LANDSCAPE REVIEW: 
EDUCATION DATA

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For more information on the foundation’s education strategy, please visit: www.gatesfoundation.org/education
Landscape Review: Education
Data
Ideal State Requires Key Systems to Link With Data Warehouse

**District Data System Requirements**
- Student Information
- Formative Assessment Tools
- Instructional Management
- Human Resources
- Finance
- SPED
- Other Functionality
- External Systems
- New Learning Delivery Systems

**Functionality**
- Student Information
- Formative Assessment Tools
- Instructional Management
- Human Resources
- Finance
- SPED
- Other Functionality
- External Systems
- New Learning Delivery Systems

**Key Data Items**
- Student demographic information, attendance, and transcripts
- Assessment results
- Lessons plans, mapped curriculum support, professional development, and grade book
- Teacher information
- Instructional and supplementary spending
- Program enrollment, IEPs
- Food service, health, transportation, library systems, college planning tools
- Social services, juvenile justice, PSE

Note: SIS, Formative Assessment, and Instructional Management systems can have overlapping functionality and data elements.
Accountability Movement Has Driven Focus On Data At District

- With greater transparency, parents are now finding out that their local school is not as strong as they may have believed it to be, and demands for improvement and greater accountability have become a common part of America’s dialogue
- “High stakes accountability measures have resulted in demands for more robust and interactive solutions”
- “As part of a gradual industry wide transition from a compliance orientation towards a performance orientation, school districts are under increasing pressure to efficiently link student information directly to assessment outcomes and other types of academic and administrative data”

- NCLB and increased State accountability measures have put a laser focus on student performance at the local level . . .
- “Driven in large measure by the complex testing and reporting requirements of the No Child Left Behind (NCLB) legislation . . . the ability to accurately collect, manage and report against various data streams is of paramount importance to states and K-12 school districts”
- “High stakes accountability measures have resulted in demands for more robust and interactive solutions”
- “As part of a gradual industry wide transition from a compliance orientation towards a performance orientation, school districts are under increasing pressure to efficiently link student information directly to assessment outcomes and other types of academic and administrative data”

- . . . and, as a byproduct, have exposed deficiencies in the way education data have been collected, analyzed, reported and used to date . . .
- “In the past 3-4 years, the market has changed significantly; the assessment market has grown quickly in size, and schools have made it a point to replace older systems”
- “The K-12 market for SIS now demands enterprise solutions that are Web-based, available to a wider range of stakeholders, and comprehensive enough to satisfy specific program area requirements (e.g. special education administration)”
- “There are a lot of RFP’s coming out now asking for integrated curriculum management, formative assessment and data warehousing capability”
- “Most Districts are over specifying their system needs”
- Many school districts are looking for a complete, one-stop-shop solution that integrates a SIS
- Plato representatives estimated that 40% of schools have an IMS and 30% are currently looking for one

- . . . resulting in States and Districts making more deliberate demands of their administrators, teachers and data system vendors

Source: Parthenon vendor interviews; Eduventures; Gartner
In order to make progress towards more effective data usage at the classroom level, districts must...

- Recognize the need and ability to drive behavior change
- Have technology supportive of analysis
- Identify, implement and train on necessary systems
- Pay for the system
Schools Report Difficulty Answering Core Questions

- Most who report ability to answer questions lack the necessary data in “electronic and easily accessible form”, suggesting this is an optimistic view of their capabilities.

Q: On a scale of 1 to 7, where 1 indicates “extremely difficult” and 7 indicates “extremely easy,” how easy is it for your district to answer the following questions using the data that is collected electronically today?

- Poor data quality is more of a school district problem than data systems being integrated. The data-entry clerk is often one of the lower paid employees in the district, and their training is not the best. There’s also not a lot of error checking embedded in each of the data system silos.

