SOUTH BRONX RISING TOGETHER

BLUEPRINT FOR A SOUTH BRONX RISING TOGETHER COLLECTIVE IMPACT DATA ENVIRONMENT

prepared by

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Contents

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Executive Summary

In July 2014 Children's Aid Society and Phipps Neighborhoods, as the Backbone Organizational representatives for South Bronx Rising Together (SBRT)[1], retained Exponent Partners to consult with their team to develop a "Blueprint" for a collective impact data system. The Blueprint will serve as a roadmap for the design and implementation of the SBRT information system, which will provide insight into the overall health and vibrancy of the South Bronx community through the tracking of the achievement of the seven SBRT goals and associated core indicators, as defined in the SBRT 2014 Baseline Report (South Bronx Rising Together 2014).

In response to this mandate, Exponent Partners proposed the creation of a Collective Impact Data Environment (CIDE). A CIDE connects historically fragmented data sets (e.g. education, health, social service, etc) through the intentional linking of existing databases and select data points that they contain. Establishing a CIDE is more complex than building a single programmatic database. However, the benefit of this approach is that creates an organic system that has the ability to respond to changing programmatic needs as well as evolving technology. Key components of the proposed CIDE system architecture include:

- Transactional systems that support the interaction between front-line workers and the client capturing critical related data points;
- Integration tools that support the "Extract, Transform, and Load" (ETL) process of taking data out of transactional systems and third-party data sources, adjusting it and standardizing it for the intended use;
- A data warehouse that unites critical data points from identified systems;
- A robust application programming interface (API) to achieve connectivity between systems; and
- A flexible set of business intelligence tools.

While there are a number of approaches to creating this architecture, the Blueprint recommends a Cloud Platform solution which utilizes cloud-based software applications. The benefit of a Cloud Platform approach is that it allows for rapid prototyping and requires less overall staffing support. This means a CIDE prototype could be ready for launch within six months.

Within the Cloud Platform category, there are a range of possible platforms and tools that can be applied. For the purposes of cost modeling, the Blueprint assumes the use of a combination of Salesforce-based solutions; however, it acknowledges that there are many other possible technology products that could be inserted in place of the proposed tools. The specific tools ultimately chosen will depend in part on

1 SBRT is a multi-stakeholder collaborative group committed to working together to create a community that is college and career ready. Data will be collected on youth ages zero to twenty-four who live or go to school in Bronx Community District-3 (CD-3).

cost, existing use by key partners, and anticipated ease of adoption/integration.

In terms of implementation, the Blueprint proposes a three phased approach including Pilot, Implement and Operate Phases. Learnings from each phase will inform subsequent scaling related to the number of goals, schools, users, and integrated data systems.

Approach

South Bronx Rising Together (SBRT) retained Exponent Partners to consult with their team to develop a data systems "Blueprint". The Blueprint will serve as a roadmap for establishing a Collective Impact Data Environment (CIDE). The term "Collective Impact Data Environment" was conceived of to support the StriveTogether Theory of Action, which provides benchmarks for collective impact initiatives. A CIDE supports the tracking of progress towards the achievement of collective impact goals and their associated core indicators. It also harnesses data for continuous quality improvement.

Establishing a CIDE is more complex than building a single programmatic database; however, the potential benefits of this approach are far greater. A traditional single database approach often creates a database that is redundant or duplicative of existing systems. It is built to support point in time programmatic requirements, and it is often difficult to modify or adapt to reflect evolving programmatic needs. In contrast, a CIDE connects historically fragmented data sets in education, health, after school programming, and general human services through the intentional linking of existing databases and the data they contain. It requires leveraging multiple technology tools. As opposed to a single technology solution, however, CIDE data infrastructure has the ability to grow and evolve over time in accordance with the collective impact initiative.

The SBRT Blueprint was informed by preceding research and analysis, the results of which are contained within the SBRT CIDE Blueprint Compendium. The learnings gained through this process were used to customize Exponent Partners' CIDE Blueprint specifically for SBRT. The SBRT CIDE Blueprint is comprised of the following three components:

1. **Data Conditions:** It provides an overview of the SBRT collective impact goals and data collection needs, identifies opportunities to leverage existing data and informational systems, and establishes guiding assumptions that inform the further development of the Blueprint.

2. **System Framework:** It identifies the CIDE system purpose and requirements, key users and uses, types of data to be tracked, security and access rights, and approach to data sharing.

3. **Build Recommendations:** Details the approach to building and supporting the CIDE including a proposed systems architecture, implementation approach, and budgetary guidance.

Data Conditions

SBRT GOALS AND DATA COLLECTION NEEDS

Children's Aid Society and Phipps Neighborhoods led the formation of South Bronx Rising Together (SBRT). A multi-stakeholder collaborative group comprised of residents, community leaders, service providers, and educators, this group is committed to working together to create a community that is college and career ready. Leveraging the expertise of a network of families, educators, business leaders, community advocates and service providers, it will support the lifelong success of families and youth in the community. The defined target population for SBRT is youth age zero to twenty-four who live or go to school within the Bronx Community District 3 (CD-3).

SBRT is applying the StriveTogether Framework for building a "cradle to career civic infrastructure". The StriveTogether Framework promotes four key principles, one of which is evidence-based decision making. Evidence-based decision making requires all participating organizations to agree on the ways success will be measured and reported, with a short list of common indicators identified and used for learning and improvement (Developing Shared Measures 2013). This in turn requires a data system that supports the collection, aggregation and analysis of common indicators and supports the ability to relate outcomes to key service delivery data for the purposes of continuous improvement.

SBRT needs a data system to support this evidence-based decision making imperative. It must support the collection, tracking and reporting of services related to their Cradle to Career initiatives and provide insight into positive change related to the seven goals and associated core indicators presented in ***Figure 1*** below (South Bronx Rising Together 2014).

