of an accessible user interface, "The success of any system depend to a very large part on the staff's willingness to use it. If it's too long, or too confusing, or takes more than a few clicks to do important things, they're just not going to use it." The project lead interviewed and communicated with roughly a half dozen providers.

Data system profile and development

The planning process described above took approximately 2 ½ years. During this period, LCW utilized the existing Salesforce system and department specific solutions that were similar to the methods used in prior years (spreadsheets). In 2013, NonProfitEasy.com was selected for the data system. NonProfitEasy supports a proprietary cloud based system that it customizes for the needs of its clients. The monthly user license charges include ongoing support and configuration. The product has off the shelf support for several of LCW's needs (donors and grants, task management, volunteers and events, communications), and is further configured for the program purposes (NeighborCircles, Movement City). LCW entered into a contract with NonProfitEasy in the summer of 2013, and the database was built in approximately six months.

The development process was relatively straightforward, as the data committee's design specification was thorough. The lead project manager was able to coordinate the configuration directly with NonProfitEasy developers, which mostly involved clarifying the design spec and testing the build. Staff cleaned all data imported into the system, typically by running sheets through a Microsoft Access database, and using queries to identify errors. This allowed some of the information that was being tracked in the existing Salesforce database and department specific spreadsheets to be transferred. However, LCW also intended for the new NonProfitEasy system to be more reliable and accurate than the existing systems, so the most suspect historical data (often entered by volunteers or short-term staff) were not imported into the new system.

Donations and grants were a priority for the organization, so fundraising was the first department to begin using the system in January 2014. The community organizing department began using the system later in the 1st quarter of 2014, and the system was planned to be rolled out to other departments throughout the rest of the year. Two hour general user trainings are provided by NonProfitEasy for all new users.

Table 6: LCW data system summary

Product	NonProfitEasy.com
Date Started Using	2014
Users at Startup	~5
Setup costs	$8,000
Ongoing Fee	$300 / month

One-time setup charges were $8,000, which include the off the shelf modules as well as customization. LCW receives unlimited user licenses for a cost of $300 per month. This fee includes telephone support for both users and administrators. Future modifications to the system will be completed by NonProfitEasy staff: small changes (field additions or layout changes) are included in the monthly fee, while larger changes may involve additional fees. The lead project manager is remaining the primary point of contact, who will centralize and make formal requests for any design changes. Users are also able to make on the fly changes to page layouts, so that they can customize and emphasize the information they are most often interested in examining.

Frequently used reports are saved so that they can be re-run with a click of a button, and users with a little more training are able to directly create new reports on the fly.

Perceived value and problems

Although only in use for a few months at the time of writing, staff reports high levels of satisfaction with the new system. The user interface is clear, and organized in a thoughtful manner. Although the amount of data in the system is limited, reporting is working well. Telephone support is particularly praised as being helpful.

One program manager informed Bruce that they had "just completed one year of data collection, and it is so interesting what it is telling me. What upsets me is that I don't have five years worth of data." Bruce believes this is a good demonstration of LCW's experience with a data systems. "Moving from bean counting to outcomes tracking was demanded by resource development and funders, but now we're moving to program managers telling the funders and me what's important to know about programs, and what we are actually trying to achieve." A stronger system has allowed program staff to see that data are not just a burden that are necessary to obtain funding support. Instead, staff are using data to better understand their programs, and identify what's working. For example, a manager of an ESL class run by LCW had been consistently underwhelmed by participant's progress on the standardized writing and reading tests administered before and after each semester. However, students also reported high satisfaction with the course, and frequently re-enrolled in the next available series. LCW developed a new survey to administer (alongside the formal tests), and found that even students who did not show significant improvement on the tests, reported significant changes in their quality of life. Students said that they were now able to help their children with homework, or speak casually with their neighbors. These are not the kind of indicators that are measured in the formal test, but they are absolutely the kind of impact that LCW desires for the program.

One complaint about the prior system (Salesforce and spreadsheets) was the tendency for duplicate contacts to be created. NonProfitEasy has created a "check for duplicate" button that examines existing records to

determine if a new contact is a duplicate, as well as to verify the addresses actually exist (using USPS data). In addition, the staff has committed to entering their own information into the system, and avoiding the use of volunteers for data entry. When volunteers are used, they will go through the same user training as any other staff member.

Although the development phase was long, LCW is pleased with the end result, and believes it is a system that they will continue to use for the foreseeable future. They strongly recommend peer organizations to consider developing their own systems. Bruce says that LCW was motivated by the observation that "The world is marching on past us. Funders are asking us for things you can't do in a spreadsheet. You can't do it with paper files. You have to have a data system."

VIII. Case Study 3: Urban Edge Housing Corporation

Organizational profile and history

Founded in 1974, Urban Edge Housing Corporation (UE) is a community development corporation that operates in Boston's Roxbury and Jamaica Plain neighborhoods. UE mission is to "develop and sustain stable, healthy and diverse communities." A full-time staff of 24 and 8 part-time staff run the organizations three main departments: 1) Community Engagement, 2) Community Programs, and 3) Real Estate Programs.