- CPSI

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% "Easy" Respondents

<table>
<thead>
<tr>
<th>Question</th>
<th>0%</th>
<th>20%</th>
<th>40%</th>
<th>60%</th>
<th>80%</th>
<th>100%</th>
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<tbody>
<tr>
<td>What is each school’s promotion and graduation rate (according to the</td>
<td>n=189</td>
<td>7%</td>
<td>6%</td>
<td>5%</td>
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<tr>
<td>2006 NGA graduation compact: (4, 5, 6 yr)</td>
<td>n=189</td>
<td>7%</td>
<td>6%</td>
<td>5%</td>
<td>4%</td>
<td>3%</td>
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<tr>
<td>Which schools produce the strongest academic growth for their students?</td>
<td>n=189</td>
<td>7%</td>
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<tr>
<td>Are students (across categories) showing incremental gains towards</td>
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<tr>
<td>meeting grade level benchmarks during the course of the year, by</td>
<td>n=189</td>
<td>7%</td>
<td>6%</td>
<td>5%</td>
<td>4%</td>
<td>3%</td>
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<tr>
<td>subject?</td>
<td>n=189</td>
<td>7%</td>
<td>6%</td>
<td>5%</td>
<td>4%</td>
<td>3%</td>
</tr>
<tr>
<td>Which teachers are meeting benchmarks on state standards with their</td>
<td>n=189</td>
<td>7%</td>
<td>6%</td>
<td>5%</td>
<td>4%</td>
<td>3%</td>
</tr>
<tr>
<td>students? Is there a link with PD?</td>
<td>n=189</td>
<td>7%</td>
<td>6%</td>
<td>5%</td>
<td>4%</td>
<td>3%</td>
</tr>
<tr>
<td>How much money is spent by type of student?</td>
<td>n=189</td>
<td>7%</td>
<td>6%</td>
<td>5%</td>
<td>4%</td>
<td>3%</td>
</tr>
<tr>
<td>Which educational programs/curriculum choices and contextual factors</td>
<td>n=189</td>
<td>7%</td>
<td>6%</td>
<td>5%</td>
<td>4%</td>
<td>3%</td>
</tr>
<tr>
<td>make the most difference with respect to student achievement?</td>
<td>n=189</td>
<td>7%</td>
<td>6%</td>
<td>5%</td>
<td>4%</td>
<td>3%</td>
</tr>
<tr>
<td>What high school performance indicators are the best predictors of</td>
<td>n=189</td>
<td>7%</td>
<td>6%</td>
<td>5%</td>
<td>4%</td>
<td>3%</td>
</tr>
<tr>
<td>students’ future success in high school?</td>
<td>n=189</td>
<td>7%</td>
<td>6%</td>
<td>5%</td>
<td>4%</td>
<td>3%</td>
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</tbody>
</table>

1 Calculated by comparing the data elements non-superintendents collected with the elements required to answer specific question.

Source: Parthenon District Data System Survey (n=189)
And Far Fewer Districts Report Active Investment

- Large districts are more likely to indicate a willingness and ability to invest in an “enterprise management approach” to data

Q: Please indicate your level of agreement with the following statement:
My school district has the ability to invest in a K-12 enterprise management approach to academic and administrative data.

Q: Please indicate your level of agreement with the following statement:
My school district possesses a willingness to invest in a K-12 enterprise management approach to academic and administrative data.

Note: An “enterprise management approach” refers to “districts’ efforts to integrate and manage multiple products within and across one or more of the three business segments” (SIS, IMS, BMS) and was defined during interviews

Source: Eduventures K-12 Trends in Enterprise Management Follow-Up, September 2007
Cultural Indifference and Time Are Barriers, but Fear of Punitive Uses of Data Intensifies Opposition

- “Some people will not accept change and are still afraid of technology”

Q: On a scale of 1 to 7, where 1 indicates “not a barrier” and 7 indicates “extremely important barrier to overcome,” what are the factors that limit data usage?