GOAL	CORE INDICATORS
1. All are healthy	Asthma-related emergency room visits and hospitalizations
2. All are ready for kindergarten.	Enrollment in formal early learning programs
	Proficiency in Common Core pre-kindergarten standard
3. All succeed in school	Proficiency in English language arts standards by 3rd grade
	Proficiency in mathematics standards by 8th grade
	Credit accumulation in first year of high school
4. All contribute positively to the community	Voter turnout
5. All graduate high school ready for college and career.	Four-year high school graduation rate
	Rates of Free Application for Federal Student Aid (FAFSA) completion
6. All attain post-secondary degree/credential	Post-secondary enrollment and persistence
7. All begin a career	Employment rate

Figure 1 South Bronx Rising Together Goals and Core Indicators

OPPORTUNITIES TO LEVERAGE EXISTING DATA AND INFORMATION SYSTEMS

As previously stated, the CIDE seeks to leverage existing data and informational systems as opposed to recreating or duplicating these systems. Therefore identifying existing data and informational resources that can be integrated into the SBRT CIDE is critical. This process included a review and analysis of the following: 1) National Collective Impact Data Landscape, 2) Existing Community Data Systems, 3) Role of Community Schools and Data Collection Opportunities. An overview of the findings follows.

National Collective Impact Data Landscape

Exponent Partners reviewed data systems in use by other collective impact initiatives with the goal of identifying technologies and/or best practices that could be recommended for adoption by SBRT. This included a review of the following five nationally recognized initiatives' data systems: CityConnects (CCNX) in Boston; Indianola Promise Community (IPC) in the Mississippi Delta; New Visions for Public Schools in New York City; ROC the Future in Rochester, NY; and the Strive Partnership in Cincinnati. We reviewed each program's data system, the respective system infrastructure, and the process undertaken to build and maintain the systems. We then identified commonalities across the five systems and features or attributes that may be relevant to SBRT. While we concluded that there was no one technology solution in use by these programs that could be easily replicated and deployed to support the SBRT data system needs, we did identify commonalities in their systems framework and approaches to implementation and maintenance. These learnings, detailed in Compendium, informed the development of the SBRT CIDE Blueprint.

Community Data Systems

Exponent Partners explored opportunities to repurpose existing data systems already in use by SBRT partners. We reviewed the following five data systems: CityConnects (CCNX), DYCD Online, HHS Worker Connect, New Visions for Public Schools Data Sorter, and YouthServices.net. Each technology platform was analyzed for its suitability as a data system solution for SBRT as well as the potential relevancy of each system's data to SBRT's Cradle to Career Initiative. While we did not find that the existing systems were viable technology platforms for SBRT, we did identify distinct opportunities to leverage these systems so that they become valuable components of a SBRT data environment. Three systems specifically, New Visions Data Sorter, HHS Worker Connect, and DYCD Online, contain potentially high volumes of relevant data for South Bronx youth.

Role of Community Schools and Data Collection Opportunities

Education and specifically community schools play an integral role in SBRT. Four of the seven SBRT goals are education related, and three of those goals are rooted in pre-K to 12th grade education. The remaining three goals influence the educational outcomes and vice versa. While community schools are

accountable for the academic success of their students, they take into consideration the holistic needs of students and families and recognize the implications those needs have on educational performance. They are focused on ensuring that students are healthy physically, socially, and emotionally. Currently there are 21 community schools located within CD-3, and it is likely that number will increase by 2017. Similar to a community-wide collective impact initiative, a community school must be able to collect, track and analyze data for its defined student population. It must be able to track identifiable individual-level data to be used to inform student-level intervention, but also be able to aggregate this data for analysis at the school level (Belay, Mader, and Miller 2014, 10). Given the critical role that community schools play within CD-3, SBRT believes there is a unique opportunity to leverage community schools as a building block for SBRT and more specifically the SBRT CIDE.

GUIDING ASSUMPTIONS

The described research and analysis resulted in the following three guiding assumptions, which informed the development of the SBRT CIDE Blueprint:

- There is no single standard technology solution that meets the comprehensive needs of SBRT.
- There are existing community data systems that contain data relevant to SBRT that have the potential to serve as integral components of the SBRT CIDE.
- A data system that supports a community school can be scaled to support the needs of a broader community-based collective impact initiative.

System Framework

SYSTEM PURPOSE & REQUIREMENTS

The overarching purpose of the CIDE is to equip service providers with critical information needed to better target services and support with the goal of improving long-term outcomes for youth. To do this the SBRT CIDE must connect historically fragmented data sets such as education, health, after-school programming and housing to create a more comprehensive and holistic view of youth at an individual and aggregate level. Additionally, it must be able to link identifiable individual-level demographic data, risk and assessment data, performance and outcomes data, and services and intervention data to support continuous quality improvement for the individual youth and the community level.

SYSTEM USERS AND USES

In the proposed model, the community school serves as a primary point of data collection and aggregation for youth attending school in CD-3. Given this condition the proposed data system will need to support the five broad categories of users and corresponding uses. These categories of users and uses were adapted from ***Exponent Partner's Collective Impact Users and Uses Chart***, which is included in the Compendium, to reflect the specific needs of SBRT. There are nuances within each of these categories that will inform level of access. The five categories of users are described below.

- The category of **front-line workers** includes community school coordination teams such as teachers, guidance counselors, and school social workers engaging with students daily to assess needs and connect both students and families to a range of community supports beyond academic domains. These individuals need to access student level data that will help them in identifying risk factors, track service delivery and related outcome achievements.