UE's community engagement program largely focuses its services on the tenants of its own properties. It seeks to connect with members of the community on "three levels"; as individuals, as a member of the housing development, and as a community member in the neighborhood (urbanedge.org). Resident services are provided in coordination with UE's third-party property management company, and focus on stabilizing tenancy and connecting residents to appropriate social services. Since 2010, an "income enhancement" program has been emphasized, which uses a web-based platform to conduct comprehensive public benefits screening for tenants and local residents. The community engagement department also runs leadership development programs, a youth employment and after school program, and civic engagement activities. Overall, the community engagement program reached over 2,700 individuals in 2012, most of whom were tenants of UE-owned properties (Giving Common, 2014).

"Community programs" provide a collection of asset building services intended for low and moderate income families. Homebuyer services, including homeownership and homebuyer courses, have historically been the emphasis. More recently, foreclosure prevention, general financial education (e.g., Credit, Savings), public benefit screening, and free tax preparation have been integrated into Community Programs. More than 1,100 individuals accessed these programs in 2012 (Giving Common, 2014).

UE has the largest real estate portfolio of the considered organizations, with over 1,250 affordable apartments currently in their portfolio (Urban Edge Brochure, 2012). UE is also a little different than some of its peers,

Table 7: Urban Edge programs and staffing

Department	Program Components	Staffing (FTE)
Community Engagement	Resident services, leadership development, youth employment, civic engagement, income enhancement	6
Real Estate Development	Affordable rental apartments and homeownership opportunities, commercial and community space	4
Community Programs	Homebuyer and homeownership education, foreclosure prevention, financial education, public benefits screening, free tax preparation	4*
Fundraising	Individual donors, grantwriting	2
Administration	Oversight, accounting, operations, asset management, support staff	13

*Community programs are also supported by many consistent volunteer teachers and counselors

in that 40% of its portfolio is co-owned with resident groups that are general partners on the developments. As Katie Provencher, Director of Community Engagement, says, "This puts resident engagement in our DNA." Recent real estate activity has focused on the redevelopment of 11 acres of largely vacant land in the Jackson Square neighborhood near Boston's Orange line. When completed the area will include several large multi-family developments, as well as new commercial space and a 38,000 square foot indoor recreation center.

Motivations for evaluation and data system

In 2010, UE began using an online application system that screened residents for a variety of public benefits. At the time, the organization was supporting several data system platforms. Some of these were being used at the request of funders, who were interested in having a standardized reporting structure. For example, all housing counseling clients were entered into a pre-configured program that allowed for export and import into a funder's reporting system. These pre-configured systems were supplemented by internally created spreadsheets and Microsoft Access databases for other details the organization was interested in tracking. These systems generally were not linked to each other, which meant that staff frequently were doing double- or triple-entry into the various systems. Typically these systems made it easy to provide a particular report (the one the spreadsheet or system was initially designed for), but there was little flexibility. Thus, if a director or staff member wanted a similar metric, but for it to be aggregated in a different way or on a different time period, it would often take several hours.

The power of the online screening tool convinced staff that it would be worthwhile to invest in a central, online database system that could be used for all activities. A particular goal was to avoid the double-entry problem, and to have a system that was more directly configured for UE's own purposes. In 2012, the organization began looking at different products. They conducted peer interviews, and spoke with several vendors before selecting Salesforce.com. No other platforms were seen as major competitors. This selection

was based on peer reviews, price, and the products flexibility for customization. They also were interested in a system that was "cloud-based" to enable people to work from multiple devices and in various locations. UE also was attracted to the "openness" of the system, as there are many developers and consultants actively working on the platform. If the consultant selected turned out to not be the right fit, they were confident they could find others working in the area.

Funder pressure to adapt stronger data systems was not a major factor. Chrystal Kornegay, Executive Director explains "Part of the reason I work at a CDC and not just any nonprofit is because I have opportunities to earn revenue. So I want to take my earned revenue and do what I think works. Then I can take that to funders and say, 'Here's what we're doing, and here are our outcomes. If you want to fund this kind of work, great!" Kornegay also emphasizes that without ongoing conversations with many of their funders, UE may not have realized what they were missing.

Evaluation framework and strategic planning

The primary motivation for UE was to consolidate the information that already was being tracked in various systems. In addition, the community engagement department was interested in formalizing its leadership tracking, and developing a standardized scale to represent a community member's development.

The selection and build out of the data system was not explicitly part of a strategic planning initiative or evaluation project. The organization had an existing active logic model. Kornegay says, "We had our logic model, so we had goals, and we knew what we needed measure in order to show whether reached those goals". However, data system development was part of a comprehensive approach to upgrade the organization's technological capacity. Computers at UE were old, the shared server provided difficult and slow access to employees working on the road or from home. Staff recognized that the current technological capacity of the organization was impairing their ability to deliver high quality services. Kornegay emphasizes that "these advanced data systems should be part of a CDCs overall technology plan. Think about a whole

technology plan, instead of 'we need a data system because reporting to our funders is getting too difficult.' The more you can make it about your technology, and what you need to run your business, the less it feels like 'oh my god, we're going to spend $100,000!"