Other Responses

Commentary About Time

- “We need to dedicate more time to having these professional conversations about student assessment data. Sometimes it is difficult to "find" the time to do this”

- “I think that most users are pretty overwhelmed with keeping up with the day-to-day job. There is insufficient time for staff development in these areas”

- “Data is very beneficial but it often seems to be pretty complex to access it. Secondly, there is always an issue of time. We have limited time to have all staff together for training. Train the trainer model works in theory but, again, it is a challenge to get people time for the training”

- “People find it difficult to find time to use the data.”

Source: Parthenon District Data System Survey (n=194)
Change Management Is a Major Concern for School Leaders

- “I can't get teachers to attend trainings even when I pay them overtime”

Superintendents Are Uncertain of Change Management Techniques

Educators Report Ongoing Challenge of Data Usage

Existing Education-Specific Resources Are Limited

A limited number of templates exist to accelerate efforts of districts

- Datawise
  - Framework that guides districts to prepare, inquire, and act in order to learn from student achievement information

- NCREST
  - Gates-funded intermediary researching many of the fundamental and comprehensive changes that successful education restructuring demands

- Best Practices Framework (NCEA)
  - Framework that identifies themes (i.e. staff selection, compilation of data, academic goals), organizational levels (i.e. district, school, classroom), and the practices that lead to improved education

- Achieving with Data (New Schools)
  - Gates-funded study of four schools with effective data strategies that identifies the key strategies of performance-driven schools (building a foundation, establishing a culture, investing in an IMS, selecting the right data, and using the data to improve performance)

Source: Parthenon District Data System Survey (n=194); Organization websites
Change Management Is a Broadly Understood Topic

- Outside of the education space change management has been handled successfully through vendor-implemented, internal, and outside hired solutions

Numerous Examples Exist of Organizations Who Have Succeeded

**The Private Sector (Catholic Healthcare West)**
- CHW is the nation’s 8th largest hospital system and installed new enterprise resource planning (ERP) software in 2006
- Successfully approached change management issue by focusing on communication
  - Held meetings with top management in each hospital before creating communications plan
  - Designed communication to come directly from on-site management and not representatives from headquarters
  - Took customized change management approach to each of the 40 hospitals
  - Created “change champion” position at each hospital
  - Trained employees for 2 weeks leading up to product launch

**The Public Sector (OSHA)**
- Redefined its mission and enacted new ways to achieve it
- Achieved goals by listening to employee suggestions and visiting other successful organizations
  - Convened a change team consisting of members from all agency functions and levels
  - Brought employees who opposed change to visit successful organizations to soften their stance
  - Chose pilot offices based on receptiveness to change
  - Gradual rollout enabled future rollout offices to be on-site and observe implementation

Specialists Exist to Help

Consulting Firms Focused Only on Change Management
- Change Management Innovation Company
- Options For Change
- Managing Change

General Consulting Firms with Change Management Focus
- McKinsey
- Bain & Co.
- Accenture
- Aon

Source: Company websites
In order to make progress towards more effective data usage at the classroom level, districts must...

- Recognize the need and ability to drive behavior change
- Have technology supportive of analysis
- Identify, implement and train on necessary systems
- Pay for the system

**Districts**
- There is a need to increase the urgency at the district level to adopt data systems
  - Linked to clear evidence that doing so will improve outcomes or provide ancillary benefits

**Vendors**
- Change management models specific to education may be lacking or would benefit from wider visibility
Districts Today Tend Not to Have All of the Essential Tools...

- Significant percentages of the installed base are more than five years old

Q: What data systems does your district currently have, and, if applicable, how satisfied are you with each existing data system?

<table>
<thead>
<tr>
<th>Data System</th>
<th>Percent Satisfied (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SIS</td>
<td>98%</td>
</tr>
<tr>
<td>Assessment</td>
<td>73%</td>
</tr>
<tr>
<td>Data Warehouse</td>
<td>48%</td>
</tr>
<tr>
<td>IMS</td>
<td>45%</td>
</tr>
</tbody>
</table>

Q: Please indicate which (if any) of the following data system purchases you have participated in for your district over the last five years:

- Significant percentages of the installed base are more than five years old

Note: Respondent satisfaction only considered for respondents who report having a system; Of the five districts larger than 25K students, 3 of the respondents were IT or assessment personnel and therefore answered this question (SIS: 3/3; IMS: 1/3; Data Warehouse: 2/3; Assessment: 3/3)

Source: Parthenon District Data System Survey (n=194)
And Don’t Collect the Requisite Data for AIS Analysis

- At most, 36% of districts have the full set of necessary data available to them in an electronic, easily retrievable format

Q: Which of the following data elements does your district collect in an electronic, easily retrievable format? Please check all that apply.

