

REPORT

Companion Document for the Strategic Data Project and Education Pioneers Year 2 Report: Changing Education Agencies from the Inside Out

October 29, 2014

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I. INTRODUCTION

The 12 profiles in this document are summaries of each agency's experience with using data and working with Strategic Data Project (SDP) and Education Pioneers (EP) fellows. Mathematica Policy Research developed the profiles using data collected from interviews conducted during site visits in fall and winter 2013–14. The interviews focused on the data collection efforts of the study participants, which included state education agencies, schools districts and a charter management organization (CMO); their use of the data; the analyses conducted; and their reporting efforts. We provide the background about the SDU and EP fellowship programs and the purpose and methodology for the study in *Changing Education Agencies from the Inside Out: Year 2 Report on the Strategic Data Project and Education Pioneers*.

The first 7 profiles (Agencies A–G) participated in the study during the 2012–13 year and again in 2013–14. The remaining 5 (Agencies H–L) participated only for the 2013–14 school year.

Each profile contains the following information:

- **Background and context for data use.** A summary of the agency's background and context for data use, including data systems, staff expertise and development, and partnerships and resources.
- **Working with SDP/EP fellows.** A description of the fellows' agency-specific data projects.
- **Data analysis and reporting.** A summary of the agency's data analysis and reporting efforts for the 2013–14 school year.
- **Challenges encountered and lessons learned.** A review of difficulties and lessons learned during the agency's partnership with SDP or EP.

Each profile also includes an organizational chart that displays the path from each fellow's positioning within the organization to the agency leadership. The full organizational chart showing all divisions in the agency is not shown; each organizational chart depicts only the branches that lead to the fellow's position to show where he or she served in relation to other fellows and agency leaders. Some agencies in the study employ SDP or EP fellows in permanent positions after their fellowship ends, but the organizational chart does not reflect their placement.

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II. AGENCY A—STATE EDUCATION AGENCY

In 2010, this state education agency created a new office, the Commissioner’s Delivery Unit (CDU), made up of the three SDP fellows and their supervisor—the chief performance officer. The goal of the CDU is to provide analytical support to leaders of the agency as they direct the agency’s initiatives, which emphasize college and career readiness.

The fellows helped set performance goals, monitored progress toward meeting the goals, conducted supplemental research related to the agency’s priority areas, and led data training sessions for agency staff.

A. Background and context for data use

For the 2012–13 school year, the agency’s strategic plan set goals in four key areas, which the agency refers to as delivery plans: (1) college and career readiness, (2) proficiency, (3) closing the achievement gap, and (4) next generation professionals. The agency failed to meet its targets during that school year for two areas—proficiency and closing the achievement gap. In the 2013–14 school year, it restructured to have more focused plans with fewer strategies. The four plans in the 2012–13 structure had more than 30 strategies that had to be met to achieve the goals; the revised structure has three plans and 12 strategies. The plans in the new structure are: (1) next generation learners, which includes the college and career readiness, proficiency, and achievement gap goals; (2) next generation professionals, which focuses on goals related to teacher and principal effectiveness; and (3) next generation support systems, which focuses on planning, monitoring, and continuous improvement across the entire K–12 system.

Data system. The agency has continued to develop for districts, schools, and teachers the content for a statewide tool that provides data visualizations, customizable data reports, curriculum, and test items. During 2013–14, agency staff focused on developing an educator development suite (EDS) within the data system. The EDS includes professional development materials, student growth information, data from student surveys, and a teacher evaluation rubric. The agency intends to eventually assemble all information for evaluating teacher and principal effectiveness within this system. In December 2013, the system had more than 1 million hits from users—school teachers, principals, and counselors. This far exceeded the agency’s expectations for usage.

Staff expertise and development. Agency staff have high regard for data and have made improvements in how to use data to measure their own work and how to use trajectories, an estimating function that shows progress toward a goal. SDP fellows conducted data workshops about once every six months and provided informal professional development through conversations with staff during strategy meetings and other interactions. The fellows attended professional development sessions conducted by SDP about four to six times per year, and they typically returned to the agency with new ideas for presenting or drawing correlations with data.

Agency spotlight

Program partner: SDP

Partner since: 2012

Number of fellows:

One agency fellow; two data fellows

Project description: SDP fellows monitor progress toward achieving goals, conduct analyses, and train staff.

In addition, the fellows had the option to take courses at a nearby university to become certified project managers; one fellow was undertaking this process.

Partnerships and resources. A range of partners and funders support the agency’s data use efforts. The agency contributes data to a center for education and workforce statistics that produces a high school feedback report. The 2013–14 school year was the first time that the center had sufficient data to report outcomes of students once they are attending college, such as persistence beyond the freshman year and grade point average. The district also partners with several external organizations for specific data projects. For example, one organization helps conduct focus groups for work related to teacher and leader effectiveness; another conducts a statewide survey.

B. Working with SDP fellows

During the second year of the agency’s partnership with SDP, the fellows continued to serve the primary functions of measuring progress toward strategic goals, building data capacity in the agency, and conducting research analysis in support of the agency’s mission. They worked under the direction of the CDU’s chief performance officer, who reports directly to the commissioner. Two of the three fellows were in the second year of their fellowships during the 2013–14 school year, and they continued the projects they began in 2012. One fellow was new to the program in 2013–14. The fellows focused on these primary activities:

- **Analyzing teacher and principal effectiveness data.**

One fellow continued work under the next generation professionals delivery plan. The work included analyzing data from the Teaching, Empowering, Leading, and Learning (TELL) workplace conditions survey and assessing correlations between student growth and various measures of teacher and leader effectiveness. These analyses inform agency leaders’ decisions relating to how to incorporate measures of teacher effectiveness into the statewide teacher evaluation system.

Key data activity: analyze educator effectiveness data

Conduct analyses of data relating to teacher and leader effectiveness to guide decision making on their use in the revised system

- **Consulting strategy leads.** One fellow acted as an “on-site consultant” to strategy leads—the agency leaders responsible for implementing a strategy for achieving the goals of one of the three delivery plans. When a strategy lead wanted to begin work in a new area, the fellow provided research-based advice. The fellow also conducted analyses to help the strategy lead interpret data and determine next steps.

Key data activity: consult with strategy leads

Provide advice and analyses to strategy leads to help with data-based decision making

- **Monitoring progress of the delivery plans.** One fellow, with assistance from other fellows, monitored the progress of delivery plans and conducted quarterly strategy assessment meetings. The meetings focused on the specific targets set for the year and strategies for overcoming obstacles, including technical

Key data activity: monitor progress of delivery plans

Monitor progress by conducting strategy assessments and leading meetings

problems, system implementation, or budget issues. The fellows aimed to get staff to identify the strategies necessary to meet their targets and the measures to assess whether they met them.

C. Data analysis and reporting

To monitor progress, the fellows conducted strategy assessments. They first developed a trajectory, which sets an expectation for the desired level of performance by the end of five years plus targets for each year of the five. Throughout the year, they worked with staff members to assess whether the target would be met. The fellows' supervisor reported the outcomes of the strategy assessments to the commissioner and to the board of education. The results were also posted online.

In addition to the strategy assessment work, one fellow conducted a variety of analyses to support the next generation professionals delivery plan. For example, the fellow analyzed the extent to which TELL construct scores and school leader assessment scores correlated with the student growth calculated for each school. The fellow also analyzed the relationship between student growth percentiles and scores from the student voice survey in which students in grades 3 through 12 report on their classroom experiences, including the instructional practices of their teachers. The purpose of these analyses was to guide the agency in determining the strength of each measure for predicting educator effectiveness and the weight that each should have in the new system.

One fellow conducted several analyses with the Office of Career and Technical Education (OCTE). For example, to analyze the effectiveness of several vendor-specific career and technical education (CTE) strategies, the fellow identified high school students who used vendor-specific curricula and examined the students' assessment results in the years that preceded their enrollment in the CTE program. The results suggested that some programs were not impacting college and career readiness outcomes because students were already on track to be ready for college or careers before entering the program (based on their test scores from previous years). OCTE reported the results to the commissioner, who has since removed these vendor-specific strategies from the delivery plan. The fellow also helped with an analysis on the overlap between career and college readiness. The analysis involved identifying students who met career readiness criteria as well as determining the percentage of these students who also met college readiness criteria. The analysis confirmed OCTE's hypothesis that college and career readiness overlap. This has helped advance the OCTE's messaging that CTE programs prepare students for both career and college by embedding the academic core in the technical curriculum.

The Office of Next Generation Schools and Districts and the Office of Next Generation Learners analyze school and district achievement data in order to identify needs as well as best practices. Schools and districts with overall scores in the bottom 5 percent of all schools and districts are classified by the state as "priority;" the next tier is classified as "focus" schools and districts. When the state released achievement data, the Office of Next Generation Schools and Districts analyzed it to determine which schools or districts moved into or out of focus or priority status. They then incorporated data from the school report cards to illustrate school activities relating to core subjects and achievement gap plans. The staff shared a PowerPoint presentation of the information with several stakeholder groups, including some elected state officials who

deal with education assessment issues. The Office of Next Generation Learners analyzes data from school program reviews, which are school self-assessments on curriculum, instruction, assessment, building leadership, and professional learning conducted primarily in grades and content areas that are difficult to test. For example, a cross-functional team investigated the correlation between the review scores of schools' writing programs and students' scores on a statewide writing test. The team plans to continue these analyses to better understand the usefulness of the program reviews.

By December 2013, the agency had determined the questions the SDP diagnostic would answer, given their data restrictions and the agency's leadership priorities. Results from the diagnostic would be shared with agency leadership, who would then decide with whom to share information next. Inasmuch as the agency already has strategic priorities for college and career readiness and for teacher effectiveness, the diagnostic would be supplementary information for guiding strategic priorities. The ways in which the agency would use the diagnostic would largely depend on the results.

The agency values transparency and keeping itself accountable. For example, it puts school and district report cards and trajectories on the Internet so the public can look up detailed information about a particular district or school, see the strengths and weaknesses, and hold the entity accountable for improving.

D. Challenges and lessons learned

Challenges. The agency experienced the following challenges in the second year of its partnership with SDP:

- **Accessing data.** Respondents across several departments reported that they often do not have access to the data they need within a reasonable time to perform analyses. Sometimes the problem stems from receiving data from outside vendors and partners at infrequent intervals.
- **Fully utilizing fellows' analytical skills.** Several respondents thought fellows' analytic skills were under-utilized, commenting that the fellows spent more time serving as project managers and consultants than conducting research and analysis.
- **Customizing professional development for state agency needs.** SDP works with more districts than states. Consequently, the professional development provided is not always as useful to the agency as it might be to a district. State agencies work with more school- and district-level data than student-level data and ask different kinds of questions than districts.

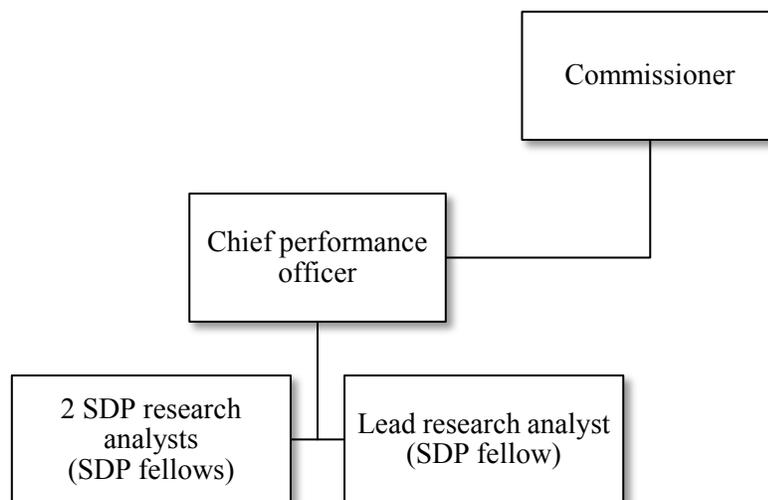
Lessons learned. Key insights developed include:

- **Monitor progress toward achieving goals.** The commissioner focused the agency's work on its clearly defined goals, or delivery plans, which shifted the agency's culture to being student-focused and data driven. All divisions in the central office were connected to one or more delivery plan(s) and used data to monitor progress and determine effective strategies. Although not all staff are skilled at using data, most value data use, and they make data the

focal point of strategy discussions. Staff throughout the agency utilize the CDU for its expertise with data.

- **Make fellows visible and accessible.** All fellows worked in the CDU, an arrangement that prompted many offices throughout the agency to request the fellows' support and analyses. This structure allowed the fellows to see how each office's work fit into the agency's priorities. More importantly, it sent a message to agency staff about the importance of the delivery plans and data use.
- **Fully apply SDP training and expertise to the local effort.** The fellows believe that SDP helped them develop and expand their knowledge in the fields of college readiness and teacher effectiveness—to the point that they regard themselves national experts on the topics. They value the knowledge and skills that they gained through the SDP training sessions and applied them to their work as fellows.

Figure 1. Organizational chart showing path to fellows' positions, Agency A



Source: Agency website and interviews with agency staff in winter 2013–14.

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III. AGENCY B—SCHOOL DISTRICT

This mid-sized, urban district partnered with SDP to analyze and interpret new information about the quality and characteristics of the district’s workforce and the predictors of college readiness. The district aims to use data on teacher effectiveness, student achievement, school characteristics, and college readiness to improve decision making and student achievement.

During the 2013–14 school year, two SDP fellows primarily focused on designing and implementing the district’s new teacher effectiveness system. The other fellow oversaw the College Readiness Indicator Systems (CRIS) project and served as a liaison to a scholarship program for graduates of the city’s public schools.

District spotlight

Program partner: SDP

Partner since: 2012

Number of fellows:

Two agency fellows; one data fellow

Project description: SDP fellows support the district’s rollout of a new teacher effectiveness system and investigation of indicators of college readiness.