- **Principals and school administrators** are responsible for making sure their schools are effectively educating students. To this end, they need to access student summary data for the purposes of understanding overall student performance, assessing school level performance and identifying opportunities for quality improvement.

- **Collaborative Action Networks (CANs) members** are individuals serving on councils comprised of representatives from the collective impact partners, charged with overseeing the achievement of specific collective impact goals and guiding the continuous quality improvement process. Members of the CAN need access to aggregate performance data as it relates to a specific goal and related indicators.

- Researchers are tasked with performing a formal program evaluation and will need access to both aggregate as well as individual-level de-identified data.
- Funders and other community level stakeholders need to understand if both population and performance-level goals are being achieved as well as the change over time. This requires access to aggregate performance data.

DATA CHARACTERISTICS

The SBRT CIDE must be able to track and report along a complete data spectrum. At one end of the spectrum is identified individual student-level data. Identifiable student level data is needed to assess needs and track services and resources. At the opposite end is aggregate summary data representing community-level performance. This information is used to both evaluate the effectiveness of interventions at a population-level as well as to communicate progress. An overview of key points along this spectrum and the aligned uses is provided in the table below.

USES	INDIVIDUAL DATA		AGGREGATE/SUMMARY DATA			
	Identified	De-Identified	Program(s)	School (Organization)	Cohort Of Schools (Collective)	CD-3 (Community)
Assessment and Service Delivery	√					
Performance Monitoring & Measurement [1]	√		√			
Performance Management & Continuous Improvement [2]		√	√	√	√	
Program Evaluation		√	√	√	√	√
Communication (external to stakeholders)	NA	NA		√	√	√

Figure 2 South Bronx Rising Together Data Characteristics

SECURITY, ACCESS, DATA SHARING AND CONSENT

The SBRT CIDE will need to comply with the Family Educational Rights and Privacy Act (FERPA) as well as the U.S. Health Insurance Portability and Accountability Act of 1996 (HIPAA). In general, both regulations restrict access to data so that the user is only seeing the "minimum necessary" information to do his or her job. This means that data systems typically restrict access to individual client records based on a user profile and corresponding system use. For example, in the case of the SBRT, a CityConnects

[1] *Used for benchmarking individual against aggregate program or program cohort*

[2] *Related to "collective" aggregate data that would be relevant to CANs for comparative benchmarking and analysis*

Coordinator, an employee of a community-based organization, would only be allowed access to records for those students assigned to their caseload as opposed to every student in a school. Or members of a CAN would only have access to aggregate data related to their goal performance as a whole as opposed to having the ability to review individual student-level records.

Both HIPAA and FERPA require that proper disclosures are in place to notify parents and guardians about the intended use of their data and provide them with an opportunity to "opt out" of the sharing. This process will need to be documented through a consent form, which will need to be updated on an annual basis.

Additionally, there are usually data sharing agreements across providers that solidify these principles of sharing. Accessing data available through other external systems will also require the execution of data sharing agreements. These agreements will require that families are made aware of how their data is being used and accessed.

FERPA is a Federal law that protects the privacy of student education records. The law applies to all schools that receive funds under an applicable program of the U.S. Department of Education (US DOE). Generally, schools must have written permission from the parent or eligible student in order to release any information from a student's education record. However, FERPA allows schools to disclose those records, without consent, to distinctly defined parties or under specific conditions (34 CFR § 99.31):

- School officials with legitimate educational interest;
- Other schools to which a student is transferring;
- Specified officials for audit or evaluation purposes;
- Appropriate parties in connection with financial aid to a student;
- Organizations conducting certain studies for or on behalf of the school;
- Accrediting organizations;
- To comply with a judicial order or lawfully issued subpoena;
- Appropriate officials in cases of health and safety emergencies; and
- State and local authorities, within a juvenile justice system, pursuant to specific state law.

The purpose of **HIPAA** is to improve portability of health insurance coverage, reduce healthcare fraud and abuse, and to protect individual privacy of personal health records. HIPAA is comprised of two key Rules: the "Privacy Rule" and the "Security Rule".

The Privacy rule protects the privacy of individually identifiable health information while balancing the need for providers to share information. According to a related summary, "A major goal of the Privacy Rule is to assure that individuals' health information is properly protected while allowing the flow of health information needed to provide and promote high quality health care and to protect the public's health and well being."

As stated by the U.S. Department of Health and Human Services the Security Rule provides national standards for the security of electronic protected health information. It operationalizes the protections contained in the Privacy Rule by addressing the technical and non-technical safeguards that organizations called "covered entities" must put in place to secure individuals' "electronic protected health information".

Build Recommendations

SYSTEMS ARCHITECTURE

The Exponent Partners Collective Impact Data Framework names and defines a set of technology tools and capabilities which together make up the systems architecture supporting collective success. ***Figure 3*** below shows this generalized systems architecture.