Source: Parthenon District Data System Survey (n=194)
Educational Software Market Is $1.2B

- SIF compliance is increasing, which will enable interoperability between disparate solutions
- Many K-12 school applications, particularly SIS and back-office enterprise systems, also offer data warehousing

### K-12 Educational Software Market, (2005)

<table>
<thead>
<tr>
<th>Sector</th>
<th>Market Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student Information System</td>
<td>$386MM</td>
</tr>
<tr>
<td>Back-Office Enterprise System</td>
<td>$400MM</td>
</tr>
<tr>
<td>Instructional Management System</td>
<td>$130MM</td>
</tr>
<tr>
<td>Data Warehousing Component</td>
<td>$101MM</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$1.2B</strong></td>
</tr>
</tbody>
</table>

*These companies partner with Oracle to offer data warehousing capabilities*

Note: Percent of homegrown solutions does not include respondents that are unsure of their system type

Source: Eduventures; eSchoolNews; Company 10-K’s; % Homegrown informed by Parthenon District Survey, N=198
The Market Is Now Largely Vendor-Based

- New systems are predominantly purchased from vendors and not developed internally
- Internal development spans size of district, but is more likely in large districts

Q: Was the new (last five years) data system purchased from a vendor or developed in-house?

<table>
<thead>
<tr>
<th>System</th>
<th>Developed in-house</th>
<th>Purchased from a vendor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student Information System</td>
<td>-</td>
<td>100%</td>
</tr>
<tr>
<td>Assessment System</td>
<td>2%</td>
<td>98%</td>
</tr>
<tr>
<td>Instructional Management System</td>
<td>4%</td>
<td>96%</td>
</tr>
<tr>
<td>Data Warehouse</td>
<td>6%</td>
<td>94%</td>
</tr>
<tr>
<td>Administrative System</td>
<td>10%</td>
<td>90%</td>
</tr>
</tbody>
</table>

% Overall Vendor Installations: 100%, 91%, 86%, 88%, 90%

Source: Parthenon District Data System Survey (n=194)
Educational Data Systems’ Market Is Active and Maturing

- “Competition among at least five major [SIS] players will provide choices within the market and continue to drive providers to align their offerings with school district needs”
  - “Infinite Campus has reported strong growth in market share during the past three years, with an expected increase of nearly 400% since 2004”

- Consolidation has occurred as vendors try to expand market share and add functionality to their own product lines
  - Pearson added to its SIS market share by acquiring Chancery and PowerSchool SIS companies in mid-2006

- Vendor offerings have improved in quality and number from 4-5 years ago, when there were few options for curriculum management and assessment systems

- Web-based models also have the advantage of being able to quickly adapt to technology; Infinite Campus and SchoolMaster both offer products that can be accessed via PDA, to improve ease of use for principals and administrators on the go

- “One vendor that has chosen to expand via acquisitions estimates that there are more than 100 small players in the SIS market with revenues below $5MM; many of them started in the 1980s and are now looking to exit the market”

- Edmin.com and Infinite Campus offer monolith products that combine SIS with limited finance, HR, assessment and curriculum functionality

- “There are vendors out there offering monolith products, like Infinite Campus and Skyward, but there will always be a demand for the best in breed systems, especially among larger districts”

- “The SIS and FMS K-12 market is very fragmented with many regional or state-specific players. However, consolidation is a key trend as both SIS and FMS vendors are looking to expand market share and add functionality to their current product lines”