A. Background and context for data use

During 2013–14, the district’s four main priorities were to: (1) increase student achievement; (2) narrow the achievement gap, particularly between white and African American students; (3) stabilize enrollment; and (4) create a more student-focused organizational culture. To address these goals, an “envisioning process” incorporated feedback from parents, teachers, and students to create a vision for the district.

As part of a four-year strategy for improving student achievement and narrowing the achievement gap, the district created a new teacher professional growth and evaluation system. The evaluation is based on multiple data sources, including student test scores, classroom observations, and student surveys on classroom experiences, and the results are used to inform professional development, promotions, and other decisions. The district began fully implementing the system during the 2012–13 school year and released results to teachers so they could see their performance on each measure and understand their combined effectiveness rating. At the end of 2013–14, teachers were to receive their end-of-year ratings, and principals and district leaders were to have access to information about teacher effectiveness within and across schools.

Data system. The district made progress between the 2012–13 and 2013–14 school years in its efforts to improve its data systems. Information technology (IT) staff developed a data warehouse to consolidate multiple sources of data into a single repository so data could be integrated in new ways. IT staff also developed an online platform to view data on student outcomes and staff effectiveness that staff could access from home or work. The company that developed the district’s student information system (SIS) a few years ago will no longer support the product, so the district must integrate and implement a new SIS.

Staff expertise and development. In preparation for the release of teacher effectiveness reports, the OTE, in partnership with other departments, led a series of training sessions and staff development activities for various categories of staff. The purpose was to ensure that those who

accessed teacher performance data understood the measures, would respect the confidential nature of it, and would use it effectively.

Partnerships and resources. The district continued its partnership with the CRIS network, a foundation-funded program that seeks to develop, expand, and modify college readiness indicator systems for students. The grant funded one fellow and a research analyst who conducted regression analyses to identify predictors of college readiness. The district also worked with several contractors to roll out its teacher effectiveness system. They performed such services as analyzing teachers' contribution to student growth and assisting with training and communicating with various audiences about the growth and evaluation tools.

B. Working with SDP fellows

The district's primary goal for its partnership with SDP is to increase its capacity for analyzing and using data about teacher effectiveness and college readiness to improve student outcomes. One fellow served as the project manager for college and career readiness; the other two worked in the OTE. The fellows primarily focused on:

- Displaying and sharing college readiness data.** For the CRIS project, one fellow and a research analyst identified indicators of college success. They then began working to determine how to best share the data and help staff interpret and respond to it. The fellow facilitated discussions with school-level and district-level staff about trends in college readiness and which indicators, such as attendance and grade point average (GPA) for grade 9, should be used for early identification of students who are not on track for college.

Key data activity: share college readiness data

Display and share college readiness data so schools can use it for decision making
- Designing teacher effectiveness reports and training staff.** The district created individual reports on teacher effectiveness for most teachers and a reporting platform for student-, teacher-, school-, and district-level effectiveness data. One fellow designed many of the reports and managed the rollout, including training staff on using the reports and following confidentiality protocols.

Key data activity: design teacher effectiveness reports

Design teacher effectiveness reports and manage the rollout of the reporting system
- Analyzing teacher effectiveness data.** The fellows who worked in the OTE conducted for the school performance team analyses and briefings related to human capital and teacher effectiveness. For example, the fellows planned to use teacher effectiveness data to identify professional development needs.

Key data activity: analyze teacher effectiveness data

Analyze data and provide briefings related to human capital and teacher effectiveness

C. Data analysis and reporting

The release of the teacher effectiveness data to certain staff, teachers, and school leaders led to analysis requests from a variety of district and school staff. They requested, for example, analyses of the strengths and areas for growth among teachers for planning professional

development based on teachers' needs, and analyses to support talent management and staff hiring decisions. The district analyzed how new staff changed overall teacher effectiveness for particular schools, as well as patterns of movement among teachers in the district, and discovered that teachers performing at the lowest levels were more likely to change schools. Based on this finding, staff plan to conduct additional analyses to ascertain why low-performing teachers change schools and also to examine teacher mobility patterns within schools.

The district also conducted analyses related to college readiness. For example, staff analyzed the percentage of students meeting the citywide scholarship eligibility guidelines and found that although 50 percent of them are eligible for the scholarship, only 20 percent graduate from postsecondary programs. They used National Student Clearinghouse (NSC) data to identify more accurate predictors of college success than the scholarship criteria, finding that GPA and attendance are both predictors, but that college success is associated with higher GPAs and higher attendance rates than are mandated by the current criteria for scholarship eligibility.

The district regards deliberate and highly structured reporting and dissemination a high priority for the work related to both teacher effectiveness and college readiness. The rollout of the teacher effectiveness system included individual reports sent to teachers and a reporting platform for student-, teacher-, school-, and district-level data. Due to the high level of confidentiality of the data, access to the dashboards depends on each staff person's role. The college readiness staff have also worked to share their findings with school-level staff. Once they had identified the predictors of college readiness, members of the CRIS group met individually with nearly every principal in the district to discuss the findings. They also planned to meet with teachers and develop reports on college readiness trends that will meet the needs of the schools.

D. Challenges and lessons learned

Challenges. The district faced two main challenges with its data systems and use of data.

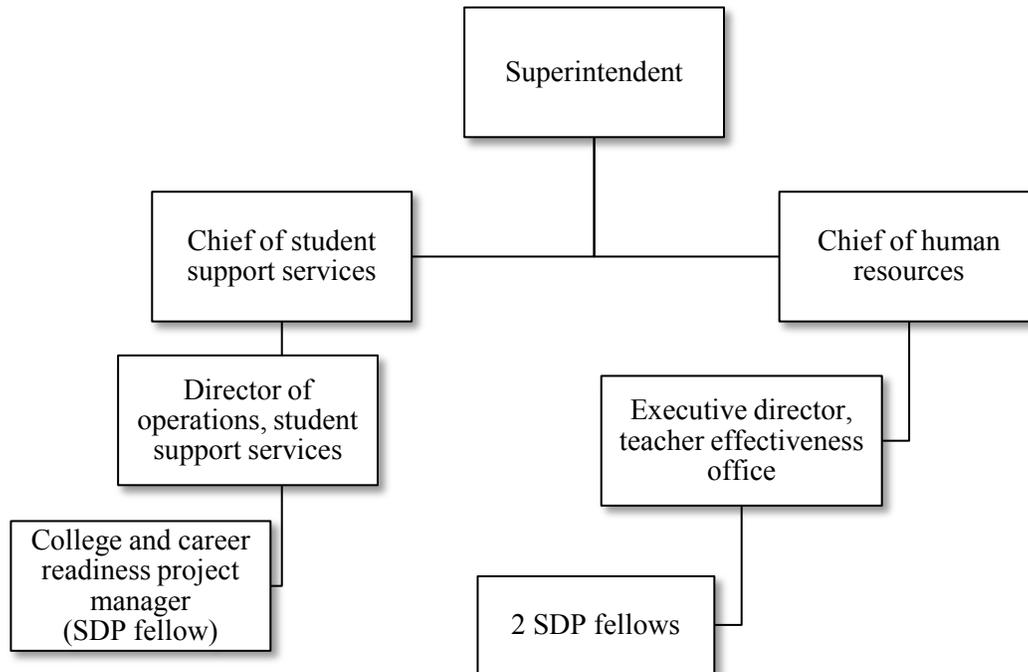
- **Analyzing academic data.** The district has not yet developed a level of sophistication for analyzing student academic data similar to that which it developed for analyzing teacher effectiveness data.
- **Inconsistent data use.** Although many central office staff have a strong desire to use data, they do not have the combination of time, access, and skills to do so routinely. The district does not have a comprehensive approach to providing professional development and support to teachers, school administrators, and district staff, especially for using student-level academic data.

Lessons learned. Key lessons learned from the district's efforts include:

- **Generate teacher effectiveness data.** The district has made responding to teacher effectiveness data and developing effective human capital policies a priority. This commitment has attracted considerable external funding and talented employees.
- **Create a culture that values data use.** Staff in central office departments value data and want to use it to inform their efforts. This is reflected by the high volume of analysis requests they send to the OTE.

- **Collect a high volume of data.** The district has access to a wide range of data that can be used for analyses and it has developed systems to ensure that the data collected are high quality. With the integration of data systems into a data warehouse, staff can more efficiently analyze data across different sources.

Figure 2. Organizational chart showing path to fellows' positions, Agency B



Source: Agency website and interviews with agency staff in fall 2013.

Note: Two fellows have the title of SDP fellow.

IV. AGENCY C—SCHOOL DISTRICT

This urban school district, which primarily serves low-income students, began its partnership with SDP in 2012 as part of a broader effort to incorporate data into decision making. Four SDP fellows helped develop metrics to measure student and school progress. They also provided support for analysis and decision making during weekly meetings with district senior leadership. Other goals: launching a new data display system, conducting SDP-directed research related to human capital and college preparation, and developing better procedures for data governance.

A. Background and context for data use

Working with local legislators, the school district developed a five-year plan for transforming the district. The implementation strategy has four components: (1) increase the number of high-performing schools and close and replace failing schools; (2) redefine the district's role and revise school budgeting policies to support school autonomy; (3) invest and implement system reforms, such as high quality preschool, college and career readiness strategies, flexible school calendars and schedules, teacher effectiveness policies, and academic technology; (4) create a city transformation alliance to increase communication and accountability to community partners and parents.¹ In addition to the strategic priorities, the district focuses on transforming into a performance-based, data-driven organization.

Data system. The district's instructional management system houses instructional and curricular resources and data for teachers and principals. The district is in the process of developing a data warehouse to coordinate multiple data systems that house financial, academic, and HR data.

Staff expertise and development. Except in a few schools and central office departments, staff capabilities for using data are not strong. The organizational accountability office recently trained school- and district-level staff on using the instructional management system and accessing related resources. The fellows typically provided informal professional development to district-level staff in regularly scheduled meetings (such as with the senior leadership team meetings) or on an as-needed basis.

Fellows and members of the senior leadership team participated in several SDP workshops. The workshops taught the fellows analysis and presentation techniques as well as ideas for promoting data-driven culture. Senior leadership participation in the first workshop led to discussions on how to improve data governance.

District spotlight

Program partner: SDP

Partner since: 2012

Number of fellows:

Two agency fellows; two data fellows

Project description: SDP fellows work with senior leadership to develop metrics and provide analyses to track progress toward meeting the district's goals.

¹ The alliance consists of representatives from the district, charter schools, and organizations in the community who assess the fidelity of the education plan and the quality of the schools.

Partnerships and resources. The district has partnerships with several organizations to increase its capacity for effective data use. During the 2012–13 school year, the district contracted with an education consulting firm to analyze funding patterns and design weights to adjust school funding. The consultants completed a student-based budgeting model which allocates funds to schools according to the number and specific needs of students. In addition, another education consulting organization is helping the district develop student growth measures and is training staff how to interpret these measures. An IT consulting firm provides recommendations for improvements to the district’s data governance.

B. Working with SDP fellows

The fellows supported the district’s efforts to create a data-driven culture by leading analyses in their individual departments and by working with senior leadership to use data for decision making. One fellow, who served directly beneath the CEO, was the interim deputy chief of organizational accountability; one fellow reported directly to the chief financial and administrative officer as executive director of budgets. The other two fellows held the title of data strategist. One was in the department of organizational accountability; the other in HR. Their main tasks were:

- Developing metrics and monitoring progress.** The SDP fellows and senior leadership identified 20 to 30 metrics based on the strategic plan that they believe will indicate school performance and student achievement. For example, one fellow developed the “on track to graduate” metric, which presents data on the percentage of students who are on track to graduate and the percentage of those who are not. The fellows worked with “metric owners”—district leaders who are responsible for tracking the progress of a metric—to present changes in the metric and facilitate discussions of how the district should respond to emerging patterns. The leadership meetings occurred weekly, and the group discussed each metric every six to eight weeks.

Key data activity: develop and monitor metrics

Work with leadership to develop metrics and assess progress
- Designing and implementing student-based budgeting system.** One fellow served as the budget director for the district and, in this role, worked closely with a consulting company to design a new student-based budgeting system. The fellow then began helping schools transition to the new budgeting system by projecting budgets under different organizational scenarios or scheduling systems.

Key data activity: design and implement new budget system

Help develop a new budgeting system and help schools project their new budgets
- Conducting research for senior leadership.** In addition to helping metric owners present the metric progress reports (see above), fellows helped them develop approaches for analyzing and responding to the metrics. Fellows also responded to analysis requests from colleagues who planned to present data or use data to improve aspects of their work.

Key data activity: conduct research for senior leaders

Conduct research for senior leadership and other staff on an as-needed basis

C. Data analysis and reporting

Much of the organizational accountability department's analyses dealt with benchmark assessments and teacher effectiveness data. At the beginning of the school year, the district administers benchmark assessments to determine whether students in primary grades are on track in reading. Once the department identifies which student is on track or off track, the information is shared with the curriculum department, which works with schools to develop intervention plans for students who are not on track. The accountability department also conducts analyses to determine which student growth measures align with teacher observation data. They are testing several growth measures, including student growth from vendor-provided summative assessments for non-tested grades, value-added modeling (VAM) based on state standardized tests, and school-developed student learning objectives. The department plans to combine these measures with observation data into an effectiveness rating for every teacher, which the district will use for compensation and employment decisions.

One fellow worked with SDP to complete the college-going diagnostic, which utilizes district, NSC, and Higher Ed Compact data on the district's graduates and their course-taking in college. The district had already conducted preliminary analyses on the college success of its students, so it began steps to take a more in-depth look at previous findings. For example, the district found that its minority students performed as well as or better than the district's white students on several measures, in contrast to the nationwide achievement gap. One hypothesis is that white students with the highest academic ability leave the district; another hypothesis is that interventions targeted to black and Hispanic students are working well. The district hopes that the SDP diagnostic will help answer these questions.