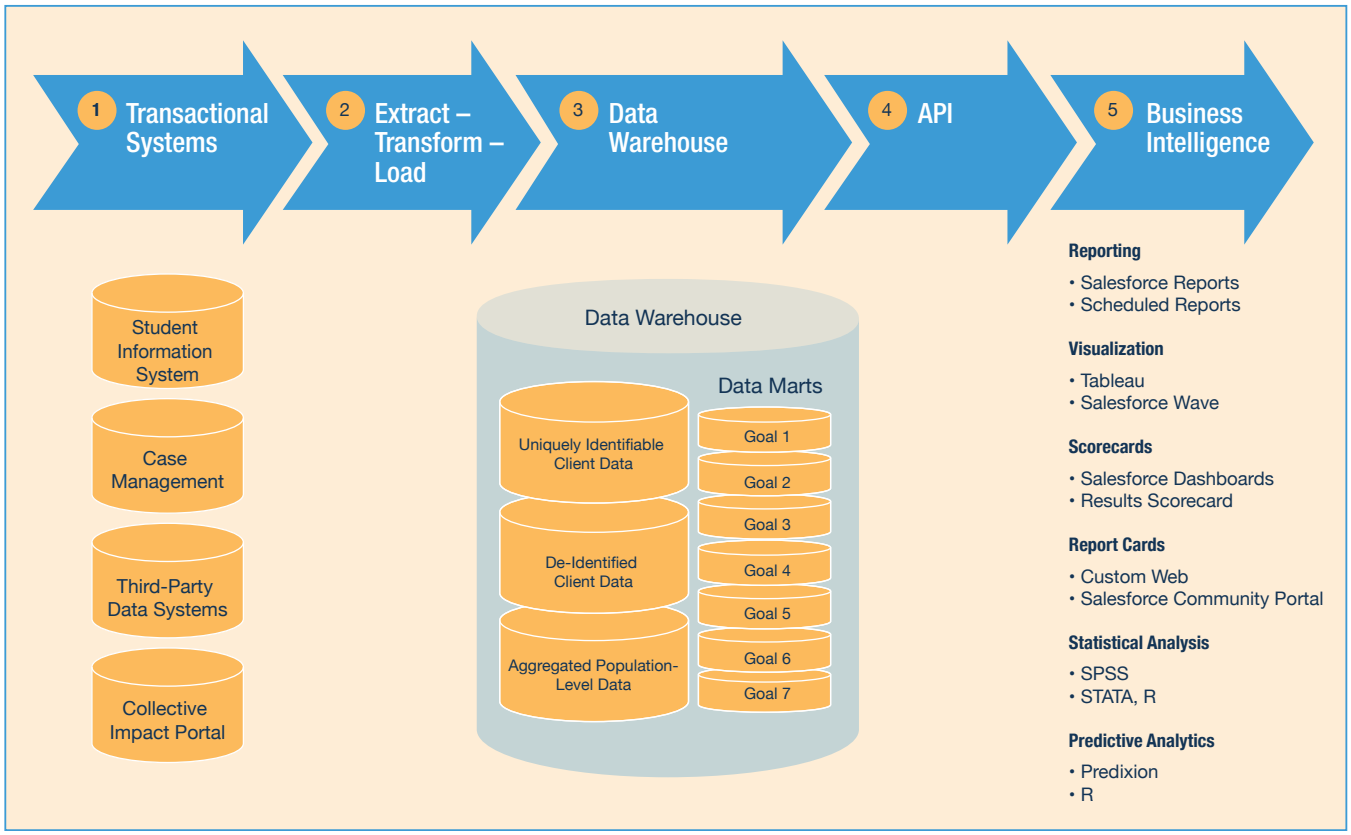


Figure 3 Generalized Collective Impact Systems Architecture

Choosing the Preferred Systems Approach

Within this generalized systems architecture, there are a broad set of technologies, applications, and uses represented. There are almost limitless combinations of technologies and approaches that may be evaluated. Based on our analysis of the SBRT CIDE, we recommend that a 'Cloud Platform' represents the best value for SBRT. Briefly, the three approaches are defined and evaluated as follows and summarized in ***Figure 4***.

An Enterprise Custom solution is built by a commercial enterprise for its own business purposes, and custom-integrated from a variety of hardware and software tools. Typically these require very high levels of internal and external technology design, implementation, and management expertise, take on the order of 12 to 18 months to reach pilot production, and cost at least several million dollars.

A Cloud Custom solution is also custom-integrated, but is assembled from emergent cloud-based software components. The upfront cost barriers are significantly lower than enterprise custom, because the base levels of hardware, operating systems, and data center are provided as part of the cloud service. This approach typically utilizes Infrastructure as a Service (IaaS) services such as Google App Engine, Amazon Elastic Compute Cloud, or Microsoft Azure, as well as 'IaaS+' services such as Amazon Redshift, Google BigQuery, and Microsoft Azure SQL Data Warehouse. This approach still requires high levels of internal and external design, implementation, and management expertise. Cloud Custom approaches can take on the order of 6 to 12 months to reach pilot production. Software licensing is usually a lower cost component, but staff costs are high compared to Cloud Platform, and only slightly lower than Enterprise Custom approaches.

A Cloud Platform solution based on cloud-based software applications which are typically pre-integrated, and may only require provisioning and varying levels of configuration. Configuration can be quite significant and complex, but does not require programming to reach prototype and pilot stages. This approach typically utilizes Platform as a Service (PaaS) and Software as a Service (SaaS) services such as Salesforce App Cloud, Salesforce Analytics Cloud, Birst, GoodData, and others. Software licensing may be higher than in the Cloud Custom approach (but still dramatically less than Enterprise Custom), as SaaS offerings incorporate more functionality than IaaS solutions. Cloud Platform solutions will be the fastest to provision and prototype, reaching the pilot stage in less than 6 months. This speed is supported by the lower staffing demands of a configurable platform as opposed to the programming demands of the other approaches.