- This convergence often makes it easy to purchase fewer solution to achieve its desired functions

- “Many school district are looking for a complete, one-stop-shop solution that integrates student information and back-office functions”

- “Chancery and SASI are has-beens; many customers will convert to something else eventually, most likely to a product along the lines of Infinite Campus, which offers a centralized, web-based solution”

Source: Parthenon vendor interviews; Gartner; Eduventures
Though Districts Complain That Usability Tools Lag

- “I would like to see a greater degree of custom data mining to develop reports vertically for the organization”
- “It is hard to put all of the data together to get a complete report
- “Some reports seem difficult to retrieve. Not everyone has access to the information. A single person is responsible and requests need to flow through that person”

Existing usability and reporting tools are inadequate...

- “[Reporting] requires too many specialized technical people to operate and support”
- “Takes an IT person to understand the queries and reports that need to be created”
- “Still require technical skills not possessed by most staff members”

... and require analytical capabilities at the district level that are not always available...

... but the tools themselves are improving

- “I think the tools are making strides in providing more detailed usable information to staff and teachers and parents”
- “Things we have purchased and in place are working well, and solutions are being continually tweaked and upgraded for the better”
- “We have everything we need. When we come up with a new need, they make it happen”
- “Major strides have been made in the systems available today over what was available in the past and I am seeing companies constantly innovating and improving. Our student information systems provider, for example, actively seeks our input on enhancements and upgrades”

Source: Parthenon vendor interviews
Growth is occurring in 2 of 3 segments necessary to support AIS. Encouraging adoption of IMS may be a need.

Total profit pool is ~$200MM and the distinction between product segments is blurring.

Notes: Numbers were estimated from a hard copy of a chart; IMS profit pool estimated using operating margins of Blackboard, Renaissance Learning and PLATO; Back-office enterprise system profit pool estimated using operating margins of Oracle Corp.
Source: Eduventures “Learning Markets and Opportunities 2005,” Company 10-K’s, Parthenon vendor interviews
~80% of Respondents Indicate Desire for Integrated Solutions

- While there is some variation how important stakeholders view the importance of comprehensive data systems, most districts, regardless of size, see some value in an comprehensive solution.

Q: On a scale of 1 to 7, where 1 indicates “not at all important” and 7 indicates “extremely important,” how important is having a comprehensive data system (i.e., all key systems offered by a single vendor) in your district?

Source: Parthenon District Data System Survey (n=194)
Classroom Reform Data Use

What barriers impede the effective use of data systems at the classroom level?

**Recognize the need and ability to drive behavior change**
- Districts struggle to answer essential questions today
- Willingness and ability to execute lag intentions
- The ability to enact important culture change is a concern of many school leaders
- Change management is broadly understood and can be tailored to education

**Have technology supportive of analysis**
- Most districts lack the full suite of required tools and don’t collect the necessary data in “electronic and accessible” form
- Market for tools is large
- Growth in certain categories is strong and the total profit pool is ~$200MM, though IMS is a concern
- Trends are positive – interoperability, consolidation, improving functionality, cross functionality
- Usability may lag, but vendors are responsive

**Identify, implement and train on necessary systems**

**Pay for the system**

**Districts**
- There is a need to increase the urgency at the district level to adopt data systems
  - Linked to clear evidence that doing so will improve outcomes or provide ancillary benefits
- Districts need to upgrade their systems to enable more sophisticated analysis

**Vendors**
- Change management models specific to education may be lacking or would benefit from wider visibility
- Potential IMS and usability tool deficiencies, but vendors are responsive to market requests – likely solution is to “shape the ask”
Execution of Systems Projects Is a Concern

- Superintendents view internal capabilities less favorably than other respondents

Q: On a scale of 1 to 7, where 1 indicates “extremely uncomfortable” and 7 indicates “extremely comfortable,” how comfortable is your district with the following components of the district data system process?