The district produces a variety of reports that track high school students' progress toward graduation, attendance data, serious disciplinary incidents, social-emotional learning, and student achievement data from formative assessments, American College Testing (ACT), advanced placement (AP), and school performance on state benchmark tests. A goal for the 2014–15 school year is to engage schools more fully after releasing each of these reports through data meetings in which teachers and principals review data and prepare action plans. As part of its strategic plan, the district also presents data to the city transformation alliance to foster business and community support of its priorities.

Challenges and Lessons Learned

Challenges. Data quality, governance, and infrastructure continued to be obstacles for the district. The district experienced the following challenges:

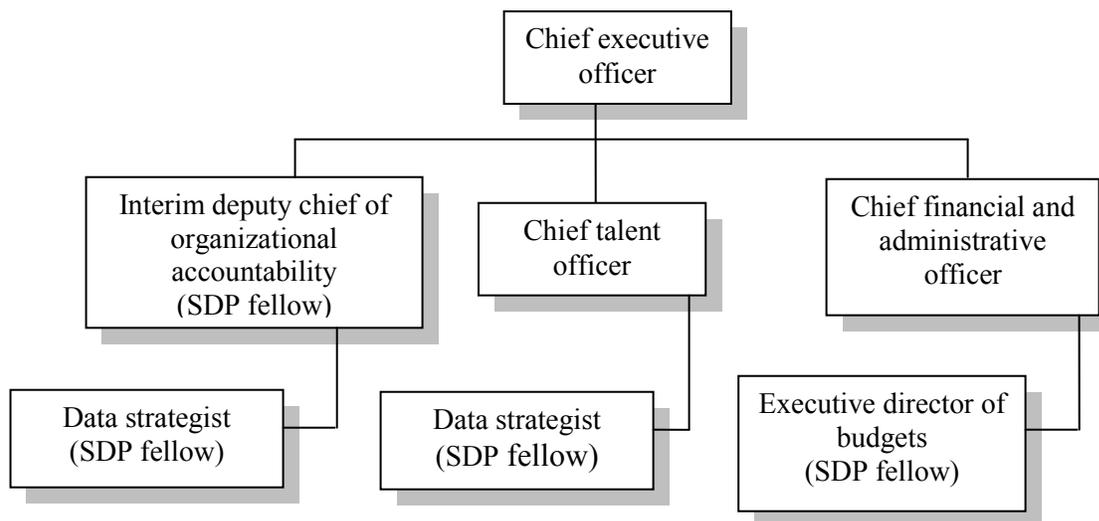
- **Inconsistent quality of data.** The district has few procedures for ensuring the data entered by district or school staff are accurate and reliable. Data are often poor quality, and there is little information regarding which data sources are more reliable than others.
- **Data systems that are not integrated.** Departments often use separate data systems. This makes it difficult for staff to gain access to different types of data and to analyze interactions between data from different sources.

- **Varying skills in using data to drive decision making.** Although the district uses data to track progress toward meeting its goals, some respondents feel that both district- and school-level staff would benefit from more training in how to interpret data and adjust policies and practices in response to the findings.

Lessons learned. The district learned the following in its efforts to use data more effectively:

- **Emphasize data during senior leadership meetings.** The development of metrics and regular weekly conversations about them have helped move the district toward becoming a data-driven organization. Senior leaders discuss data and try to use data in decision making.
- **Utilize SDP fellows.** The partnership with SDP brings to the district talented individuals who might not normally apply to work there. The fellows transfer valuable skills to staff and also help nurture development of a data-focused culture.
- **Engage the community.** As part of the district's strategic plan, business and community leaders participate in discussions about the district's priorities, progress being made, and plans for improvement. Stakeholders hold the district leadership accountable to using data effectively to accomplish its goals.

Figure 3. Organizational chart showing path to fellows' positions, Agency C



Source: Agency website and interviews with agency staff in winter 2013–14.

V. AGENCY D—STATE EDUCATION AGENCY

In 2010, this state department of education initiated—under a federal Race to the Top (RTT) grant—reforms that included a heightened emphasis on data-driven decision making. The agency applied for partnerships with the SDP and EP projects to bolster its analytic capacity as it implemented RTT reforms. During the 2013–14 school year, the four SDP fellows and one EP fellow coordinated internal and external research, conducted analyses, and developed dissemination plans.

A. Background and context for data use

For the 2012–2013 school year, the agency’s strategic priorities were largely based on the state’s RTT application. During the 2013–2014 school year, the agency’s priorities were still based mostly on RTT goals:

(1) transitioning to Common Core State Standards (CCSS) for grades 3 to 11; (2) preparing districts and students for the Partnership for Assessment of Readiness for College and Careers (PARCC);² (3) implementing Response to Instruction and Intervention (RTII), a process for identifying and remediating special education students; (4) further developing educator effectiveness policies and procedures, including continued development of the teacher evaluation system, a pilot of the principal evaluation system, and revision to educator licensure and strategic compensation; and (5) expanding students’ access to better schools, including identification of alternative schools, such as charters.

Data system. In recent years, the agency has focused its development on two primary data systems: the P-20 system, a central, longitudinal repository of data, which includes its Early Warning System (EWS); and a teacher data system. For the P-20 system, the agency collects data from higher education and labor agencies and wants in the future to establish connections with the state’s children’s services, intellectual and developmental disabilities, and human services departments to amass additional data. The P-20 system will eventually include three distinct components: a publicly available dashboard that displays comparisons across schools and districts, a state agency function that allows approved agency staff to join data from different sources within the system to conduct analyses, and a research portal that allows approved researchers to access student-level data (however, they will not be able to upload student-level data). The agency also continues to develop its EWS, which three districts piloted during 2013–14. The SIS of each district that elects to participate, will directly link to the state system so the state will no longer have to request and individually extract data from these districts. To facilitate this linkage between systems, about 90 districts in the state are acquiring new SISs that are compatible with the EWS. The EWS will include teacher dashboards that will allow them to see their students’ grades, attendance, assessment data, contact information, demographics, and other information.

Agency spotlight

Program partner: SDP and EP

Partner since: 2011 for SDP; 2012 for EP

Number of fellows: Two SDP agency fellows; two SDP data fellows; one EP fellow

Project description: A state agency partners with SDP and EP to coordinate and conduct research aligned with its priorities.

² The online assessment based on the CCSS will be administered to students during the 2014–15 school year.

Although it plans to replace the current teacher data systems, the agency continues to develop and add reports to the existing systems. Separate data systems house different types of teacher data (evaluation, placement, compensation, and licensure) and the new system will incorporate all types of teacher data.

Staff expertise and development. Each agency department has at least one “data steward” to ensure that staff properly collect and store data. Most divisions also have at least one staff member who has the expertise to conduct data analyses. According to agency staff, the research and policy team has the greatest number of staff with data expertise and it tends to conduct more advanced statistical analyses than other divisions.

The agency helps districts understand and interpret data by providing dedicated offices for eight regions in the state called the Centers of Regional Excellence (CORE), each of which has one data analyst. The CORE data analysts hold a data consortium every 30 or 60 days with district staff to discuss strategies for collecting and interpreting data. State agency staff do not receive professional development related to data use, except for informal activities, such as lunch sessions focused on using Excel or Stata.

Partnerships and resources. The agency partners with several universities and consulting and technology companies to increase its capacity for research and data use. The agency’s primary external research partner is a research consortium operated by a local university. The consortium conducts an annual survey of teachers to collect their perspectives on RTT and its components. It also conducted an analysis of strategic compensation programs in the state. The agency would like the research consortium to manage all external data requests in the future once they are approved by the state. Another university partner manages the P-20 data system, and an education technology development company assists with development and maintenance of the EWS. A nonprofit education consulting company funds the CORE data analysts who provide to districts technical assistance related to data.

B. Working with SDP and EP fellows

Four of the five fellows worked during 2013–14 in the Office of Research and Policy, a newly formed office that sets the agency’s research agenda and oversees internal research, external research, and accountability. The fifth fellow worked in the district support office. The fellows provided research and data support in a wide range of areas. In addition to conducting analyses based on the agency’s priorities, the fellows worked on the following key tasks:

- **Strategizing research dissemination.** The EP fellow was developing a framework for disseminating research findings from the Office of Research and Policy to the districts. The aim was to determine how the office could be more transparent and disseminate research to districts and schools in a manner that would make it easy for them to take action on the information.

Key data activity: strategize dissemination of research

Create a strategy to share research with districts in a manner that all procedures are transparent and the findings will be readily implementable

- **Establishing partnerships.** To coordinate with external partners, one SDP fellow identified research priorities and questions, located and worked with external researchers to complete research, and generated deliverables. The fellow established partnerships with approximately six external partners who were conducting research that the agency was interested in but did not have the expertise to complete.
- **Tracking district accountability.** One SDP fellow communicated with districts about the accountability standards and identified their accountability status (reward, focus, or priority). The fellow also helped the state determine whether it should change its process of identifying reward, focus, and priority schools as part of its application for extending the state's No Child Left Behind (NCLB) waiver.
- **Overseeing internal research.** Several of the SDP fellows oversee and coordinate internal research. One helps divisions identify how their research can inform the agency's decisions; one coordinates analyses that the CORE data analysts conduct for specific regions.

Key data activity: establish research partners and coordinate with them

Coordinate external research that fits with the agency's priorities

Key data activity: track district accountability

Communicate with districts about standards and determine accountability status

Key data activity: oversee internal research

Coordinate research within the Office of Research and Policy and across other divisions

C. Data analysis and reporting

As part of the state's emphasis on implementing RTII for special education students, the EP fellow conducted analyses to define the special education landscape across the state. This fellow analyzed districts' descriptive data on student disabilities, exit rates, and educational settings in order to present findings to the assistant commissioner of special populations and the special populations division. The fellow also planned to conduct qualitative analyses of schools that are piloting RTII.

Another fellow conducted all analyses related to the state's policies for educator effectiveness. For example, the fellow developed and tested statistical models to determine the extent to which student survey responses improve the prediction of teacher effectiveness when combined with other measures. The fellow also tested how changing the definition of categories, weighting components differently, and removing items from the observation rubric affect teacher evaluation scores. These analyses will inform the final version of the state's educator effectiveness system.

The fellows investigated reasons for and possible solutions to the state's low taking and passing rate of AP exams. The agency used the information to determine which schools would benefit from receiving funds to help pay for AP tests and is piloting this funding program to determine if it increases the number of students who take and pass AP exams.

SDP completed the college-going diagnostic analysis and worked on the human capital analysis. The analysis identified high schools from which students, based on academic achievement prior to ninth grade, entered high school on a trajectory to attend college but their performance dropped in high school and they did not continue to college as expected. The department will work with those schools to identify obstacles for these students and develop strategies to improve instructional practices or connect the schools with better college resources.

One fellow began work on creating a framework for disseminating findings to the districts from the Office of Research and Policy. That office finished drafting a multistep plan that involves presenting findings to the CORE data analysts who communicate the findings to their districts, and disseminating a district-level data report or data file to each district. The office will develop a process by which districts provide feedback on how they used the data. In addition to reporting directly to districts, the state also publishes data on public websites. For example, using data from the P-20 system, the state created a website that reports workforce trends.

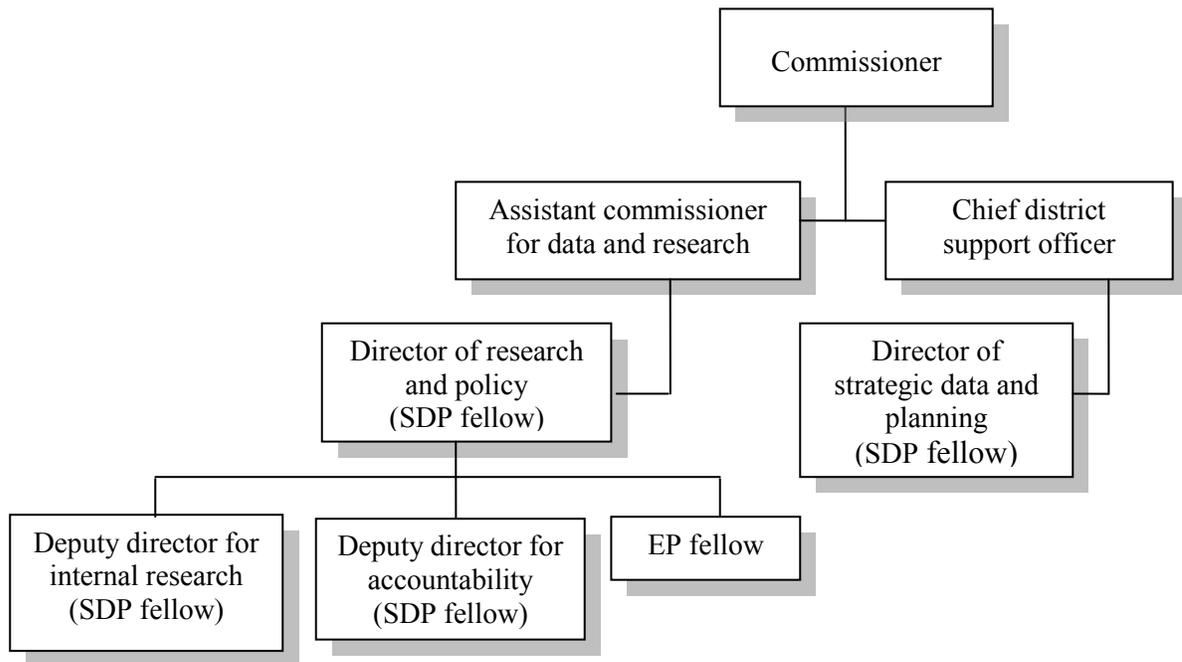
D. Challenges and lessons learned

Challenges. Agency staff reported that the main challenges for data were linked to poor data quality and lack of training for staff.

- **Data quality.** Respondents reported that data quality is often a barrier to using data strategically. The problem mainly stems from having multiple data systems with conflicting information, and no standardization of data collection across districts. It is also a result of staff entering incorrect or flawed data.
- **Data use competency among staff.** Some staff are not enthusiastic about using data, probably do not know how to use data effectively, and need training opportunities to improve their skills, according to some respondents.