	ENTERPRISE CUSTOM	CLOUD CUSTOM	CLOUD PLATFORM
Technical Model	On-Premise	IaaS	PaaS, SaaS
Hardware Cost	$$$$	n/a	n/a
Software Licensing Cost	$$$$	$	$$
Time to Provision Infrastructure [1]	Quarters	Months	Days
Time to Prototype Applications [2]	Months	Months	Weeks
Cost to Provision	$$$$	$$	$
Cost to Prototype	$$$$	$$	$
Provisioning Model	Programming	Programming	Configuration
Prototyping Model	Programming	Programming	Configuration

Figure 4 Summary of major CIDE systems approaches

[1] *Provision means to install hardware and software and make it ready to install business applications.*

[2] *Prototype makes the hardware, software, and prototype applications available to backbone organizations staff.*

Technology Tools Selection

Within the Cloud Platform category there are a range of possible technology solutions. For the purposes of modeling a solution, we have selected to apply a suite of Salesforce tools. We believe that Salesforce tools offer the fastest and most affordable "out of the box" solution for designing and prototyping a CIDE solution in the short term. This is because all the solutions are pre-integrated, accelerating time to pilot and reducing the level of technology staffing required. While Salesforce-experienced staff are not inexpensive, the pilot implementation can be developed with business analysts and systems administrators, and not programmers, database architects, and database administrators as would be required with custom approaches. Additionally, all the Salesforce solutions are natively built on open APIs which provides the most risk mitigation in the extremely heterogenous systems environment. These APIs also reduce the risk of being locked in to certain technologies as the CIDE scales. As the CIDE scales, there may be lower cost technology solutions that replace these Salesforce tools.

Figure 5 below shows the way that the integrated set of Salesforce-based solutions combine to meet the CIDE functional requirements.

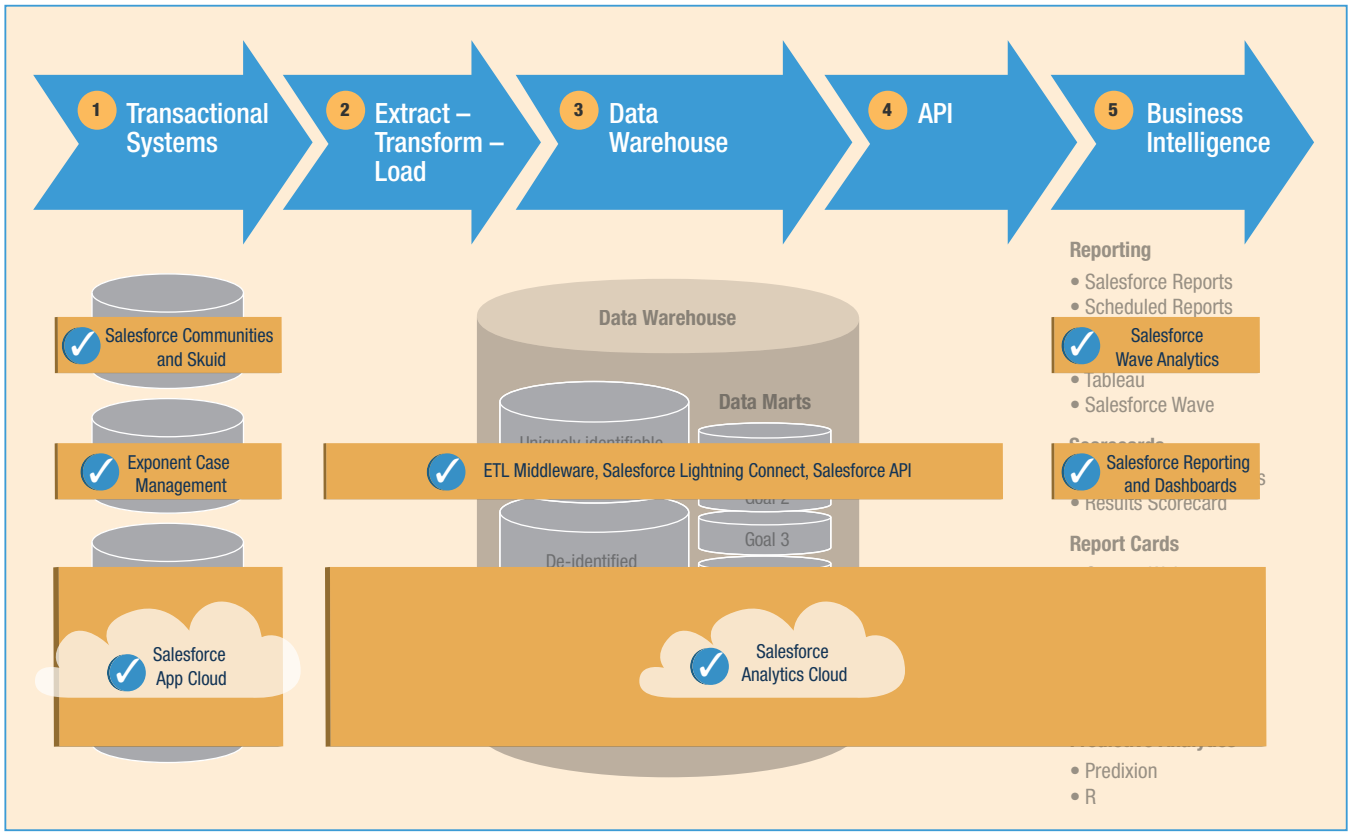


Figure 5 Building a rapid, scalable CIDE on the Salesforce platform

The specific Salesforce solutions and license types required to build this solution are shown in the following ***Figure 6.*** Cost information for the various license types is provided below in the budgetary guidance section.

PRODUCT	SOLUTION	USER LICENSE(S)
Salesforce App Cloud	Full-featured cloud platform, providing database, analytics, application environment, ETL and API	• Enterprise Edition • Platform Edition
Salesforce Communities	Portal provides lower-cost license for front-line users	• Partner Community
Skuid	Simple, code-free user experience (UX) software for rapid prototyping, adoption, and success	• Skuid Platform • Skuid Community
Salesforce Wave Analytics	Cloud data warehouse, data mart, and business intelligence solution pre-integrated into the Salesforce App platform	• Wave Analytics cloud
Exponent Case Management	Salesforce AppExchange application for managing any social services and education program	• Exponent Case Management
Jitterbit	Tools for connecting and integrating data from multiple source systems—transactional systems, data marts, and data warehouses	• Salesforce API (no cost) • Salesforce Wave API (no cost) • Jitterbit Harmony

Figure 6 Components of a unified Salesforce CIDE platform

IMPLEMENTATION APPROACH

The approach needed to design the SBRT CIDE takes several factors into consideration that are unique to this program.