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Percent of Respondents

- Selecting and managing vendors: 38%
- Managing the RFP process: 34%
- Identifying implementation best practices: 34%
- Defining the technological components of the ideal district data system: 33%
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“Even in the cases where leadership may recognize the value/importance of an integrated enterprise approach, there are few districts (other than the largest) that appear to have the technically sophisticated staff necessary to implement and manage. This leads to the choice as above to either bring that staff on board (which they typically cannot afford) or outsource to third parties (which is either prohibitively expensive and/or about which they feel uncomfortable).”

- Eduventures

Source: Parthenon District Data System Survey (n=194)
Most Districts Implement Themselves With Mixed Results

- Districts rated their satisfaction with education-specific system integrators higher than their satisfaction with local or general system integrators or internal efforts.

### Q: How did your district implement your current data system?

- **General system integrator** (e.g. IBM)
- **Education-specific system integrator** (e.g. Mizuni)
- **Local system integrator** (e.g. small, independent contractor)
- **No system integrator, we did it internally**

### Q: On a scale of 1 to 7, where 1 indicates “extremely unhappy” and 7 indicates “extremely happy,” how happy are you with the system integration method you chose?

- **Extremely Happy**
  - Less Than 2K: 5.5
  - 2K - 5K: 4.8
  - 5K+: 4.7
  - Overall: 4.0

- **Extremely Unhappy**
  - General system integrator (e.g. IBM)
  - Local system integrator (e.g. small, independent contractor)
  - No system integrator, we did it internally

Source: Parthenon District Data System Survey (n=194)
Dedicated Education Integrators Offer Districts Significant Advantages and Are Growing to Meet Demand

- Districts surveyed by Parthenon reported higher integrator satisfaction scores when using education-specific integrators than when using large or small general integrators.
- “It’s hard for districts to differentiate one data warehouse from another, but they range greatly in their ability to clean and validate data. Set-up of the system can either be performed by the schools internal staff, in which case the data is not collected or maintained in good condition, or by the vendor, which is expensive but leads to much better system functionality” (SchoolNet)
- “Market awareness would help make the market work more efficiently: large districts have the internal expertise as guidance, but small districts need to be aware of common mistakes made in implanting a data system and how to avoid them, the importance of change management and defining data objects that should be collected and processes for their collection, and specifications of what districts need demand in a data system” (SchoolNet)

- District system integrators indicated that they did not receive requests for business that they could not meet, and that districts are not being underserved.
- Vendors and districts reported that districts have access to many mom-and-pop and state-specific integrators; while these may be education-focused, they remain below our radar because they are regional and very small, or because they are a jack-of-all-trades business (not education-specific)

- Mizuni, an education-specific integrator, has plans to increase its capacity in the next year; though growth until now has been fueled organically, the company plans to make its first sales and marketing push this year, in addition to expanding its staff of integrators.
- Education-specific integrators also reported efforts to expand ability to serve large districts.

Source: Parthenon vendor interviews; Eduventures; Gartner
Training Is Often Viewed as Satisfactory…

• “When staff are trained properly, usage skyrockets”

Q: On a scale of 1 to 7, where 1 indicates “Extremely unhappy” and 7 indicates “Extremely happy,” how happy were you with the training your district received from the perspective of using the technology? (i.e. people who have access to the data system are familiar with its functionality and comfortable with the interface)

Q: On a scale of 1-7, where 1 indicates “very low impact” and 7 indicates “very high impact,” how much impact did the training have on actual data system usage?

Q: What form of training is typically utilized when implementing a new data system in your district?

Source: Parthenon District Data System Survey (n=194)
But Commentary Reflects Underlying Frustration That Training Doesn’t Yield Reflection and Sustained Usage

Q: On a scale of 1 to 7, where 1 indicates “not a barrier” and 7 indicates “extremely important barrier to overcome,” what are the factors that limit data usage?