Lessons learned. The agency learned the following in its efforts to use data strategically:

- **Recruit fellows.** Respondents agreed that the agency has acquired highly skilled researchers through SDP and EP partnerships. Most other staff have backgrounds in teaching; the fellows have filled gaps with their expertise in management, consulting, analysis, reporting, and data visualization. The fellows also brought new ideas and perspectives from their work in other sectors.
- **Use data to drive decisions.** A key purpose of the Office of Research and Policy is to conduct analyses to drive policy decisions. The agency uses the recent analyses on special education services, teacher evaluation components, and AP scores to inform decisions in those areas. It will use the SDP college-going diagnostic to help high schools improve.

Figure 4. Organizational chart showing path to fellows' positions, Agency D

Source: Agency website and interviews with agency staff in winter 2013–14.

Note: The EP fellow's title is "EP fellow."

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VI. AGENCY E—SCHOOL DISTRICT

This large school district serves a diverse student population across urban, suburban, and rural communities. The district began partnering with SDP so fellows could analyze data related to college and career readiness and transfer analysis skills to staff. The district had a new superintendent and several new leaders in 2013–14, and that changed some operations. During that school year, the district had three SDP fellows, all of whom were fellows the previous year.³ The new district leaders have not changed the fellows’ focus on college and career readiness, but have expanded the fellows’ opportunities to participate in higher-level decision making in weekly leadership meetings.

A. Background and context for data use

College and career readiness is the district’s top strategic priority; improving the high school graduation rate is a key component of it. The district uses career academies, which are schools within schools, to integrate academics and career-skills training in specific topic areas and to increase student engagement and prevent or decrease dropouts. Other priorities include implementing a new principal and teacher evaluation system and re-designing its district-wide performance management system.

Data system. The district recently used a foundation grant to develop a data warehouse to link previously disconnected data systems. The district’s data needs evolved while the warehouse was being built. As result, that warehouse does not meet the district’s needs. District IT staff are updating the warehouse.

Staff expertise and development. Staff in the Department of Research and Evaluation and many district leaders have strong skills in data use, and they regularly provide training and technical assistance for district departments and school administrators on such topics as developing databases, collecting implementation and outcomes data, or interpreting and responding to school climate reports. In addition, 21 central office staff, including IT staff, attended an outside training session on how to use the data warehouse. The SDP fellows informally teach other district staff data skills, such as how to create Excel graphs or tables.

Partnerships and resources. The district partners with or recently partnered with three other fellowship programs that support data-driven decision making. Fellows from one program work directly with teachers to teach them how to understand data in the most sophisticated way and use it for school improvement. Moreover, the district received funding to hire three performance management associates who were skilled data analysts and academic experts. Each

District spotlight

Program partner: SDP

Partner since: 2012

Number of fellows: Two SDP agency fellows; one SDP data fellow

Project description: SDP fellows conduct analyses and build data systems and models designed to help school leaders lower the dropout rate and improve college and career readiness.

³The district also has an EP fellow who works in the finance department as a project manager. The fellow is not an EP data analyst and is not trained or expected to work with data. For this reason, the focus of the profile is the work of the SDP fellows during 2013–14.

was assigned to 21 schools to help the schools' leadership teams build data skills and learn about data sources in the district. One of the SDP fellows served as a performance management associate in the previous school year while also serving as an SDP fellow.

B. Working with SDP fellows

Although the fellows are spread across various departments within the district, they each work on the district's primary goals of decreasing the high school dropout rate and preparing students for college and careers. Their main projects are:

- Creating an EWS.** Two fellows developed and enhanced a system that calculates each ninth grader's likelihood of moving into tenth grade. The model includes test scores, discipline records, and attendance records—an improvement from the district's previous EWS, which included only two variables. The fellows reran the model quarterly and gave principals the ninth graders' probabilities of moving into tenth grade. The report color-coded each student based on risk level.

Key data activity: create an EWS

Create a statistical model to identify students at risk for dropping out of high school
- Helping principals use the EWS.** The fellows who developed the EWS also met with school principals to explain the methodology behind it. One fellow helped school principals obtain services for students identified as high risk.

Key data activity: train principals on the EWS

Meet with principals to help them use data to lower dropout rates
- Developing a theoretical model for a K–12 college readiness system.** One fellow developed a theoretical (not statistical) model that shows the factors that influence college and career readiness throughout a student's time in the district, from kindergarten through grade 12. The fellow created a poster presentation of his model for SDP.

Key data activity: develop a theoretical model on college readiness

Use existing research on college readiness to create a theoretical model for the district

C. Data analysis and reporting

The district's Department of Research and Evaluation conducts program evaluations to ascertain whether important programs have accomplished their intended outcomes. This department wants to conduct program evaluations on a more routine basis, but is limited by the small staff.

The district piloted a new system developed by SDP that produces reports for the diagnostic analyses. The system functions like a data dashboard, drawing data from different sources for reporting purposes. At the end of the pilot, the system will give to the district analyses of the relationships between high school performance, middle school performance, college attendance, and demographics.

The district produces many reports required by the state, such as its annual master plan, a report that includes basic data indicators from performance to operations. District staff from each core division also provide data reports for board meetings.

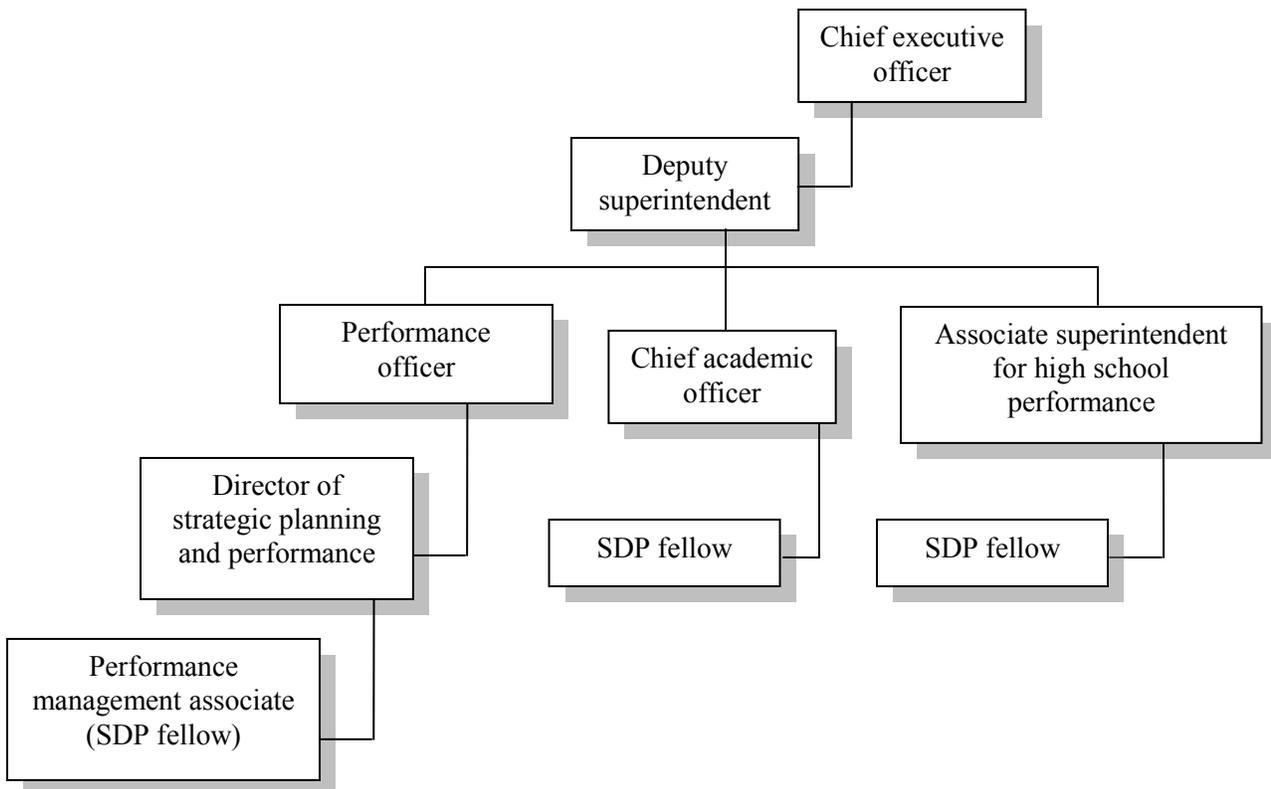
D. Challenges and lessons learned

Challenges. The district faced several challenges with its data systems and use of data, many of which continued to create difficulties in the subsequent year.

- **Data systems.** Respondents described the data systems as cumbersome to use. As a result, few district staff use the warehouse, which means that all requests must go through a small number of expert users. The system does not have user-friendly reporting features such as data dashboards, so teachers typically receive raw data instead of aggregated reports.
- **Staff skills in data use.** Respondents reported that district and school staff need more training on collecting and analyzing data and using it for decision making. Although some staff are highly skilled data analysts, many are not comfortable with using data.
- **Unclear priorities.** The district frequently introduces new systems and does not have the capacity to fully develop or maintain the previous ones. As a result, the IT department is sometimes unsure where to focus its efforts.

Lessons learned. The district had several insights as it sought to become more data-driven:

- **Create a culture that values data use.** The district leaders and staff support data use. This is demonstrated by their interest in partnering with four fellowship programs and in other initiatives that promote and improve data use among teachers, administrators, and district staff.
- **Make fellows visible.** Staff reported that the fellows were particularly successful in their district because the supervisor is a senior leader. The superintendent invited the fellows to attend the regular weekly leadership meetings to present analyses and contribute.
- **Hire skilled data analysts.** The fellows showed the value that staff with strong data analysis skills bring to a district. The district opted not to take another EP or SDP data fellow because it decided to make the existing fellows' positions permanent. District leaders believe making the positions permanent will help ensure that the district continuously has funds to support highly skilled data analysts; fellows must be approved for each year's budget.

Figure 5. Organizational chart showing path to fellows' positions, Agency E

Source: Agency website and interviews with agency staff in winter 2013–14.

Note: Two fellows have the position title “SDP fellow.” The district also has an EP fellow who works in the finance department as a project manager. She is not an EP data analyst and is not trained or expected to work with data. For this reason, the profile and organizational chart focuses on the work of the SDP fellows during 2013–14.

VII. AGENCY F—STATEWIDE SCHOOL DISTRICT

The statewide district’s mission is to transform the lowest-performing 5 percent of schools in the state to the top 25 percent within five years. During the 2013–14 school year, its second year of operation, the district directly ran approximately one-third of schools (called direct-run schools), which are not charters, and oversaw the remaining schools, which are individual CMOs. During its first year of operation, many central office staff oversaw both CMOs and direct-run schools. During the 2013–14 school year, however, most staff began to work solely for direct-run schools or CMOs. For the 2014–15 school year, the direct-run schools will convert to charter status and will begin operating as their own CMO.

District spotlight

Program partner: EP

Partner since: 2012

Number of fellows: One

Project description: EP supports a statewide district, applying data-driven decision making to transform low-performing schools.

The district partnered with EP beginning in its first year of operation to establish data tools and provide accountability. The 2013–14 EP fellow created user-friendly data dashboards for the direct-run schools.

A. Background and context for data use

The district consistently uses data analysis to support efforts to achieve the goals of its five-part accountability plan: (1) ensure that successful schools and programs are replicated and unsuccessful ones are closed; (2) give parents the information they need to make an informed decision about the right school for their child; (3) identify and commend teams that are improving outcomes for students; (4) quickly identify and test best practices for rapid certification and deployment; and (5) create early warnings about schools that are not adequately improving student performance so as to enable proactive correction. In alignment with state policy, the district also uses data to make HR decisions, such as determining teachers’ according to measures of teacher effectiveness.

Data systems. The data warehouse for the direct-run schools receives data each day from the SIS, the behavior management system, the academic achievement monitoring system, the teacher evaluation system, state assessment data, and math assessment data. In 2012–13, each system resided in separate parts of the data warehouse, which meant users could not view different types of data together. A major initiative in 2013–14 was to integrate data systems into a single dashboard so users could view and make connections between different types of data, such as attendance and achievement data. Unfortunately, some of the connections between the data systems and the warehouse broke down from time to time during the transition to the uniform dashboard. The EP fellow began communicating with an education technology company weekly to resolve the issues. When all is working smoothly, the district’s software generates customizable reports based on permission level. Through the system, staff can also generate reports, produce charts and figures, or access customized data dashboards that present summary data on student attendance, teacher evaluation and monitoring, or student behavior.

Staff expertise and development. District staff possess a range of skills and experience with regard to using data. Although the district selects staff partly based on experience and interest in using data to drive decisions, many staff lack experience. The district, therefore, offered an “Introduction to Data-Driven Instruction” training session for teachers and school leaders during a summer orientation. The EP fellow also developed a user-friendly teacher dashboard, and the district will provide training on how teachers can use it to identify students’ achievement levels and customize instruction.

Partnerships and resources. The district maintains a broad network of partners, many of whom helped set up the district’s data systems, processes, and professional development resources. The district continues to partner with an organization that runs the data warehouse, extracting student demographic, achievement, and behavior data as well as teacher evaluation data from several data systems.

B. Working with EP fellows

District leaders pursued a partnership with EP to support the district’s data initiatives, including using data to improve the feedback the district gave schools on outcome and accountability measures. The 2013–14 EP fellow worked on the data team for the direct-run schools division and is primarily responsible for creating user-friendly reports and dashboards. The specific projects were:

- **Creating dashboards.** The fellow created dashboards customized to the needs of teachers and leadership, finance, and HR staff using specialized data visualization software. The dashboards include the following:
 - **Leadership dashboard.** The fellow created a network leadership dashboard for the executive director of the direct-run schools and school leaders. The dashboard includes performance metrics for attendance, behavior, enrollment, achievement, and school culture.
 - **Teacher dashboard.** The fellow developed a teacher dashboard that displays student achievement data from benchmark assessments. The dashboard shows overall achievement on a skill, the questions that make up the scale for a particular skill, and the distribution of student responses to particular items. The dashboard also shows data on classroom attendance and enrollment.
 - **Finance and HR dashboards.** The finance and HR departments started using new data platforms in 2013–14. The EP fellow planned to pull that into the data dashboards as soon as the technology company finished organizing and structuring the data into the warehouse.
- **Managing the data warehouse.** The EP fellow worked with the education technology company on an ongoing basis to troubleshoot issues with the data warehouse, including broken links between data

Key activity: create dashboards

Make performance metrics accessible to teachers, school and district leadership, finance, and HR staff

Key activity: manage the data warehouse

Ensure that all connections between databases work properly

systems and problems with loading data. Furthermore, any time a vendor's platform or format changed, the fellow incorporated the changes into the data warehouse and into associated reports.