Data system profile and development

In 2012, the organization selected Salesforce and hired two consultants to implement the new system. The first consultant also managed the rest of the concurrent technology upgrades. Their expertise was in general IT support, although they had some familiarity with Salesforce. The second consultant was a solely database (mostly Salesforce) consultant who worked with both nonprofits and for-profit organizations. The IT consultant's role was to serve as the intermediary ("translator") between UE and the Salesforce consultant. Although the IT consultant had worked with UE for several years (IT at UE is handled by the same consulting company), a UE staff member was also a major member of the team and provided direction on the specific information that would need to be tracked in the system. The Director of Community Engagement (a senior staff member) served in this role. The development process took approximately six months, and during this time the Director of Community Engagement estimated that about 15-20% of her time was dedicated to this project. Because the IT consultant's project management work was integrated into a general technology improvement initiative, it was difficult to provide an accurate accounting of the cost designated just for setup, although a value in excess of $100,000 was estimated by Kornegay.

The resulting system primarily focuses on community engagement, and the first full year of use was in 2013. Resident services, leadership development, and participation in community activities are all tracked at the individual level. The emphasis has been on tracking short-term outputs. Some community programs services, particularly tracking the benefits screenings and results, are also recorded in the system, although more remains to be completed. Staff indicated that they had planned to fully integrate both community engagement and community programs in the initial launch, but they decided that was too large of a project. Provencher

explained that staff were able to pretty quickly set down "this is what we want to be able to enter into Salesforce, and this what we want to get out of it. But thinking through some of the logistics has been difficult and more time consuming."

In addition, they initially planned to have automatic links between Salesforce and their other data systems, so that information could be entered into either Salesforce or the other systems, and both systems would be up to date. This linking was found to be overly complex for the initial launch, but the organization is currently revisiting creating such a dynamic link, and has re-engaged the same consultants. They also plan to create a link to their property management companies tenant records, so that resident services information (tenants behind in payments, tenant complaints) are readily available to both organizations.

The new system is being used to track grant opportunities and individual donors. For these components, the off the shelf modules available from Salesforce were largely appropriate, and the development process was less intensive. Real estate activities and contacts are generally not tracked in the system. UE uses a separate mass communication system, although there also plans to integrate these activities.

Table 8: Urban Edge data system summary details

Product	Salesfoce.com
Date Started Using	2013
Users at Startup	15
Setup costs	$100,000
Ongoing Fee	$150 / month

The Salesforce consultant provided administrative training to the Director of Community Engagement and the organization's Office Manager. Both of these staff members feel comfortable making small changes to fields or layouts. User training for the rest of the staff was provided by these two staff members. The Director of Community Engagement believes training has been relatively straightforward, with most staff members picking it up quickly (the system is less confusing than other systems the organization has utilized).

New staff members are typically being trained by their peers, with little further formal training needed. Line staff are directly responsible for their own data entry, and no volunteers or interns are currently being utilized.

Perceived value and problems

UE is pleased with the Salesforce data system, and has recently hosted several webinars for peers that provide an overview of both the community engagement tracking as well as the related "Income Enhancement" screening tool. Senior staff has found it much easier to provide oversight, as reports (both summaries and detailed information) are readily available. In addition, it is much easier for staff to go to an individual contact and be able to quickly see the different activities they have participated in.

The data system has also helped to identify the value of some programs that have been previously difficult to demonstrate impact. For example, resident services is sometime seen as an "extra" that is not at the core of the work UE (or any CDC) does. Provencher says, "It brought us a level of legitimacy. I think everyone says 'resident services, that feels so nice' - just add that in and everyone feels good about themselves." Recording the outcomes from resident services (evictions avoided, benefits enrolled in) in a comprehensive way has made it easier to tell the story of the program and concretely show impact. Provencher continues, "We are finding actual impact. Let's put a dollar sign on it, lets show the property savings in terms of eviction and turnover costs. This is not 'kumbayah, we all feel good'. This is actual impact for our tenants and our organization."

There remain frustrations. For one, double-entry is still a problem for several activities. Creating a stronger export-import connection is currently being looked at, as well as live syncing. Data quality has been an issue, with duplicates occasionally causing data errors. One technique the community engagement team is using is to look at a random client at each monthly department meeting. Every staff member then comments on the activities the client is involved in, and the staff examine whether the information has been accurately entered into the data system.

The staff is currently developing more reports that directly guide work. For example, automatically generated reports that show strong candidates for particular programs, based on the information already collected, or follow-up emails that are automatically triggered after a certain period of time. These custom workflows and processes are currently being designed by staff, and are expected to be rolled out in the future.

The senior team has less familiarity with creating custom reports on the fly, and creating useful "overall summary" dashboards is still needed. There is relatively weak staff knowledge about creating these new reports, so they are often only created after going through the consultant.

Although the data system was expensive (in both cash and staff time), Kornegay unequivocally states that the investment is both necessary and helpful to the organization: "We need to be leading instead of following. We made a huge investment in our organization, because the way people live has changed, and the way people work has changed. We have to move in this direction in order to serve our constituents."

IX. Case study discussion

Data system and evaluation motivation

The reasons these organizations undertook evaluation are largely consistent. Table 9 shows the primary reasons that were brought up for developing a new data system.

Table 9: Primary motivations for data system development by organization

	TND	LCW	UE
Enhanced reporting	X	X	X
Fundraising tracking needs	X	X	
Coordinated with strategic plan	X	X	
Coordinated with other org planning			X
Interdepartment coordination	X		X
Centralized contact management	X		
Funder required			

Enhanced reporting is a consistent desire of all the nonprofits. Every organizations previous system of reporting was unwieldy and time consuming for staff. Earlier systems tend to be based on spreadsheets that are maintained at the department level, and are suited for just one reporting purpose. Data systems were sought out to make it easier to access information about the program, preferably on a live basis. Enhanced reporting is allowing the organizations to meaningfully engage with their program data, identify patterns and potentially make changes to service delivery. More meaningful oversight by program supervisors, boards of directors, and funders are all made possible by flexible reporting.