- “Administrative training was OK for getting started but lacked follow-up for more efficient use at later stages of implementation”
- “Without training, use is sporadic at best. Only a few people with required job descriptions to analyze data know how to do it; others would like to do it, but don’t know how”
- “We have found that we need to follow-up with more support through the use of peer support. Our teachers are using “whole class” data to guide instruction, but they are not implementing data for one-on-one remediation”
- “Our problem is a 25% turnover in staff yearly! Our department does not have a dedicated person to train personnel in the use of our terrific resources - this is our greatest need but funding is so limited”

Source: Parthenon District Data System Survey (n=194)
And Vendors Reflect Similar Themes

- “There is no market consensus just yet of what teaching and training is required in a successful district; some vendors only train IT staff, but we believe it needs to be extended to teachers and system users”
- Some vendors are more willing than others to invest in training; Rediker Software maintains a training staff of over 10 FTE’s comprised of former principals and teachers
- Training offered by SIS vendors is usually insufficient”
- “Vendors do not like to stress how hard of an obstacle change management is because it may scare districts off of a purchase”

Vendor training program quality varies, but is generally adequate for product introduction . . .

- Vendor district training and change management prices range from $30/hour to $197/hour, and required hours of training range from 8 to 40 hours
- Rediker [SIS] charges $4750 for 3 days of onsite training, and $6K for a week
- SchoolMaster [SIS] charges $30/hour for a recommended 8-hour package for a total of $240, with lessons spread over an entire quarter
- Plato charges $1500 for 1 day of onsite training, $1K per day if a district purchases a 150-day project manager, and offers electronic training and professional development for $750 to $1K per day
- Infinite Campus’ recommended ongoing online training costs $0.50 per year per student

. . . these differences in vendor training quality are reflected in price points

- Bad training is a school issue, not a vendor issue; they need to make it a priority”
- “There will always be clients that don’t see the value in training”
- “For software, you can use value-based pricing. For training services, however, Districts don’t value it as much. They think they can always hire someone to train them”
- “Schools are sophisticated enough to know that a software purchase has ongoing costs associated with it; the biggest gap in budgeting is training and awareness”

The primary issue is that Districts rarely prioritize training enough
Classroom Reform Data Use

In order to make progress towards more effective data usage at the classroom level, districts must...

- **Recognize the need and ability to drive behavior change**
  - Districts struggle to answer essential questions today
  - Willingness and ability to execute lag intentions
  - The ability to enact important culture change is a concern of many school leaders
  - Change management is broadly understood and can be tailored to education

- **Have technology supportive of analysis**
  - Most districts lack the full suite of required tools and don’t collect the necessary data in “electronic and accessible” form
  - Market for tools is large
  - Growth in certain categories is strong and the total profit pool is ~$200MM, though IMS is a concern
  - Trends are positive – interoperability, consolidation, improving functionality, cross-functionality
  - Usability may lag, but vendors are responsive

- **Identify, implement and train on necessary systems**
  - Superintendents are not confident in their abilities to define and implement data systems
  - The majority of districts implement systems using internal resources, but the highest satisfaction scores come from using dedicated education providers
  - Supply of those integrators is likely very limited (we have identified 4)
  - Training is a mixed story, but it appears that overall quality is low because districts don’t value and pay for it

- **Pay for the system**

**Districts**
- There is a need to increase the urgency at the district level to adopt data systems
  - Linked to clear evidence that doing so will improve outcomes or provide ancillary benefits
- Districts need to upgrade their systems to enable more sophisticated analysis
- Districts would benefit from more detailed models of systems and how to implement
- Districts do not appropriately value training and therefore do not budget

**Vendors**
- Change management models specific to education may be lacking or would benefit from wider visibility
- Potential IMS and usability tool deficiencies, but vendors are responsive to market requests – likely solution is to “shape the ask”
- Potential shortage of high quality integrators
- Quality shortcomings in training can be overcome through more demand
Full AIS Implementation Requires Coordinated Investments Across Data Systems, Alignment, and Change Management