C. Data analysis and reporting

The district built its own value-added model to run at the end of each school year. Sixty percent of the value-added score is drawn from the state assessment raw score differences from the prior and current school year. Other input measures for the value-added scores include the number of students who changed quartiles in the math and English/language arts (ELA) assessment over the year, and student survey responses. The district uses the model to rank teachers by school to inform hiring and dismissal decisions. The 2012–13 model did not correlate with the state's value-added model but it was consistent with principals' intuition about the rankings of teachers in their schools.

The district disseminates the results of its data analyses through reports and data dashboards. A previous EP fellow set up the district's accountability framework, which includes interactive reports generated at the beginning, middle, and end of the school year about school performance, reading and math achievement, school culture, and performance of school leaders. In addition, the direct-run schools receive automated weekly reports to monitor key metrics, such as reading levels, teacher and student absences, and student suspensions. The previous fellow also developed school report cards, which display school, student achievement and growth, school environment information, and state assessment proficiency rankings by demographics, subject, and grade. The previous fellow (who became a district employee) led accountability meetings with schools to discuss their accountability reports and help them determine action steps.

The district formats its reports so users can look at individual schools to compare them against other CMOs or all schools in the district. When district leaders identify relatively high-performing schools in subjects where other schools struggle, they visit the school to examine what it does so they can share practices with other schools. At the end of each school year, a portfolio team convenes all charter school operators to discuss the data in relation to goals. By building a collaborative setting for sharing ideas, all schools in the district know how the other schools perform in various areas so they can reach out to one another.

In addition to receiving data from the district in reports and dashboards, teachers also receive data from computer programs that students use in class. One of the district's strategic priorities is to bring into the classroom blended learning, a strategy that combines traditional teaching with online instruction and assessments. As part of this initiative, the district trained teachers to use instructional grouping profiles from an online reading and math instruction and assessment tool. Teachers use these profiles to inform instruction, give assignments (at the class or student level), or assign students to work with one another. The district works with teachers in ongoing small professional learning meetings to review data and establish specific interventions.

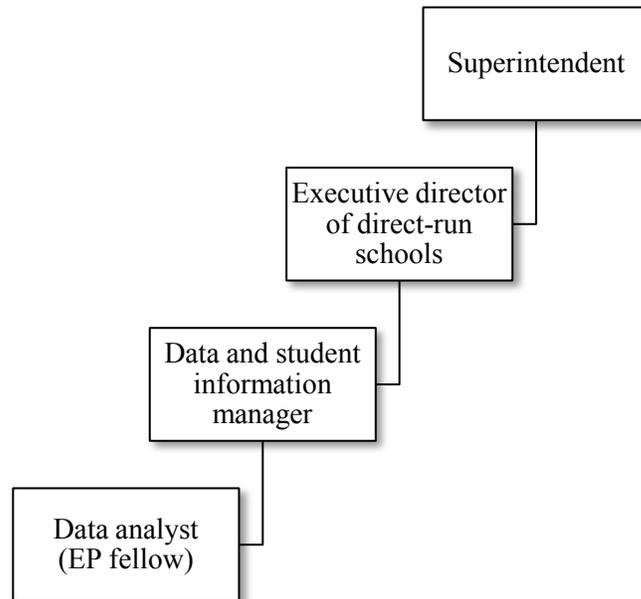
D. Challenges and lessons learned

Challenges. The district experienced challenges as it continued to set up its systems and processes:

- **Managing and processing a wide range of data.** The district collects a vast amount of data from across several data systems. During the first year, some teachers resisted the volume of data available and did not use it. District staff also reported being “flooded” with data, which slows down their ability to process and manage it.
- **Varying levels of proficiency in using data.** Some principals, deans, and office managers resisted using data; others wanted to use data to inform daily decisions. Those with lower data-use proficiency levels have had difficulty identifying what questions they can answer with data.

Lessons learned. Key lessons learned from the district’s efforts to use data to drive decisions in the classroom-, school-, and district-level include:

- **Create a data-driven culture at the administrative and school levels.** From the time the district was created, school and district staff focused on using data to drive decisions at all levels. For example, school-based data-driven instructional teams consisting of teachers of different grade levels meet weekly to discuss how to use data to guide instructional practices. In two years, the district already has had eight EP fellows who have helped develop the data-rich culture.
- **Share data across schools.** The district formats its reports such that each school knows how other schools perform and can solicit advice from schools that excel in particular areas. Cross-school collaboration has been mostly informal.
- **Demonstrate success before growing.** The district did not add any direct-run schools in 2013–14 because district leaders wanted to be financially solvent and improve student achievement at schools that were already direct-run. They also wanted to fully develop procedures and systems before expanding.

Figure 6. Organizational chart showing path to fellows' positions, Agency F

Source: Agency website and interviews with agency staff in winter 2013–14.

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VIII. AGENCY G—SPECIAL SCHOOL DISTRICT

This special school district is designed to transform the city’s underperforming schools into successful schools. The district manages schools directly (direct-run schools) and then transitions them into charter schools that the district oversees. In the future, the district will facilitate the immediate conversion of underperforming schools into charters; it will not manage any schools directly.

The district has partnered with EP since 2012 to make data about the city’s schools easily accessible to parents, educators, and community members. During 2013–14, each EP fellow focused on a different topic area: communication with parents, enrollment patterns, and CTE. The district also employed two EP fellow alumni as district employees with new roles: one served as associate director of data and analytics (and supervised a current fellow); one provided technical assistance for data from the district’s remaining direct-run schools.

District spotlight

Program partner: EP

Partner since: 2012

Number of fellows: Three

Project description: EP fellows support the district’s efforts to communicate to parents, track enrollment, and launch CTE schools.

A. Background and context for data use

In 2013–14, the district had a central office team dedicated to collecting and reporting data from its direct-run schools; the charter schools collected their own data. In response to the state’s directive that the district should immediately transition failing schools to charter operators, the district focused on taking steps to no longer directly run any schools as of 2014–15. The direct-run schools were to become charter schools or close, resulting in a significant decrease in the number of district employees because charter schools function as independent local education agencies (LEAs).

Data system. Because most schools in the district are charter schools, the district has limited control over the procedures for data use in most of the schools it oversees. Each district charter school has its own SIS designed to integrate some data into the district’s system. However, some charter schools do not provide district-requested data, and others provide inaccurate or incomplete data. For direct-run schools, the district used a comprehensive student, school, and employee information system that linked with the state data system.

Staff expertise and development. Many of the district’s central staff value and use data regularly and were hired because they possessed those skills. The district’s “achievement team” provided technical assistance on data use to the direct-run schools. The achievement team conversed with school staff about interpreting formative assessment scores and customizing instructional practice based on the results. The achievement team presented the formative assessment data to principals, highlighting areas where the schools showed growth in student ability and where schools stood in relation to others.

Partnerships and resources. The district partners with a local nonprofit organization to produce a parents’ guide. The nonprofit developed the guide independently for several years

before the fellows began working on it; then the organization's primary involvement became its production and distribution. The district also partners with several business and economic development organizations to inform its CTE programming so it matches labor demands. The district contracts out its formative assessments. The contractors provide varying levels of technical support, professional development, and reporting to help school and district staff analyze the assessment results.

B. Working with EP fellows

In 2013–14, the three fellows worked on separate teams: one was in data and analytics department; one was in the portfolio department, which evaluates charter schools and holds them accountable; the third was on the enrollment team. Their projects were:

- Producing the parents' guide.** The parents' guide makes school-level data easily accessible and understandable for parents choosing a school. No school in the district is neighborhood based, so parents must rank their school choices when enrolling children. The reports summarize data on class size and student-teacher ratios, test performance, student stability, attendance, and discipline. To produce the report, the fellow took publicly available school-level data and did basic calculations, such as percentages, to make the data easier to understand.

Key data activity: produce parents' guide

Make school-level data more accessible to parents to inform their school choices
- Monitoring enrollment across the city.** One fellow tracked student enrollment in all public schools in the city (the direct-run and charter schools in the district and in the city's other school district). The fellow built databases to show the number and demographic categories of students enrolled, entering, and leaving various schools during the course of the year. The fellow also monitored applications to the schools through the city's open enrollment process.

Key data activity: monitor enrollment across the city

Monitor enrollment to better understand student mobility and the desirability of various schools
- Developing a comprehensive truancy initiative.** A fellow worked with a policy team to reform the city's tactics to decrease truancy. The fellow drew on data collected for the enrollment project (see above) and also from information on best practices from other districts. The team will identify community partners to help with the effort and develop an action plan.

Key data activity: develop a truancy initiative

Use the city's enrollment data and information on best practices to develop a plan to address truancy
- Launching CTE-focused charter schools.** The district believes it must help prepare students who do not plan to attend college be successful in careers, so one fellow recruited and supported the launch of new CTE-focused charter schools. This work involves a four-phase plan: (1) expose school leaders to the career needs and employment environment that

Key data activity: launch CTE charter schools

Implement a strategic plan to launch CTE-focused charter schools

students will face after graduation; (2) show school leaders and partners the specifics of the careers; (3) invite school leaders with strong CTE programs to discuss the details of implementation; (4) identify providers of CTE programming.

C. Data analysis and reporting

To improve its funding formula for special education, the district completed a study of the costs of special education services provided across its schools. The aim was to gain a clear understanding of the kinds of disabilities among the student population and the costs schools can anticipate when serving those students. Using study results, the team developed a formula that disaggregated students based on their primary disability category and services received. To address the concern that schools might change individualized education programs (IEPs) in response to the new formula, the district will closely monitor schools—making visits and requesting evidence of high quality service provision.

As a follow-up to the parents' guide project, a fellow and his supervisor intend to conduct analyses to understand the extent to which parents use the guide. The district plans to work with its partnering organization to collect additional data from parents regarding what aspects of the report they use and find helpful and what aspects they do not.

The department that oversees charter schools conducts a variety of analyses related to charter school accountability. The cycle of analyses and reporting includes the launch of new charter schools and review of existing charter schools' performance. The district plans to begin using an application being developed by the state to determine the likelihood of a school's success.

Most reporting and dissemination activities focused on the direct-run schools. The data and analytics department reported data to the state on the direct-run schools several times each year. The achievement team built a weekly dashboard for principals of the direct-run schools on a variety of data, including attendance, formative and summative assessment data, teacher effectiveness, student discipline, and special education student data. The goal of the dashboard was to create transparency and a sense of friendly competition among schools, as principals could see data from other schools.

D. Challenges and lessons learned

Challenges. The district faced many challenges as it restructured to become a district of only charter schools, including:

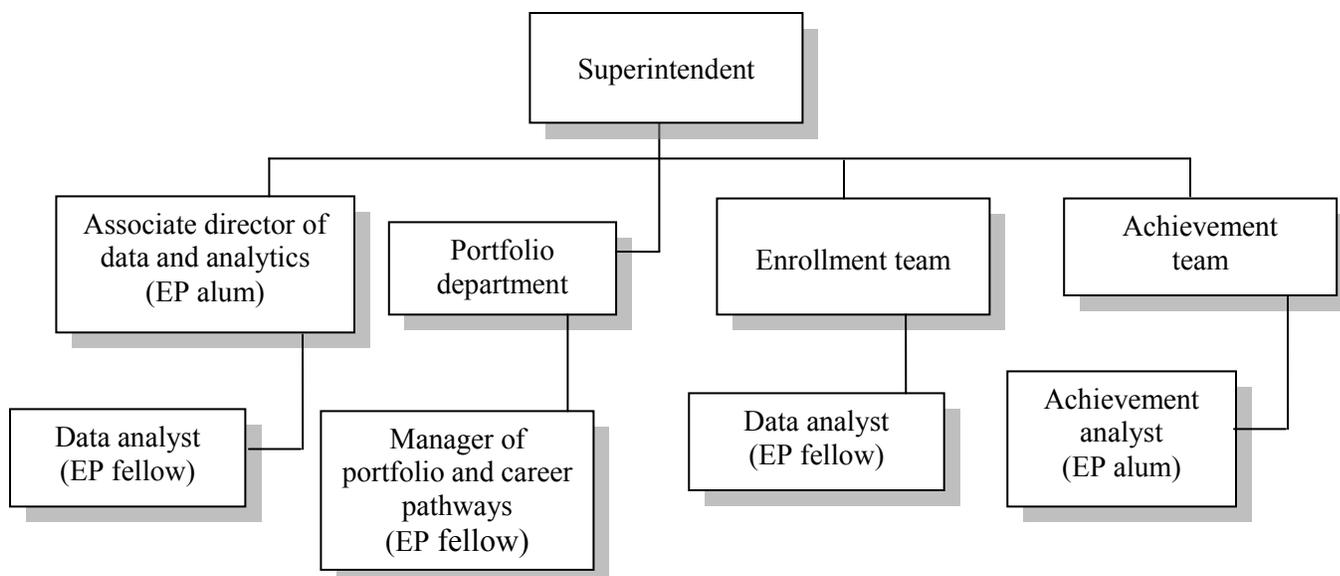
- **Data quality.** Charter schools maintain their own data, using separate systems, procedures, and practices. Because of this, schools do not report data consistently, and the quality of the data is often lacking. A district typically can flag problematic data before it is sent to the state, but because the district lacks access, data from such schools are often inaccurate.
- **Unclear relationship with and authority over the charter schools.** A primary question for the district is how it can act on whatever data it receives. If the district notices trends and issues across schools, the level of guidance it can give charters to make improvements is unclear.