1. The solution should take advantage of the emergent practices in the collective impact space, notably the StriveTogether Theory of Action and its phasing.

2. There are few established data systems best practices for collective impact, and the collective impact data system framework developed will inevitably evolve over time.

3. The SBRT collective impact initiative is currently in the "Emerging" phase, and the detailed requirements for the CIDE will undergo significant changes over time.

4. The SBRT Collective Impact Initiative operates in an extremely heterogeneous systems environment. There are literally dozens if not hundreds of systems that will participate at some level or another in the CIDE over its lifespan. Rapid prototyping, strong systems integration capabilities, and availability for APIs in all elements of the CIDE are indicated by this factor.

These factors strongly suggest a lean and iterative approach with rapid prototyping. This provides the

most appropriate program framework to minimize cost and risk while maximizing learning, short-term value, and the continuous learning required in rapidly-changing environments.

To support this iterative approach, we propose a roll out comprised of three phases: Pilot, Implement, and Operate. During the pilot phase we will prototype a solution working with two to three schools with a focus on two goal areas. Targeting the scope of the prototype will allow the technical team to focus the design of fundamental system architecture. That architecture can then be expanded to support additional schools, users and goal areas. Details of this phased approach are provided in the **CIDE Development Timeline** and **Staffing Guidance** sections.

CIDE Development Timeline

Based on these tenets, the proposed timeline to build the SBRT CIDE includes three phases, Pilot, Implement, and Operate. These phases and their correlation to the StriveTogether Theory of Action phases are further illustrated in ***Figure 7***.