Fundraising tracking is cited as a primary reason for both TND and LCW, and all three organizations built out fundraising functionality in their initial implementations. This may be partly related to the fact that the fundraising sector has more experience keeping track of its outputs/outcomes in this type of data system. Tracking a grant or donor opportunity through stages, and then maintaining a relationship with those entities,

is at the core of the discipline. Fundraising also has clear numerical objectives (e.g., total dollars raised by program and time period), that make it a good fit for the quantitative reporting enabled by data systems. In addition, this motivation is reflected in the staff chosen to lead the organizations' implementation, which at TND and LCW are staff members associated with the fundraising department.

For each of these organizations, the development of the database was part of a larger initiative at the organization. At TND and LCW this was a formal strategic planning process, while at UE there was a comprehensive technology upgrade plan. All of these initiatives either originated with or had the direct support of the executive director or senior administration. The adoption of a data system is not seen as a minor change, but something that is potentially transforming for organizational effectiveness.

Enabling stronger interdepartmental coordination was particularly brought up by TND and UE. Prior to the new systems, individual departments tended to manage their own information. These self-created systems varied with the current staff, and were primarily used to meet the reporting requirements of various funders. This made it difficult, for example, for an asset building staff member to know if a client was also involved in a community engagement effort. All three organizations recognize, both in interviews and in their formal logic models and theories of change, that the coordination of the departments offers synergies that could potentially increase impact. Part of this benefit is only realized by reliable and consistent "cross-referrals" among the different departments in the agency.

Centralized contact management is cited only by TND as a core goal of the data system. This may be partly due to deficiencies in the organization's contact management system before the creation of the system. Both UE and LCW had mass email providers prior to undertaking the data system. TND on the other hand, had no reliable list that combined contacts from its multiple departments into a single communications list.

Finally, none of the organizations cite funder requirements or encouragement as the primary reason for undertaking the new data system. Although all three organizations agree that funders are becoming increasingly interested in grantees that are able to demonstrate impact with clearly defined, self-collected

metrics, none saw this as the core reason. In fact, all three organizations express a sense of partnership with their funders, and thought that they could generally work together to develop the measures that made sense for their programs. UE did receive funding explicitly to develop its data system (particularly the part related to the benefits enrollment program), and TND received funding to expand its database to accommodate the needs of the CONNECT partnership. However, the organizations agree that there is relatively little capacity building funding available for what is seen as a "technology upgrade". In many cases, the dollars needed for a new data system will likely have to be drawn from unrestricted general funds.

Activities enabled and measurement priorities

All three organizations are rolling out their data system over a period of time, and plan to continue building out the information tracked. Table 10 indicates the programs CDCs focused on developing initially, and those they plan to develop or built out somewhat later.

Table 10: Program components tracked in new data systems

	TND	LCW	UE
Community Building Outputs	1	1	1
Community Building Outcomes	2	1	1
Asset Building Outputs	1	1	1
Asset Building Outcomes	2/3	1	2
Real Estate Development	2	x	x
Fundraising	1	1	1
General Organizational Contacts	1	3	3
Communications (mass email, etc)	1	3	3
Administrative functions	x	x	x

1 - initial setup

2 - built in later

3 - planned

x - no plans

All three organizations initial implementations captured community building outputs, asset building outputs, and fundraising tracking. An output (whether community building or asset building) is the basic tracking of activities delivered, such as the number of people who attended events or participated in a program. Although the organizations prior systems provided simple metrics based on these outputs, the new systems make it much easier to understand the outputs in new ways. For example, easily changing the timespan of interest, analyzing cross-enrollment in programs, and isolating clients who are repeat or one time users of programs. All of these advances help the CDCs deliver their services better (stronger referrals, better program understanding). For example, now that TND has tracked community building attendance in a systematic way over approximately five years, previously obscured trends are possible to identify. In an analysis of its program participation, TND found that people who enrolled in NeighborCircles went on to participate in more than twice as many community events than people who did not complete the NeighborCircles program. Like LCW, TND believes that NeighborCircles, which bring together residents for food and conversation, are a fundamental building block for establishing trust and creating a connection to place that spurs further involvement. TND's results provide substantial support for this theory.

LCW and UE launched their systems with measures for community building outcomes as well, while TND built out more outcome measurements later in the process. Typical community building outcomes focus on leadership development, and the campaigns those leaders organize. Each organization measures leadership in different ways[4], but the new data systems provide a more systematic definition, which can be utilized by senior staff and board to evaluate progress. Community building's main impact and outcomes are often not as generalizable though, as they are linked to particular campaigns (e.g., voter turnout, trash reduction and sanitation, crime and safety). These CDCs have generally chosen to track these campaign specific outcomes outside of their client database.

[4] For example, UE has a "leadership scale" and tracks residents progression up the scale. TND, on the other hand, tracks leadership on an event by event basis, noting the specific leadership role a resident undertook at a particular time.