- **Coordination issues.** Because the district cannot access its schools' data directly, it must coordinate with the state education agency. The district often has difficulty communicating its priorities and coordinating an acceptable time frame for receiving the data. Coordinating with the city's other school district is also a challenge.

Lessons learned. Even in a year of transitioning to a new structure with no direct-run schools, the district learned several things:

- **Create a culture that values data.** The district values data and stresses data use in the central office. Staff use data for grants, news reports, and determining whether schools should be opened or closed.
- **Develop a system for charter accountability.** Despite the challenges with charter school autonomy, the district's system for authorizing new charters, evaluating existing ones, and determining if charters should be renewed is ahead of most other cities' systems. The district believes specializing in only charter schools can further improve its accountability systems for charters.
- **Hire fellows for full-time positions.** Staff valued the strong analytical skills the two 2012 fellows brought to the agency and hired them for full-time positions with leadership roles. The partnership with EP provided highly skilled talent to which the district would not otherwise have access.

Figure 7. Organizational chart showing path to fellows' positions, Agency G



Source: Agency website and interviews with agency staff in winter 2013–14.

IX. AGENCY H—CMO

This growing K–12 charter school network is focused on college readiness, as reflected in its expectation that all students be accepted into a two- or four-year college. The CMO partners with EP to create data tools that contribute to its mission of college readiness and expanding opportunities for collaboration with similar charter organizations. The fellow works on an EWS that tracks student progress toward college readiness goals.

A. Background and context for data use

The CMO’s data use supports its priorities in its five-year strategic plan. The priorities include: (1) provide high quality college preparatory education by 2015, (2) build the human capital pipeline and CMO capacity to support growth, (3) refine the model for the CMO’s schools⁴ and ensure consistent execution on all campuses, (4) increase rigor to ensure college readiness, (5) achieve financial sustainability. Staff in the network’s schools and administrative office use data to track students’ progress toward achieving college readiness, making instructional decisions, evaluating and rewarding teachers, and identifying improvements to existing policies and programs. The CMO formed a data analytics team within the administrative office that provides assessment coordination, data collection, and reporting. The data team works closely with curriculum and instruction, the Road to College Team, and IT, and it supports other teams as needed.

Data system. The CMO aims to seamlessly integrate its distinct data systems, including an HR system, an SIS, and student assessment system. Staff access reports and graphics produced in data visualization software through the CMO’s intranet site. Every staff member can access the intranet, but teachers see individual data only for their own students.

Staff expertise and development. When hiring new staff, the CMO’s leadership team seeks those who think critically and attempt to answer questions with data. The staff administered a survey and held focus groups to identify ways to improve the CMO’s use of professional development time. The EP fellow and former fellows received training about data visualization and dashboards from external organizations and informally shared what they learned with other staff.

Partnerships and resources. To support its priorities for data use, the CMO relies on partnerships with a consulting company, a data analytics firm, and a university. It also relies on informal exchanges with other CMOs. The consulting company set up an intranet site and the

Agency spotlight

Program partner: EP

Partner since: 2010

Number of fellows: One

Project description: An EP fellow creates a model to track students’ progress toward college readiness and works with IT to improve data systems.

⁴ The model for the CMO’s schools includes: high expectations for students and staff; a mission focused on college readiness; autonomous school leadership; efficient centralized services; K-12 continuum; International Baccalaureate (IB) curriculum; extended time on task; data use to monitor progress; freedom for teachers and leaders to innovate; community-based dual board structure; and recruitment, development, and retention of excellent staff.

initial data warehouse, and helped them select data visualization software. The data analytics firm assists with integrating the CMO's data systems. The university partner is creating a growth model to measure teacher effectiveness.

B. Working with EP fellows

Having partnered with EP for several years, the CMO had in 2013–14 one fellow working on the data team alongside three EP alumni. The CMO values its partnership with EP because it brings to the education field talented professionals from other sectors. The 2013–14 fellow's projects included:

- **Creating a system to track progress toward college readiness.** The EP fellow built on an existing model to predict how much progress students would have to make throughout the year to be on track to achieve college readiness. This work involved incorporating data from the old and new state assessments and interim assessments. The fellow also planned to collect information on students' participation in interventions to merge with the predictive model to provide intervention recommendations for teachers.

Key data activity: create a system to track college readiness

Create a system to predict whether students will achieve college readiness

- **Incorporating new data into existing systems.** The fellow worked with the IT department to incorporate new data into existing systems and to integrate all systems into the data warehouse. The primary goal of the project was to ensure that the structure of the warehouse would accommodate future test score data and enable longitudinal comparisons of student progress.

Key data activity: incorporate new data into existing systems

Structure the data warehouse so it accommodates all data systems and future test score data

- **Fulfilling additional data and analysis requests.** As teachers and administrators became more adept at interpreting and responding to data, they requested more analyses from the data team. The EP fellow worked with the team to fulfill these requests, which ranged from data extractions to special reports. For example, the fellow prepared a "failing grades report" listing all students who were receiving failing grades. It was prepared for grade-level chairs or principals, as needed.

Key data activity: fulfill additional requests

Fulfills data and analysis requests from teachers and administrators

C. Data analysis and reporting

Most of the data team's work focused on the priorities of achieving college readiness for all students; recruiting, retaining, and rewarding talent; and building sustainable data systems. For example, the team created customized reports to link item-level assessment data to college readiness standards. The CMO created a new observation rubric to be used in conjunction with a value-added model to evaluate and reward teachers. The data team created tools to provide automated feedback to leaders on teachers' professional development needs. The data team analyzed exit interview data to determine why first-year teachers did not continue teaching.

The CMO disseminates the results of its analyses through data review days, and through reports published on the intranet site. All teachers across the CMO come together three times a year for review day when grade-level or subject-area groups review test data and make quarterly action plans. Teachers can access reports and data visualizations on teacher and student performance through the intranet, including automated reports based on real-time student data and mid- and end-of-year teacher evaluations data.

D. Challenges and lessons learned

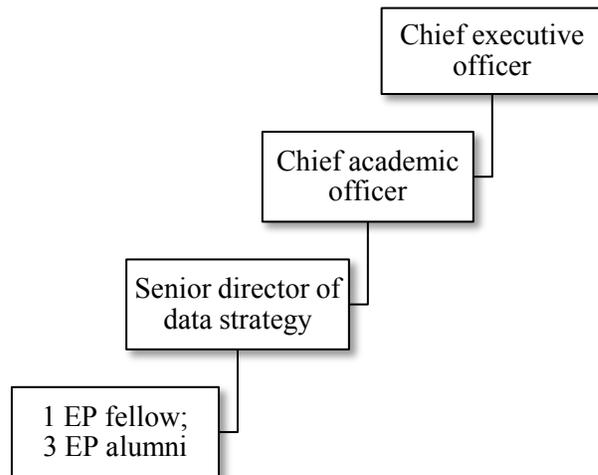
Challenges. The CMO experienced some challenges with its data systems and reporting during 2013–14:

- **Analyzing financial data.** Although staff prioritize analyzing academic data, they sometimes neglect financial data. For example, the CMO could create sophisticated cash flow forecasting to ensure financial sustainability. It could also link financial data to student outcomes to conduct cost/benefit analyses of its programs.
- **Teachers' data analysis skills.** The CMO provides a high volume of data to teachers, which can sometimes be overwhelming to those with little data experience. As a result, many teachers rely on the data team to do basic analyses for them.

Lessons learned. Key lessons learned from the CMO's efforts to use data include:

- **Prioritize data use.** The CMO has embedded data use in its culture since its inception. It has a dedicated team focused on data analytics, which has increased demand for analyses. Leaders and teachers use data to inform and adjust instruction and other decisions.
- **Make data accessible and user-friendly.** The data team developed skill in representing data so that it is visually compelling, understandable to various audiences, and shows trends over time.

Figure 8. Organizational chart showing path to fellow's position, Agency H



Source: Agency website and interviews with agency staff in winter 2013–14.

Note: The EP fellow's position title is "EP fellow."

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X. AGENCY I—SCHOOL DISTRICT

This mid-sized urban school district serves a diverse array of schools that vary in demographic composition, achievement levels, and resources. One way the district addresses the opportunity gap is through an open enrollment policy: students apply to any school in the district, and about half of all students attend a neighborhood school. During the 2013–14 school year, the district revised budgeting procedures and implemented other reforms to support more equitable distribution of resources across schools.

The district has partnered with EP for several years. It has hired summer and analyst fellows. During 2013–14, the five analyst fellows served in distinct roles in separate departments with limited opportunities for interaction. The goal of the partnership with EP is to develop a culture of data use and break down barriers between departments. The partnership also is a means of recruiting employees with technical, project management, and managerial skills—fellows are often hired as permanent, full-time staff after the fellowships.

District spotlight

Program partner: EP

Partner since: 2009

Number of fellows: Five

Project description: A mid-sized urban school district partners with EP to improve data systems and interdepartmental communications.

A. Background and context for data use

The state took over the district from 2003 to 2009, and in the years since then, the district has pursued many initiatives and programs, sometimes with overlapping goals. The district received a waiver from NCLB with a group of districts in its state, which entails an aggressive time line for implementing the CCSS and a new teacher and leader effectiveness system. In 2013–14, other district priorities included developing a funding formula that more equitably distributes resources and implementing full-service community schools that provide such things as health centers, tutoring, counseling, and development of job skills. The department formerly called Research Assessment and Data recently reorganized and renamed itself Quality, Accountability, and Analytics to reflect the new emphasis on evaluating success by looking not just at test scores but at the whole child, including health and social-emotional aspects.

Data system. The district uses several systems to house different types of data: an SIS; a business and finance system; an assessment system; a system for the reading inventory; several separate early childhood systems; an afterschool program system; an HR system; and a school-wide information system for referrals, interventions, and positive behavior interventions and supports (PBIS) programs. The data systems are not linked, and some are paper-based. The district is in the process of establishing a data warehouse that will link the most relevant data across systems.

Staff expertise and development. Staff skills in using and analyzing data varied across the agency. The research department had recently shifted from an emphasis on extracting and compiling data to analysis. Some research staff were highly skilled in conducting analyses; others were not. Regarding charter school oversight, most staff were skilled in conducting

quantitative and qualitative data analyses to determine whether compliance criteria are being met.

The research department received professional development instruction related to data use, including Geographic Information Systems (GIS) training in order to expand GIS mapping and place-based analyses and training related to a data warehouse and dashboard pilot. Most of the fellows have not received or provided any formal training related to data use, though they provide technical assistance to staff.

Partnerships and resources. The district partners with several external organizations to support data use. External vendors work with the district to establish a warehouse, dashboard, and data governance structure; develop an EWS; analyze attendance data; and collect and analyze post-secondary outcomes data. The district also uses data tools and models developed by other districts and CMOs in the state to track college readiness and evaluate educator effectiveness.

B. Working with EP fellows

The district's goal in its partnership with EP is to recruit professionals who have skills with data and management and who can help develop a culture of data use and break down barriers between departments. Most fellows have one project as a main focus but each also works on other priorities in their departments. They serve across a range of departments, including the office of the chief of staff, the strategic school support division of the HR department, and the charter schools department. Examples of fellows' projects include:

- **Implementing the new budget process.** One fellow who worked under the chief of staff for the superintendent contributed to preparing and rolling out a new equity-based budgeting process. The fellow created models and templates, communicated aspects of the process to various stakeholders, and set up a tracking system for the rollout.
- **Creating new systems for data collection.** One fellow worked on creating a new data system to facilitate the exchange of data between charter schools and the charter schools department. The fellow also developed a system to more accurately capture attrition data in an effort to consistently capture the number of student expulsions and the reasons for them.
- **Piloting teacher evaluation systems.** One fellow helped the strategic school support division of the HR department pilot three teacher evaluation systems (two externally developed and one internally developed) in order to select the system all schools in the district will eventually use. For the internally developed

Key data activity: implement a new budgeting process

Create data models and communicate and track implementation

Key data activity: create new data collection systems

Create systems to better facilitate exchange of data between charter schools and the district

Key data activity: pilot teacher evaluation systems

Develop materials, train staff, and analyze qualitative data on the evaluation systems

system, the fellow created all training materials, wrote a user's guide, developed a strategic communications plan, and developed and piloted a student survey aligned to the effective teaching framework. For the externally created systems, the fellow developed reporting mechanisms and trained schools how to use the systems. The fellow also analyzed focus group and interview data about all three evaluation tools, which will inform recommendations on which to adopt.

C. Data analysis and reporting

In 2013–14, the district began implementing what it calls a “balanced scorecard.” The scorecard sets goals and targets for each school year, with corresponding metrics for student performance, school operational performance, and operational performance from the central office. For each indicator, the research department uses data from previous years to identify trends and help set goals. Some fellows analyzed data for the scorecard. For example, one goal is to develop a workplace that proportionally reflects the diversity of the district's students. A former and current fellow researched hiring pipelines and analyzed data to understand how the hiring process actually works within schools. These analyses will inform the district on the extent to which it is hiring teachers with diverse ethnic backgrounds.

Another key analysis and reporting activity is the school quality review (SQR) process, which results in a comprehensive annual report on each school that includes both quantitative and qualitative data based on a three-day site visit. The process involves assigning to schools teams of teachers and administrators who evaluate quality against specified standards. The purpose of the SQR is to inform the school-level strategic plan, though these are not clearly aligned. One fellow was to examine the alignment between the two processes.

D. Challenges and lessons learned

Challenges. The district faced some challenges with its data systems and use of data:

- **Old data systems and failing infrastructure.** Respondents described the data infrastructure as archaic and challenging to use. The lack of access across the agency and the need to manually combine data sets creates inefficiency. In addition, data quality is an issue across systems.
- **Communicating across departments.** Departments generally do not communicate with one another. As a result, staff do not understand how their work fits into the larger goals of the agency and cannot easily share what they are learning about data use.
- **Using data to drive change.** Although the district creates data-rich reports, such as the SQR reports and the balanced scorecard, respondents said the district does not use them to inform system-wide policy or program changes.