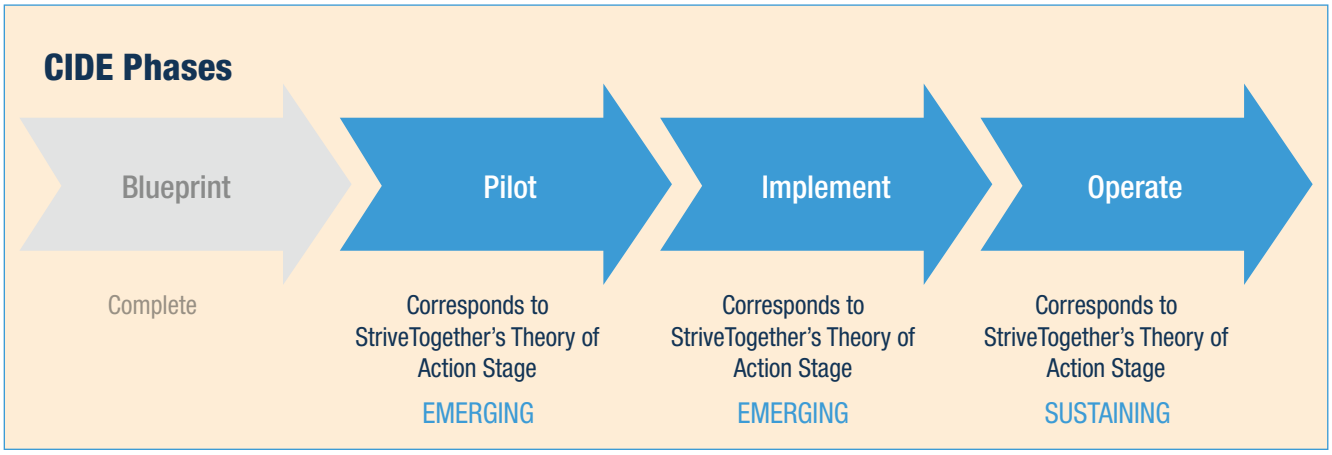


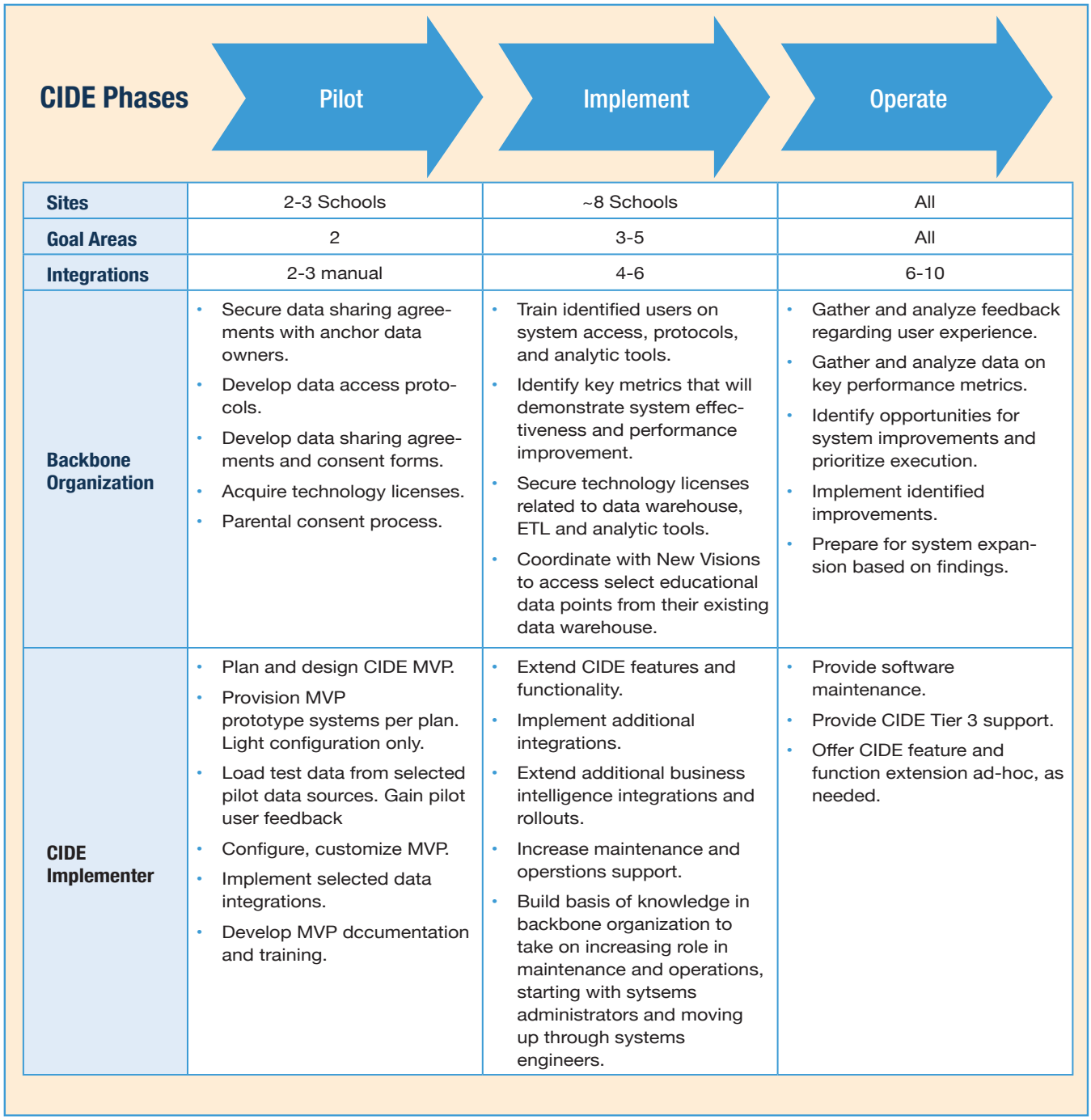
Figure 7 Timeline for building the SBRT CIDE

The three CIDE development phases are described immediately below. Subsequently, figure 8 shows the assumptions and typical tasks expected to occur in each phase, divided by whether the work is more reasonably and effectively delivered by the SBRT backbone organization or by the CIDE implementation team.

- In the **Pilot Phase**, the SBRT CIDE implementation team will plan, create prototypes rapidly, and deliver a minimum viable product (MVP) that is developed based on stakeholder feedback to the prototype.
- In the **Implementation Phase**, the MVP is rolled out to the pilot users and also to the initial large

group of production users. Throughout the implementation phase, the backbone organization will focus on receiving and prioritizing user feedback, as well as adding new users, goal areas, and data sources. The CIDE implementation team will focus on agile feature extension and enhancement. Finally, internally the two teams will focus on transitioning knowledge to the backbone organization staff to accelerate self-sufficiency.

- In the **Operate Phase**, the focus for feature development and enhancement shifts toward routine software maintenance and limited new features, high-quality user support, and further transition of support and maintenance from the CIDE implementation team to the SBRT backbone organization staff.



Sites	2-3 Schools	~8 Schools	All
Goal Areas	2	3-5	All
Integrations	2-3 manual	4-6	6-10
Backbone Organization	• Secure data sharing agreements with anchor data owners. • Develop data access protocols. • Develop data sharing agreements and consent forms. • Acquire technology licenses. • Parental consent process.	• Train identified users on system access, protocols, and analytic tools. • Identify key metrics that will demonstrate system effectiveness and performance improvement. • Secure technology licenses related to data warehouse, ETL and analytic tools. • Coordinate with New Visions to access select educational data points from their existing data warehouse.	• Gather and analyze feedback regarding user experience. • Gather and analyze data on key performance metrics. • Identify opportunities for system improvements and prioritize execution. • Implement identified improvements. • Prepare for system expansion based on findings.
CIDE Implementer	• Plan and design CIDE MVP. • Provision MVP prototype systems per plan. Light configuration only. • Load test data from selected pilot data sources. Gain pilot user feedback • Configure, customize MVP. • Implement selected data integrations. • Develop MVP dccumentation and training.	• Extend CIDE features and functionality. • Implement additional integrations. • Extend additional business intelligence integrations and rollouts. • Increase maintenance and operstions support. • Build basis of knowledge in backbone organization to take on increasing role in maintenance and operations, starting with sytsems administrators and moving up through systems engineers.	• Provide software maintenance. • Provide CIDE Tier 3 support. • Offer CIDE feature and function extension ad-hoc, as needed.

Figure 8 High-level CIDE development and support tasks and assumptions by phase

Staffing Guidance

To illuminate the level of effort required and the types of skill sets that are required, a pro-forma plan for roles and staffing levels is included. Please note that this is based on Exponent Partners' experience with projects and programs of similar size and complexity. However, it is important to note that there is still a high degree of variability in the estimates below. These estimates will be refined in the planning work of the pilot phase.

PROPOSED ROLE	ESTIMATED FTE STAFFING LEVEL		
	PILOT	IMPLEMENT	OPERATE
Backbone Agency Staff			
Product Owner	Med	Med	Med
Data Manager	Med	Med	Med
Systems Administrator	High	High	High
Help Desk Analyst	Low	Med	High
Data Manager	Med	High	High
Total	2.75	4.0	4.0
Data Systems Implementation Staff			
Business Analyst	High	Med	Low
Solution / Data Architect	High	Med	Low
Senior Consultant	Med	Med	Low
Developer (Scrum Master)	Low	Low	Low
QA Analyst	High	Low	Low
Project Manager	Med	Low	Low
Senior Support Analyst	Low	Med	Low
Estimated Blended Team	2.5	2.5	1.5

Figure 9 Budgetary estimated staffing levels for developing and supporting the SBRT CIDE.