Only LCW launched its system with asset building outcomes in place. UE's system includes information related to their income enhancement and public benefits work, but the other areas related to its asset building ("community programs") department are still being developed. Developing stronger asset building outcomes tracking has been a priority for TND, especially in the expansion of services from the CONNECT partnership. Major outcomes that TND is tracking include household income, credit scores, education, and job placement. Although the initial measures are in place, TND is working on establishing data collection protocols to gather follow up information on its clients. This remains a substantial hurdle, especially for individuals who are not engaged in long-term intensive services such as financial coaching. TND serves many individuals who are highly mobile, for whom contact information may change frequently. Creating a sustainable method of tracking economic outcomes overtime is a current high priority for the organization. Still, all the organizations are having success integrating some level of asset building outcomes. Public benefits outcomes (net change in income or take home money) are fully built out for both UE and TND, and may represent "low hanging fruit" for other organizations as well. The data needed to track public benefits outcomes are typically collected in the process of delivering the service because income, existing benefits, and household structure are all required by the application for SNAP (formerly known as food stamps).

All organizations expressed interest in using their data systems as their primary repository for contacts, but only TND is actively using it as such, partly because Salesforce also serves as their main communication platform. Other organizations use their data systems as the central location for program contacts (community engagement and asset building clients as well as tenants), but are not inputting partner or vendor information (e.g., development teams, municipal contacts), although they plan to. All of TND's mass emails and physical mailings are generated using Salesforce. The email program that TND uses automatically imports information about email open rates, clicks and unsubscribes directly into Salesforce, so that it is easy to track response rates. Notably, besides communications, none of the CDCs has developed or is currently planning to develop more operations or administrative functions into the data system. Other sectors have used these systems for accounting and human resources purposes (timesheets, vacation tracking, billing), but this has not been an area pursued by these CDCs.

All three organizations emphasize that improved reporting is a major outcome of their new data system. Relative ease of use, and more straightforward training for new staff are also consistently cited. UE and TND particularly note that data systems (or technology improvement in general) had an impact on the day to day efficiency and culture of the organization. TND's sense that "if it's not in salesforce, it didn't happen", and UE's random draw of a client for review are both new phenomena that emphasize the organizations' interest in stronger accountability to data. Similarly, LCW has seen its program managers embrace the data system as a way to provide faster and more consistent information about its programs, such as the manager Bruce describes who is only upset that he/she does not have five years worth of data.

Resources required for setup and maintenance

All the organizations emphasize that both staff time and cash were needed for successful implementation. However, these organizations did display a variety of levels of investment, as shown in Table 11.

All three organizations used a professional database consultant during setup and designated a lead staff member to serve as a project manager. These database consultants typically had some familiarity with nonprofits in general, but no particular knowledge about the organization or the CDC sector. None of the nonprofits hired a third-party to provide consultation on evaluation development or to help them shape the metrics of interest: this was purely the job of the designated staff member, often with senior manager involvement. Although all three organizations required significant staff time, the direct costs associated with development have a wide variation that is correlated with the degree to which consultants were utilized.

At TND and LCW, the lead staff member was drawn from the fundraising staff, while at UE the lead staff member was the Director of Community Engagement. Both the TND and LCW staff members had prior experience with database development, while UE also had an IT consultant under contact that was similarly knowledgeable. All three organizations chose staff members who have been at the organization for a

substantial period of time. Notably this differs from LCWs less successful initial implementation of Salesforce, which was primarily managed by a series of short-term interns.

Table 11: Resources required for setup and maintenance

	TND	LCW	UE
Setup			
Database Consultant	X	X	X
Evaluation Consultant			
IT Consultant			X
Role of staff Lead	Fundraising	Fundraising	Comm Engage
Had database expertise	X	X	
Strong organizational knowledge	X	X	X
Tenure at agency as of 2014	6 years	4 years	6 years
Total estimated setup cost	$15,000	$8,000	$100,000
Maintenance			
Consultant-provided		X	X
System Admin on Staff	X		
License fee (per user per month)	$20	$10	$10

UE and LCW have retained consultants that will continue to provide support for the system, while TND has a staff member that provides system administration and general user support. LCW's ongoing support is included in the monthly fee, while UE's support is part of general IT support. The per user fees are similar for the two system types (NonProfitEasy and Salesforce), although TND ends up paying more per user license because of Salesforce's nonprofit pricing model.[5] In addition, the subscription NonProfitEasy purchased allows for unlimited licenses.

[5] Salesforce provides the first 10 licenses free, and then charges $30 per user per month (roughly ¼ of the full price of the product). In 2014, TND utilized 30 total licenses, while UE had only 15.

X. Conclusion

The profiled organizations provide examples of how CDCs are currently addressing their needs for better program tracking. Overall, the organizations do recommend the use of similar data systems, and believe the substantial investments to be worthwhile. To conclude, I summarize a) the advice for CDCs that are considering the development of a data system, b) trends that suggest data systems will become increasingly important, and c) future areas of research.

Recommendations for nonprofits considering looking to develop data systems

These cases provide several lessons for CDCs, or nonprofits in general, who are looking to adopt and develop stronger individual level data systems.