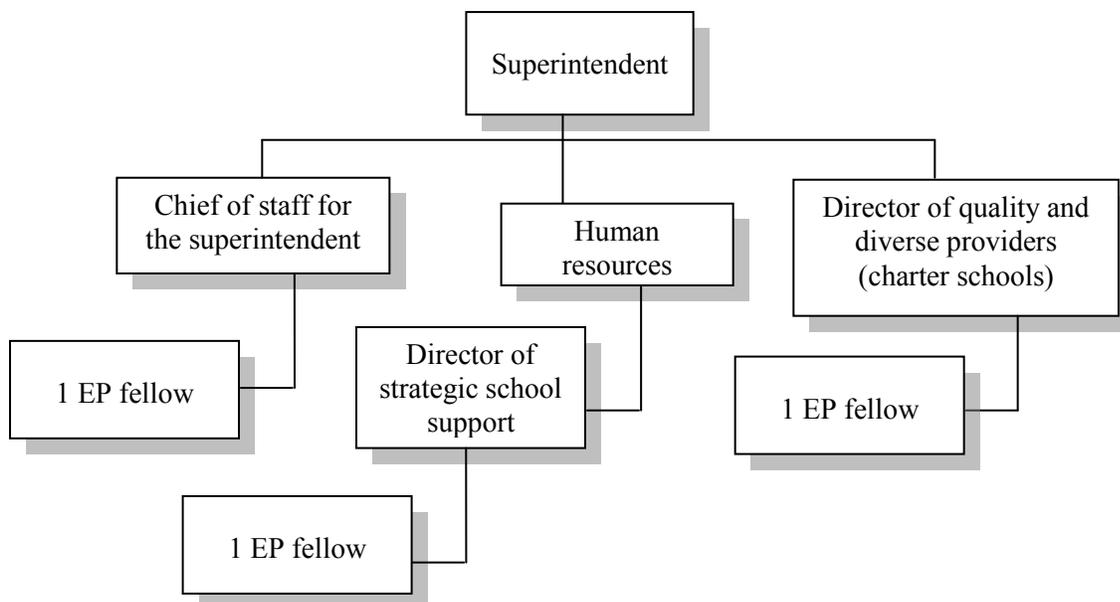
Lessons learned. Staff reported that the district now knows it must:

- **Use more than test data.** The reorganization and renaming of the research department reflect the district's new emphasis on collecting and analyzing data that offers a more holistic view of school and child success. The community schools initiative and the SQR

process reflect the district’s position that additional types of data (health, social-emotional, and school climate, for example) can be vital indicators of school quality.

- **Use fellows with expertise in data analysis and change management.** Over the last five years, EP fellows have created a reputation for managing systems change and analyzing data. They also have brought knowledge about policies and data use in other states and districts. Staff reported that the district’s initiative to recruit fellows and hire many of them as full-time staff creates a more data-driven culture.
- **Value data use.** The superintendent and other senior leadership aim to transform the district into a data-driven organization. They have taken steps to move the central office toward this through restructuring the research department; emphasizing hiring staff with data analysis skills; and developing new initiatives, such as SQR and balanced scorecards.

Figure 9. Organizational chart showing path to fellows’ positions, Agency I



Source: Agency website and interviews with agency staff in winter 2013–14.

Note: The position title of EP fellows in this agency is “EP fellow.” The agency had five fellows, but two are not included in the organizational chart because we were not able to interview them.

XI. AGENCY J—SCHOOL DISTRICT

This large and diverse school district has undertaken innovative strategies for staffing schools and incorporating data into decision making. Through the partnership it had forged with Teach for America (TFA), it learned about SDP and began that partnership in the 2013–14 school year.

The district has two fellows: one in the division of teacher and leader effectiveness who works primarily to incorporate multiple measures into the new teacher and leader evaluation system, and one who works in the accountability department and evaluates the effectiveness of a college readiness program and a reading intervention.

A. Background and context for data use

Three strategic priorities guided work during 2013–2014: (1) implementing a new teacher and leader evaluation system, which includes piloting student surveys and value-added measures that will combine with observation data for teacher evaluations; (2) developing a leadership pipeline, which involves expanding the talent pool of principals and future principals—clarifying the specific criteria necessary to become a principal, and preparing emerging leaders for this role; and (3) standardizing reading instruction and interventions. Based on a review of the evidence of effectiveness, the district chose one program as the main reading intervention for schools across the district.

Data system. The district uses three data systems: an SIS, a financial and human capital data system, and a professional development system. The district houses the data in a data warehouse that staff can access through a dashboard. As of 2013, the warehouse did not link student and teacher data. A partner organization extracts the data from two systems to calculate teachers' value-added scores. To ensure that data are high quality, the IT department implements internal review and data cleaning procedures and uses software to generate reports that identify and correct errors.

Staff expertise and development. A recent shift toward strategic data use led to hiring more staff with strong data analysis skills, and these staff now conduct new analyses for the district. For example, one new district employee uses teacher effectiveness data to help principals determine where to place teachers; another uses data to determine which universities produce the best teachers. District staff participate in professional development related to data use. The teacher and leader effectiveness division trained principals on how to interpret value-added scores and student surveys. An external organization worked with all departments in the central office to develop balanced scorecards and use its metrics for performance measurement.

Partnerships and resources. Many of the district's current partners support the implementation of the new teacher evaluation system. For example, the district partners with a research center that developed the district's value-added model and provides the analyses. The

District spotlight

Program partner: SDP

Partner since: 2013

Number of fellows:

One agency fellow; one data fellow

Project description: SDP fellows support the district in its efforts to implement a new teacher and leader evaluation system and evaluate programs.

research center worked with the district's teacher and leader effectiveness division to compare value-added scores for teachers with different characteristics, such as TFA vs. non-TFA teachers. Another organization provides the communication and training associated with the value-added model. The district will soon partner with an organization to support the district's use of data to improve recruitment, retention, and induction processes. It also partners with a local university that conducts school climate surveys at all campuses.

B. Working with SDP fellows

The district's primary goals for the partnership with SDP are to build internal capacity for data analysis and develop a data-driven culture. The fellows served in two separate divisions with different supervisors. One fellow reported to the director of teacher and leader effectiveness; the other reported to the chief accountability officer. The fellows' work primarily focused on:

- Incorporating multiple measures of teacher and leader effectiveness.** One fellow's work entailed combining the various components (value-added data, student surveys, and qualitative measurement data) into a multiple-measures framework to provide a recommendation to the district on the proper balance of each component in the evaluations of teachers and principals. This work included analyzing data from a pilot of student and teacher surveys that will eventually become part of principals' evaluations.

Key data activity: incorporate multiple measures

Determine balance of multiple measures and pilot surveys for the new evaluation system
- Analyzing the effectiveness of programs.** Another fellow analyzed the effectiveness of two programs. The first is a national college readiness program that provides extensive, ongoing support for potential first-generation college attendees. The fellow was to examine AP test performance and college acceptance rates to assess program effectiveness. The fellow also assessed effectiveness for the district's new reading intervention, which aims to reduce the number of students retained in third grade. For this, the fellow was to examine reading test scores and retention.

Key data activity: analyze program data

Analyze effectiveness of a college readiness program and a reading intervention
- Developing a new data dashboard.** Both fellows worked with a team of district staff, teachers, counselors, and school administrators to develop a new data dashboard. The team determined key performance indicators and goals and considered user-friendly features. Teachers will have access to the new dashboard when it is rolled out.

Key data activity: develop new data dashboard

Determine data that will be included in the district's new dashboard
- Fulfilling additional data requests.** Fulfilling data requests for various departments in the central office made up a significant portion of both fellows' workloads. Examples included providing data for

Key data activity: fulfill additional data requests

Provide data on a range of topics when needed

grant reporting, providing data on students from specific grades or programs, and providing achievement and disciplinary data to external organizations. The amount of time the fellows spent on such requests varied from week to week.

C. Data analysis and reporting

The district aims to use data analysis to improve how it screens and hires teachers. The district hires 300 to 350 teachers every year, and each application includes standard educational data, as well as a writing sample and video presentation. To streamline the data collection and analysis, the district will launch a new platform developed by a partnering organization. The platform will provide a more efficient way for HR staff to analyze the various components of each application in order to select the most promising candidates.

Each fellow conducted diagnostic analyses related to the work in their specific departments. One fellow planned to use NSC data to track the college enrollment of students who participate in the college readiness program in high school; one fellow's diagnostic analyses addressed questions about how teacher recruitment, placement, development, evaluation, and retention relate to student growth.

Each central office department reports on key performance indicators in a balanced scorecard, which the executive staff and a performance management advisory team review. Twice annually, the district creates for the board a report on core priorities and progress based on metrics approved by the board. In addition to board reports and department scorecards, school-level value-added reports are given to philanthropic stakeholders who serve on a steering committee.

D. Challenges and lessons learned

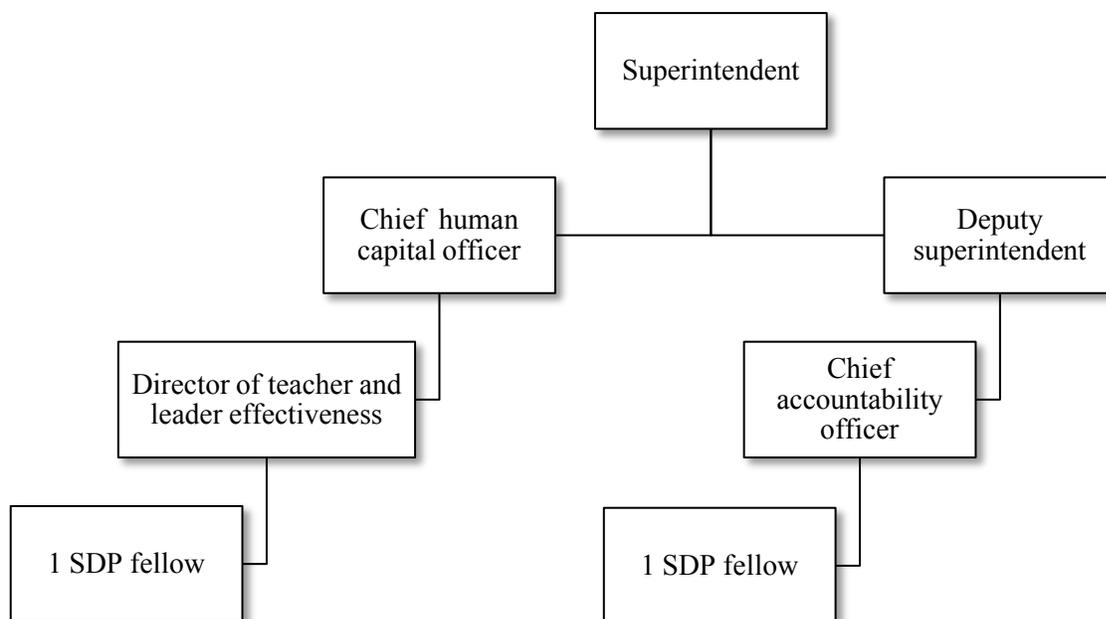
Challenges. The district faced several challenges with its data systems and use of data:

- **Linking data across systems.** Having multiple data systems makes combining data from different sources difficult. For example, separate systems house student and teacher data and are not easily linked. The added step of combining data sets prevents staff from analyzing data in a timely manner.
- **Data accessibility.** Only a few district staff have access to data, making it difficult for departments and schools to use data for conducting analyses.
- **Data-based decision making.** District office staff do not always employ data-based decision making. Respondents reported that staff often make decisions without carefully examining the details of the data. After reviewing data, staff will note trends and issues that should be addressed, but they do not typically follow through with a plan for improvements and subsequent data monitoring.

Lessons learned. Respondents reported that the district came to several insights as it sought to become more data-driven:

- **Develop a culture that values data.** Across the district, staff recognize the importance of collecting and reviewing data. The administrative office receives more requests for data and analyses from schools; staff increasingly ask about data in meetings.
- **Use fellows to build staff data skills.** A fellow conducted several training sessions in schools for principals and teachers. In addition, the fellows share knowledge and skills with co-workers in their departments. The SDP fellowship program attracts highly skilled and talented individuals to which the district would not otherwise have access.
- **Leverage partnerships.** The district partners with many universities, nonprofits, and other organizations that provide data expertise, and it uses the partnerships to build more. For example, its partnership with TFA eventually led to its SDP partnership.

Figure 10. Organizational chart showing path to fellows' positions, Agency J



Source: Agency website and interviews with agency staff in winter 2013–14.

Note: The position title of the fellows is “SDP fellow.”

XII. AGENCY K—SCHOOL DISTRICT

This county school district has relatively high student achievement, and that has increased over the last several years. Nonetheless, there is a large achievement gap, especially for students of color, English language learners (ELLs), and students with disabilities. This is one of the key areas of focus for SDP fellows.

The district has three SDP fellows, all of whom worked at the district before the SDP fellowship began. As of fall 2013, they each planned to focus on a separate data project: one planned to evaluate the academic return on investment of the district's spending, one planned to analyze survey data on district culture, and one planned to explore strategies to reduce the achievement gap.

District spotlight

Program partner: SDP

Partner since: 2013

Number of fellows: Three agency fellows

Project description: SDP supports a large school district aiming to implement data-based decision making and reduce the achievement gap.

A. Background and context for data use

The district's priorities are largely based on the state's priorities for improving college and career readiness and teacher effectiveness. The state department of education established college and career readiness as its major priority and designed a comprehensive assessment system. The district offers opportunities for students to earn industry certifications and college credits; it also provides resources for exploring college and career paths. The district is piloting the state's new teacher and principal evaluation model which will be rolled out across the state in 2015–16.