BUDGETARY GUIDANCE

Summary of SBRT CIDE License Cost and Staffing Level

To provide insight into the costs associated with building this proposed CIDE we developed a pro-forma model. The model presented here assumes the use of the previously proposed Salesforce suite of tools; however, any other tools can be substituted.

One significant driver of system costs is the number of system users. ***Figure 10*** establishes assumptions regarding the types and quantity of specific users and scaling factors. These assumptions are used to calculate associated license costs, which are documented in ***Figure 11***.

It is important to note that the assumptions made in this model are just that. Actual costs will vary based on:

- Assignment of work between collective impact staff and contract staff;
- Selection of CIDE component tools;
- Recruitment and therefore scaling assumptions of SBRT collaborative size and scope;
- Skill, capacity, and agility of SBRT backbone organization team;
- Technology license pricing at time of purchase.

CIDE System User Assumptions

The user types described here are based on those defined in the Exponent Partners Collective Impact Data Framework. The key factors: numbers of schools, number of goal areas, number of collaboratives, and users per user type are all variables in the model shown in ***Figure 10***, CIDE System User Worksheet, and drive the assumptions and therefore license estimation.

Scaling Factor	Piot Phase	Implement Phase	Operate Phase
Number of Schools	3	8	21
Number of Goal Areas	2	4	7
Number of Collaboratives	1	1	1

USER TYPE [1]	EXAMPLES	SCALING FACTOR	NUMBER OF USERS PER SCALING FACTOR	PILOT PHASE USERS	IMPLEMENT PHASE USERS	OPERATE PHASE USERS
Frontline Workers	• Teacher • CityConnect Coordinator • Social Workers	Number of schools supported by the CIDE	5	15	40	105
Leaders	• Principals • Community School Coordinator • School Administrators	Number of schools supported by the CIDE	5	15	40	105
Collaborative Action Network (CAN) representatives	• CAN Representatives	Number of goal areas supported by the CIDE	3	6	12	21
Researchers		Number of CI collaboratives supported by the CIDE	3	3	3	3
Funders and other community level stakeholders	• Product Owner • Systems Administrator	N/A [2]	0	0	0	0
Backbone Organization Systems Users	• Senior Consultant • Developer	Number of CI collaboratives supported by the CIDE	4	4	4	4
Implementation Team Users		Number of CI collaboratives supported by the CIDE	2	2	2	2
		TOTALS:		45	101	240

Figure 10 CIDE System User Worksheet

CIDE Licenses and Cost Per User Type

The CIDE is a sophisticated data environment for end-to-end tracking of data for collective impact. Each of the defined user types may require one or more software licenses to support the uses anticipated for that user type. ***Figure 11*** below documents this relationship and the license cost guidance. These license assumptions are conservative, with final license selection coming out of the planning activity in the Pilot Phase.

USER TYPE	LICENSES	ANNUAL LICENSE COST	PILOT PHASE USERS	IMPLEMENT PHASE USERS	OPERATE PHASE USERS
Frontline Workers	• Salesforce Communities • Exponent Case Management • Skuid Community	$XXX	XX	XX	XXX
	Subtotal Estimate:	$XXX	$XXX	$XXX	$XXX
Leaders	• Salesforce Lightning Enterprise Edition • Exponent Case Management • Salesforce Analytics Cloud	$XXX	XX	XX	XXX
	Subtotal Estimate:	$XXX	$XXX	$XXX	$XXX
Collaborative Action Network (CAN) Representatives	None	$XXX	XX	XX	XXX
	Subtotal Estimate:	$XXX	$XXX	$XXX	$XXX
Researchers	• Salesforce Lightning Enterprise Edition • Salesforce Analytics Cloud	$XXX	XX	XX	XXX
	Subtotal Estimate:	$XXX	$XXX	$XXX	$XXX
Funders and Other Community-Level Stakeholders	None	$XXX	XX	XX	XXX
	Subtotal Estimate:	$XXX	$XXX	$XXX	$XXX
Backbone Organization Systems Users	• Salesforce Lightning Enterprise Edition • Exponent Case Management • Salesforce Analytics Cloud	$XXX	XX	XX	XXX
	Subtotal Estimate:	$XXX	$XXX	$XXX	$XXX
Implementation Team Users	• Salesforce Lightning Enterprise Edition • Exponent Case Management • Salesforce Analytics Cloud	$XXX	XX	XX	XXX
	Subtotal Estimate:	$XXX	$XXX	$XXX	$XXX
		TOTAL ESTIMATE:	$XXX	$XXX	$XXX

Figure 11 CIDE Licenses and Cost per Phase. Salesforce pricing for reference only, please contact Salesforce.org for official license pricing.

Summary of SBRT CIDE Blueprint Guidance

In summary, our key SBRT Collective Impact Data Environment Blueprint Guidance follows. The CIDE must:

- Equip service providers with critical information needed to provide targeted services and supports that will create a community that is college and career ready.
- Initially be built to support community schools and scaled over time to support the broader SBRT initiative.
- Rely on five types of technology tools, including transactional data systems, Extract-Transform Load (ETL) technology, data warehouse, APIs and business intelligence technology.
- Connect critical data from other existing community data systems.
- Develop a prototype initially built on the Salesforce platform with consideration given to transitioning to an alternate platform as the system scale increases.
- Apply a three-phased approach that scales schools, users and goals over a three-year period.
- Rely on both an in-house and outsourced technology team.

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