- **Recruit expertise in a range of domains**: technical, detailed program knowledge, and evaluation experience are all particularly important for data system development. Technical experts should be familiarity with the design and development of data systems, and be able to explain opportunities and limitations of different design choices. Stronger technical abilities produce systems that have better user interfaces, meet the needs of the organization, and encourage user adoption. Program knowledge is critical, because technical experts can easily build systems that are poor matches for the actual workflows of the organization. Some level of evaluation proficiency is necessary so that energy is spent collecting information on the most relevant metrics. Data system development cannot be completed in isolation, and a team of staff (and consultants) is likely necessary.

- Designate an **in-house, long-term staff member as project lead**. This person will be involved in both the setup and maintenance of the system. Part of this role may be providing program knowledge to technical experts that are new to the organization, but another important role is to provide continuity for the training of new users and the development of further additions for the system. There is sometimes a temptation to see database development as an isolated project that might be appropriate for a tech-savvy intern, volunteer or

other short-term staff member: this temptation should be resisted. Some knowledge of data systems or evaluation practices is helpful, and may accelerate the development process. On the other hand, a project lead who just brings program knowledge and a commitment to creating a system that is actually useful, is a major asset. In an interview, an evaluator noted that "A lot can be said for someone just taking the lead…in a lot of cases, [organizations] are collecting information and simply not using it." The lead must be sensitive to the needs of all the departments, have strong communication skills, and be able to shape the product to match the organization's needs.

- **Be prepared for iteration**. All of the organizations profiled here rolled out (and plan to roll out) further refinements after initial launch of the system. Two main reasons contribute to this: 1) the scope of creating a master data system at one time is prohibitively large, and 2) an organization's data interests may change as further information is collected. Just as programs develop and grow, so too will a well-fitted data system. Part of this advice is that management (board, executive directors or supervisors) must be supportive of the system, and be prepared to allocate ongoing staff time and money to maintenance and expansion.

- **Planning is critical**. Before undertaking the creation of a new data system, it is necessary to have a thorough understanding of program goals and the activities that are thought to be linked to achieving those goals. As the League of Cities points out, "The first rule of management information systems, then, is not to begin any discussion by talking about management information systems" (Kingsley, 2012). Without agreement on metrics, an understanding of intended outcomes and the activities that will lead to them, it is easy for organizations to waste time developing a system that collects information of little value.

- **Creating a data system is not the same as using a system**. Data systems are a tool, and they have to be used to create any benefit. All the profiled organizations sought out data systems partly to provide a platform for better integration of services. However, a data system does not itself integrate services, it only makes it easier to integrate services. In the same way, a data system only becomes the one best place for putting contact information, if staff and users treat it that way. Policies such as TND's "if it's not in Salesforce, it

didn't happen," can encourage user adoption, but ultimately the system's user interface, usability, and perceived benefits must be sufficient to motivate staff members to regularly use the system.

Changes in the field – increasing reliance on data systems

Several trends in the field emerged during discussions, including 1) increased funder (external) pressure for stronger evidence of program impact, 2) increased manager and community (internal) expectations for information, and 3) an increasing emphasis on collaboration. Each of these tends to support further adoption of advanced data systems.

The agency model, which asserts nonprofits will only setup evaluation systems in so far as funders require them to do so, does not provide an adequate explanation for these three organizations' activities. None of the three cite external pressure as a primary reason for developing new systems. Still, all interviewees believe that funders are increasingly linking dollars to outcomes and data. Houston, of TND, thinks that in the next decade, "if an organization doesn't have a way of actively collecting and utilizing data, they're just not going to be in business." Bruce of LCW comments that inaction is not an option: "The world is marching on past us. Funders are asking us for things you can't do in a spreadsheet. You can't do it with paper files. You have to have a data system." Even with the external pressure, organizations are finding useful information for their own purposes: which is the aim for many funders who see themselves as partners (quite similar to the "stewardship model" presented in Chapter III). One funder finds that despite stress and complaints, "when groups are mandated [to collect information], they often do it at a pretty high level. And we do see them using the results all the time." So long as the funder and nonprofit share program goals, and buy into the same model for achieving those goals, this type of relationship is possible. Although these CDCs did not cite funder interest as the primary motivation for their efforts, they are better equipped to deal with a funding environment that only is becoming more data intensive and outcomes oriented.

Nonprofit boards, supervisors, and program staff are also increasingly expecting better information to guide their work. Staff at all three organizations asserted that they are progressively collecting and using more data

to improve programs. Although there is some initial fear of evaluation, which might show that a program (or a staff person) is not accomplishing goals, it is mitigated by the sense that current numbers are a starting place for programs to build on and improve. An interviewed professional evaluator argues against "this idea that people don't understand evaluation, or don't see the point of it…what has only gotten better is the support for people to do evaluation."

Although collaboration is not a new phenomenon, the selected organizations all mention the need for stronger data systems to support inter-organizational partnerships. Kornegay, at LCW, explains that the "nice thing about data systems, and particularly Salesforce, is that as you move into collaborations, it is easy to move information back and forth between them." The time-intensive planning that must occur before data system development is even more involved as more organizations seek to share information. The organizations must agree about appropriate metrics, how information will be shared, who will be responsible for data entry and database management, and resolve any privacy concerns (e.g., HIPAA compliance). These are the same types of issues that arise for a single organization with multiple programs, but there is likely less pre-existing agreement. An interviewee noted that, "there are projects where everyone is measuring the same thing…but those are few and far between. A lot of times you have a shared goal, and everyone is contributing to it, and the measures may be different for different groups." This rings true for TND, who is currently leading the CONNECT partnership, and built out its data system so that there could be one place where the six organizations shared outputs and outcomes could be tracked. Although there are some core goals held in common (increasing net worth and income, improving credit scores, better education), many are program specific and contribute to the overarching goals (e.g., public benefits counseling may increase take home income, while an ESL course improves English skills increasing employment opportunities, and an employment counselor provides resume assistance). Each organization in a collaboration likely requires its own data system to meet reporting requirements, but also needs to be able to share information. Data systems that allow for flexible importing and exporting, as well as the possibility for automatic syncing, provide an opportunity to strengthen collaborations that seek to achieve shared goals.