Leadership changes and departmental restructuring in the district may help facilitate data-based decision making. The district appointed a new superintendent who created the position of chief academic officer (CAO). Prior to the CAO's appointment, the district had a relatively flat structure with many people making decisions independently. The new CAO is restructuring the central office to create a more systematic process for decision making.

Data system. The district has several data systems, including a demographic data system, a test score data system, a system to track truancy, and separate systems for teacher data. The data systems are not currently linked, and each staff person typically accesses a subset of the data systems.

Staff expertise and development. Although district staff endorse data use, many of them lack access to data as well as the knowledge and skills necessary for using data strategically. With additional support, such as more staff time and training on data analysis methods and data systems, data could be used more effectively throughout the district. Some efforts are underway; for example, one fellow is training principals on how to use the data report cards.

Partnerships and resources. Through a foundation-funded program, the district works with an education consulting company to evaluate the academic return on investment of district spending. In addition, the district contracted with an organization to design and analyze surveys

of parents, students, and the community. This information will be used with quantitative data to gain a richer understanding of the district's culture and to track changes.

B. Working with SDP fellows

The primary goals of the partnership with SDP are that the fellows will give the district a deeper capacity to (1) connect and analyze data across sources (academic achievement, finances, perceptions/school climate surveys); and (2) use data to identify solutions to problems. Each fellow served in 2013–14 as a department director: one directed district communications, one directed resource allocation, and one directed curriculum and assessment. As of fall 2013 when the interviews took place, the fellows had not yet planned the projects to complete during their fellowships. The general topics of focus included:

- **Evaluating academic return on investment.** One fellow had plans to work with the education consulting company to evaluate the academic return on investment of the district's spending, as part of a foundation-funded grant.
- **Analyzing survey data on district culture.** One fellow was to analyze data on district culture—to be collected in a survey developed by a contractor.
- **Researching strategies to reduce achievement gaps.** The district has a large achievement gap, particularly for students of color, ELLs, and students with disabilities. One fellow considered researching proven programs for these struggling populations.

Key data activity: evaluate academic return on investment

Work with an education consulting company to evaluate return on investment of district spending

Key data activity: analyze survey data

Analyze survey data on district culture

Key data activity: research strategies and programs

Research proven programs for struggling populations

C. Data analysis and reporting

Many of the district's analysis and reporting efforts were planned to be responsive to state requirements, such as the requirement that each school and district complete an annual improvement plan. The improvement plans are to include a wide range of metrics—including for student achievement, non-academic indicators, and parent engagement—as well as time lines for collecting the data. Outside of the state-mandated reporting, most data use focuses on monitoring. For example, the district produces an annual equity scorecard, which reports various indicators, such as test scores and teacher characteristics, broken out by subpopulation. In the future, the district would like to conduct analyses that target the achievement gaps for student of color, students with disabilities, and ELLs. The district plans to research what strategies work for each subpopulation in order to appropriately target each one.

The district produces a variety of reports for the state, community, board, principals, and parents, and tailors its message to each audience. Several years ago, district leadership pushed to develop data dashboards on its public website, but due to shifting priorities, only the student achievement dashboard was built. The dashboard, which displays state assessment results by school and subpopulation within school, is available on the website but not widely used.

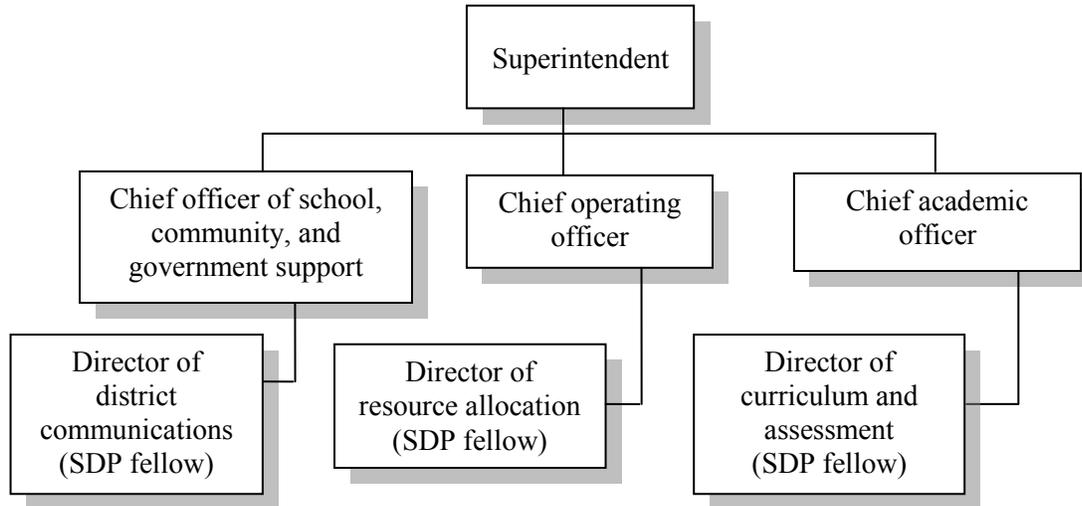
D. Challenges and lessons learned

Challenges. The district faced some challenges with its data systems and use of data:

- **Use of data by staff.** The district has access to a high volume of data but staff rarely have the time and capability to analyze it and extract meaningful information.
- **Data infrastructure.** The district does not have a data warehouse that integrates data, which makes using data across different systems time-consuming and costly. Moreover, some staff have so much data they do not know what are relevant; others have no access to relevant data and must ask IT to extract it.
- **Data quality.** Respondents reported that staff do not have enough time to ensure that data are high quality so some data are outdated or erroneous. Staff are often unaware that the errors exist and use the data as if they were high quality.

Lessons learned. Key lessons learned from the district's efforts to use data include:

- **Mobilize existing staff to ensure sustainability.** Rather than bringing in fellows from the outside, the district chose to use fellows who were already employed by the district and will continue to work for the district after the fellowships ends. The fellows were already immersed in the district's culture so they could identify what projects would make a long-term impact.
- **Create a systematic process for decision making.** By hiring the CAO to restructure the central offices, the district aims to create a systematic process for decision making. This will help prevent redundancy.

Figure 11. Organizational chart showing path to fellows' positions, Agency K

Source: Agency website and interviews with agency staff in winter 2013–14.

XIII. AGENCY L—SCHOOL DISTRICT

This large school district is interested in data-based decision making, as reflected by the creation of a program evaluation department and the partnership with SDP. The district had two SDP fellows in 2013–14—both new employees who served as department directors. The goals were to improve staff skills in data use and establish data priorities for the fellows’ departments.

A. Background and context for data use

During the 2013–14 school year, the district’s research and assessment office (directed by one of the SDP fellows) had three primary priorities: (1) meet the state’s requirements for creating assessments in untested grades and subjects for teacher evaluations; (2) create a governance structure that specifies the party responsible for owning and monitoring specific data; and (3) restructure data dashboards to be user-friendly, thereby facilitating teachers’ use of them to inform instruction. During its second year, the program evaluation department (directed by the second SDP fellow) focused on evaluating district programs and on developing an approach for prioritizing what will be evaluated and informing district staff of the department’s capabilities.

Data system. The district uses many systems and communication between them is possible but very complicated. A web-based enterprise data warehouse (EDW) is an operational data storage site for student and business data. The EDW is accessible only to district personnel and principals, and each group has a different level of access. The district’s instructional management system (IMS) is split into two components: an assessment platform component and a component that houses curricula and lesson plans. The district will eventually have a learning management system (LMS) that houses student data and curricular programs. The district also plans to transition over the next two years to a new SIS to house such information as enrollment, attendance, and discipline.

Staff expertise and development. Although staff value data use, many don’t have the skill to complete complex analyses that can drive decision making. Part of the issue is that data are not centralized, making analysis very cumbersome because data sets must be manually combined. More training on data analysis methods and data systems is also needed.

Partnerships and resources. Two organizations partner with the district to support data systems and use. A technology company provides a platform that houses assessments and their score reports; it also trains staff on how to use the system. An education research organization helps the district assess the linkages between data systems. In addition, the district received targeted funding from RTT for assessment development and data collection.

B. Working with SDP fellows

By partnering with SDP, the district hoped that fellows would bring new skills and ideas into some departments and help establish the district’s data priorities. As department directors,

District spotlight

Program partner: SDP

Partner since: 2013

Number of fellows: Two agency fellows

Project description: A large urban school district partners with SDP to develop staff data skills and solidify priorities.

the fellows reported directly to the associate superintendent of research, accountability, and grants, who reports to the superintendent. The fellows' work focused on:

- Centralizing data collection for school improvement plans.** The state requires that all schools and districts submit improvement plans each year. In past years, schools assembled more than 200 data elements with little guidance from the district. The SDP fellow in the research and accountability department worked to centralize the process by assembling the data and providing guidance so schools use the same data elements.
- Coordinating creation of new assessments.** In accordance with new state regulations, the district is creating more than 1,000 new assessments for all non-tested grades and subjects (arts or physical education, for example), which will be used as a component of teacher evaluations. The fellow in the research and accountability department coordinated teachers' and other district staff's efforts in the creation of the assessments.
- Analyzing college readiness.** One fellow planned to gain access to the NSC data, which provide student-level college enrollment data that can be matched to the district's student-level data. The fellow would then conduct descriptive analyses about participation in programs that predict college readiness, such as AP courses. The district will use the information to more clearly define pathways to college and career readiness.

Key data activity: centralize school data collection

Centralize data collection so school improvement plans are accurate and consistent

Key data activity: create new assessments

Coordinate creation of more than 1,000 new district assessments

Key data activity: analyze college readiness

Analyze predictors for college enrollment to create college and career pathways for students

C. Data analysis and reporting

The research and assessment department conducts most of the district's data analysis and reporting. It generates annual reports and analyses, such as the district scorecards, and it responds to requests from individuals completing doctoral research, grant partners, third-party researchers, and researchers conducting state or federal studies. The department prioritizes requests based on urgency, the position or affiliation of the person requesting, and the time available. The department also conducts longer-term, planned analyses. For example, one fellow ran value-added models for the district, which will eventually be used for all of the new assessments being developed. The evaluation department is conducting an evaluation of 200 reading intervention programs across the district; it identified 20 top reading programs and will analyze more data to narrow the list to 5 or 10 recommended programs.

The district disseminates data primarily through the district scorecards and the assessment data dashboards produced by the district's partnering technology company. The district scorecards, which are published publicly on the district's website, report annual data on 27 key measures of district performance in the areas of student achievement, staff, school climate,

district operations, and community engagement. For each measure, the site provides color-coded data tables that show increases (compared to the previous year) in green and decreases in red, along with business plans that show targets and strategies for improvement.

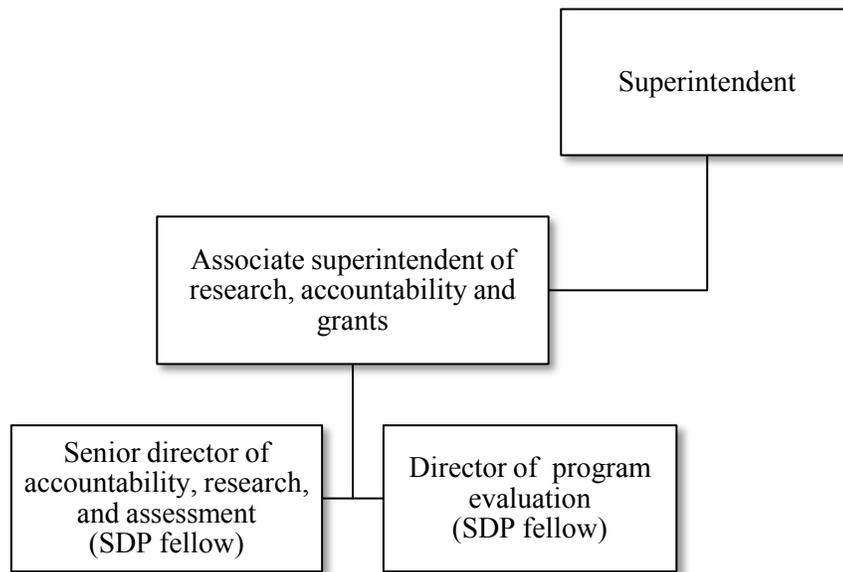
D. Challenges and lessons learned

Challenges. The district faced several challenges with its data systems and use of data:

- **Data infrastructure.** Having several, unlinked data systems creates fragmented data. Because data are not easily linked, conducting analyses can be complicated and time-consuming, which discourages many staff from using data for decision making.
- **Persisting with goals and priorities.** Setting and accomplishing common goals has been challenging for two reasons. First, the district structure consists of a large number of people in leadership positions who have different views on how to monitor progress. This leads to frequent changes to the district scorecards and business plans. Second, the district often implements multiple programs or initiatives simultaneously, and it sometimes implements programs for only short periods of time. The frequent changes in scorecards, business plans, and programming make it difficult for staff to understand the district's long-term goals and priorities.
- **Data governance policies.** Subject matter experts sometimes lack ownership over and understanding of the data, which interferes with clearly communicating what they require to those assembling the data for them. As a result, staff who assemble data often act as subject matter experts, making all decisions related to the data's display without knowing the users' needs.

Lessons learned. Key lessons learned from the district's efforts to use data include:

- **Select leaders who favor using data.** District leadership is motivated to use data strategically. The superintendent has identified others, such as the SDP fellows, who can improve the data processes, and that has set the stage for data-based decision making.
- **Use data for curriculum and program decisions.** With the creation of the program evaluation department, the district has moved toward making curriculum decisions based on research that demonstrates program effectiveness. By focusing on implementing programs that are shown through research to be effective, the district seeks to not only improve student outcomes but also reduce costs.
- **Make data accessible and actionable.** The new assessment platform provides online benchmark assessments and produces biweekly reports on student progress. Teachers and principals are learning how to use the system to monitor students' progress.

Figure 12. Organizational chart showing path to fellows' positions, Agency L

Source: Agency website and interviews with agency staff in winter 2013–14.

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