Areas for further research

Three areas deserve further attention, but are outside of the scope of this thesis: 1) more detail on other perspective in the field, 2) a broader geography of cases and 3) place-based tracking instead of individual level data.

I have focused on the perspective of CDC staff and management, with some insights from background interviews of funders and evaluators. Further conversations with funders may be especially fruitful. For example, do funders see themselves as being more data reliant than in the past? If so, what are the main motivations for this shift? How willing are they to directly support improved evaluation, or to fund database improvements (including planning, setup charges, and ongoing maintenance)? Have they stopped funding groups who fail to evaluate their programs more robustly? Have they stopped funding groups who *are* evaluating their programs, and find them lacking (i.e., how valid are nonprofits concerns about losing funding after finding inefficiencies through evaluation)? In addition, there is no reason to believe that all funders have the same level of interest in measurement. One CDC funder expressed support for strong evaluation, but cautioned that "there's a bit of an epistemological question – how much can you know. Are we measuring things that are real and important?" Organizations need to ensure that their measurements stay tightly linked to their missions. The same funder continued, "What you measure will improve, but you measure one thing, and you're trying to do ten different things." A more thorough review of funders and their disparate interests would helpfully explain the current expectations for CDCs and other community based organizations.

To enable stronger access, all three cases were based on CDCs located in Eastern Massachusetts. The CDC community in Massachusetts is well-connected, and regularly share information about their work through both formal and informal channels. For example, the selection of systems for each organization was largely based on peer experience. Therefore the common trends I identify may be more related to this particular community, than aspects about the individual organizations. Eastern Massachusetts and the Boston area is potentially more technology-oriented than other parts of country. This may lead to a better selection of knowledgeable consultants, and a staff that is more open to technological solutions. A CDC funder in Boston

noted that there is a large number of executive directors in the area who have all gone through the same leadership programs where "there is a big emphasis on adaptive change and smart goals. There is a network effect – people look at what each other are doing and think 'we should try that'." These factors may make it more feasible for these nonprofits to undertake a data system development project, and potentially get more benefit out of the product. It would be helpful to consider early adopters in other regions of the country, both those who have been successful or those who have struggled to implement similar initiatives. Finally, nonprofits would likely benefit from a more comprehensive comparison of different data system products' advantages and limitations. Such a resource guide would likely be useful, although time-sensitive. As noted previously, the cloud-based database sector is fast-growing, and there is no one software solution that will be right for every group.

The selected CDCs have focused their data systems on managing individual-level outputs and outcomes, but CDCs are typically interested in having neighborhood-level impact. Evaluating an impact on an entire place is more complicated than aggregating the results of program participants residing in the area, because people who are not participants may have an overwhelming effect on the metrics of interest. An organization may increase the net incomes of their participants, without changing the overall economic outlook of residents in a neighborhood. Many nonprofits seek to generate spillover effects: the classic examples for CDCs is the contention that, in a distressed neighborhood, investment in an affordable housing development by a responsible landlord may spur private investment, thereby improving conditions for all residents. Determining appropriate programs, and measuring impact at the place-level is a substantial undertaking that likely requires multi-sector collaboration (business, nonprofit service organizations, municipalities, etc.). To make these evaluation efforts manageable, organizations should hold in mind that there is often no need to measure every indicator of interest, and that depending on past research may be appropriate. For example, an evaluator interviewed for this project noted, "If you have a smoking secession program, and you can demonstrate that people stop smoking, you don't have to show that they didn't get cancer. The likelihood is that they've improved their chances, and their long-term health is better." A thorough theory of change that is based on best practices and ample research, can ease data collection requirements.

In this thesis, I have profiled the efforts of three CDCs that have successfully shifted to advanced data systems to better track program outputs and outcomes. These organizations have been largely motivated by their own interest in improving program effectiveness, rather than external pressure from funders. Their investments (in staff time and money) are yielding a better understanding of their programs, and they recommend similar technology improvements to their peer organizations. Trends in the sector – such as increasing program complexity, collaboration, and funder expectations – suggest that CDCs who develop stronger data systems and measurements will be better-equipped to create positive change in their neighborhoods.

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XII. Appendix: Interview Protocol

A. Introduction

Thank you for agreeing to speak with me about [organization's] experience using a data system. As I mentioned in my initial email, I am interested in profiling how organizations are utilizing data systems to improve their programs, and the resources that they need to implement such systems. Your participation in this interview is a critical part of my research and is highly valuable. I would like to ask you if it's ok if I record this interview. The recording will help ensure that I accurately portray what you tell me today. Even if you agree to allow me to record the interview, you are always free to decline answering a question, or decline answering a question while recording. Is it alright with you if I record this interview?

[follow the wishes of the interviewee]

B. Context

Over the last decade, several new technologies have made extensible, user friendly data systems possible. Along roughly the same timescale Community Development Corporations have greatly broadened the types of programs they administer. Many CDCs who in their early stages focused on real estate development and/or homebuyer education, have started major program components in workforce training, leadership development, community organizing, small business supports, and a variety of other place-based neighborhood revitalization strategies. This has led to an increasingly complex data collection and tracking effort. I am interested in learning from you; 1) how [organization] manages this information, 2) the utility of the system you are currently using, and 3) what kinds of resources [organization] needed in order to implement this system.

C. Programs mix, System Overview

I would like to begin by hearing a description of your organization in your own words. What are the critical issues that [organization] is seeking to address?

1. Program mix
    a. Tell me about [organization's] program mix. What are the main goals and intended impacts for each of your programs?

    Prompts only if needed:

        i. Do you have a real estate development strategy? If so, how much of your portfolio is made up of scattered site properties vs large multi-family homes? Is main goal in real estate preserving affordability or improving neighborhood conditions or…?
        ii. How are your community building efforts organized? Does [organization] serve mostly neighborhood residents? Or mostly tenant of your own properties? What are some of the issue oriented campaigns that are currently active or have been a prior focus?
        iii. Tell me about any financial education, homebuyer education, or asset development programming you offer? Who are the target clients (tenants or neighborhood residents)?

2. Data System Overview
    a. How do you track information about short term outputs (number of people served, units produced, leaders trained, etc) for each program?
    b. For how long have you been using [this/these] system[s]?
    c. *If systems within the last five years:* Tell me about how information was tracked before you began using your current system.
    d. What tools do you use to measure your more long term impacts? (Utilization of surveys? Market analysis?)

e. Who is responsible for keeping information up to date (by program)? How current is information stored in the database?
f. Are you satisfied with the system you use now? What are your major frustrations, or problems with your system? *(Probes of possible frustrations as needed)*
    i. User interface/navigation is difficult
    ii. Data entry is perceived as more burdensome than needed
    iii. Reporting is difficult (few know how to do it)
    iv. Duplicates or data quality is questionable
    v. Too expensive
    vi. Does not easily "sync" with other systems
    vii. Difficult to customize
    viii. "Buggy" or they system goes down without warning

D. Activities Enabled by Data System

Now I want to talk to you a little bit about what functions you have found valuable, and your overall satisfaction with the data system[s] [organization] uses.

1. What do you think is the most important function that your data system provides? Is there information or functionality that plays an important role in service delivery or program evaluation? On the other hand, what is your largest frustration? *[Below: areas to explore if they are not brought up]*
    a. Cross-reporting: Do you use your system to track whether individuals participate in several of your programs, or how a particular individuals participation has changed over time? How difficult is it to create such reports?
    b. Stronger institutional knowledge: Has the system made it easier/harder/about the same to train new employees?
    c. Meaningful Oversight: Has the system had an effect on how you evaluate staff performance? Is it a regular part of evaluating the effectiveness of programs?
    d. Would you recommend the system(s) you use to your peer organizations? Why or why not?

E. Resources needed to implement

Implementing a new data system can be a significant undertaking, and I'd like to know more about the process you went through in selecting the system you use now. Were other alternatives considered? What were the primary reasons that you went with the system[s] you're using now?

Probes to address as needed

1. Direct costs: What are your costs associated with licensing the software? Was this a major consideration when considering the system you would use?
2. Staff/consultant skills needed for setup: Did you hire a consultant to setup the system, or was it managed in house? What was the background of the person/people who managed the setup? Prior to this project, did they have a background in:
    a. Database design (software specific, or general?)
    b. Nonprofit evaluation
    c. Experience with CDCs, or knowledge of [organization's] programs
3. Staff/consultant skills needed for maintenance: If you wanted to make a revision to your system (add a field, change the user interface somehow, etc), how difficult would that be? How frequently are changes made to the system, and who is responsible for making changes?
3. Strategic Plans and Workplans: When thinking about the architecture of the system (fields to track, and where to put them), did you consult a strategic plan or workplan? How did you identify the information that should be tracked? Are there components of your strategic plans/workplans that are currently not tracked on an ongoing basis?

F. Document requests and closed-ended questions

Documents to request, in so far as they are unavailable online or through other sources

1. Copy of Strategic Plan
2. Copy of organizational, departmental, and/or individual workplans
3. Charts/figures/tables that are used to tell [organization's] story, and enabled by central data system
4. Screenshots of data system format – dashboards, reporting interface, information available at the individual level.

Specific Information to request only if unavailable from other sources:

5. Number of staff (by department)
6. Current operating budget
7. Real estate portfolio size
8. Measures of network size (Members, Residents served, total tenants)
9. Target geographies

G. Clarifications and Follow ups

1. Ask for clarification on any open questions.
2. Is there anyone else at the organization that I should speak to?
3. Is there another organization that you think is doing especially impressive evaluation work?

H. Conclusion

Thank you for making the time to have this conversation with you. If and when I do end up using a particular quotation from our conversation today, I will send it to you, so that you can review it before it is published. Finally, I would be happy to provide a final copy of this work once it is completed. In the mean time, please do not hesitate to contact me if you have any questions. Thank you!