<table>
<thead>
<tr>
<th>Definition:</th>
<th>Three IT Cost Components:</th>
<th>Curriculum Alignment:</th>
<th>Change Management:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Upfront</strong>: Hardware costs and software licensing</td>
<td><strong>Resources required to ensure curriculum is aligned across and within grade levels and with district and state standards</strong></td>
<td><strong>Process of defining and instilling new values, attitudes, norms, and behaviors within an organization to drive sustained usage of the system</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Implementation / Transition</strong>: Data integration, process redesign, and training</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Ongoing</strong>: Annual system maintenance and human resource costs</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**IT Costs** "Data Systems"

**Curriculum Alignment** "Data Systems With Meaning"

**Change Management** "Data Systems With Meaning and Supports Necessary to Implement Change"

**Definition:**

**Inputs / Sources:**

- Parthenon District IT Survey
- ERS
- Scholastic (QED)

- Past Parthenon AIS Work (Chicago estimates)
- Past Parthenon AIS Work (Chicago estimates)
Districts IT Spending per Student Is Modest...

- ERS data from Boston Public Schools and data from Quality Education Data suggest that IT costs per student are roughly $140-$220, representing about 2% of total district budgets.
- QED projects that district IT budgets are at best flat and may in fact be declining.

---

1 'BPS Spending per Student' tabulated from ERS data from Boston Public Schools and represents spending on Information Systems and Instructional Technology
2 'District Tech Spending per Student' represents average from QED survey of 2.4K districts
Source: Scholastic (QED); ERS; Parthenon District Data System Survey (n=194)
... And District Data System Development Is Costly

- New tools, such as Infinite Campus and SchoolNet, are pricing aggressively as comprehensive platforms

Q: What was the approximate cost associated with the new system?

Vendor System Cost Estimates

In order to implement an AIS from the ground up, a district with no usable infrastructure would need to invest ~$70 - $128 per student

Note: Infinite Campus does not have an ‘upfront technology’ cost as it charges districts an annual subscription fee for software
Source: Parthenon District Data System Survey (n=194); Vendor Interviews
Most Districts Will Leverage Existing Infrastructure, Reducing the
Up-Front Investment Burden

<table>
<thead>
<tr>
<th>System</th>
<th>Total Cost per Student</th>
<th>% Districts Likely to Invest</th>
<th>Est. Average Cost per Student</th>
</tr>
</thead>
<tbody>
<tr>
<td>SIS</td>
<td>$27</td>
<td>24%</td>
<td>$7</td>
</tr>
<tr>
<td>IMS</td>
<td>$28</td>
<td>65%</td>
<td>$18</td>
</tr>
<tr>
<td>Assessment</td>
<td>$15</td>
<td>61%</td>
<td>$9</td>
</tr>
<tr>
<td>Integration Est.</td>
<td>$13</td>
<td>100%</td>
<td>$13</td>
</tr>
<tr>
<td>Administrative</td>
<td>$14</td>
<td>61%</td>
<td>$8</td>
</tr>
<tr>
<td>Data Warehouse</td>
<td>$45</td>
<td>49%</td>
<td>$22</td>
</tr>
</tbody>
</table>

TOTAL: $47-$77

Q: What was the approximate ongoing cost associated with the new system?

Ongoing Costs: $21-$32 per Student

1 $47 per student estimate includes average district cost to implement SIS, IMS, and assessment systems with a fee included to integrate the systems.

Note: Infinite Campus does not have an ‘upfront technology’ cost as it charges districts an annual subscription fee for software.

Source: Parthenon District Data System Survey (n=194); Vendor Interviews
AIS Systems Investment Is 35-60% of the IT Budget

- AIS data system costs represent ~35%-60% of the estimated average district IT budget suggesting districts would need to reallocate a significant portion of their existing resources or receive additional funding to implement an AIS from a technology standpoint.

Comparison of District IT Budget Costs to AIS Data System Costs

Source: Parthenon District Data System Survey (n=194); Vendor Interviews; Past Parthenon AIS Work
District Budgets Would Be Called Upon to Fund Technology

- Districts on average cover 80% of their new data systems and increases in local district budget or reprioritization of existing district budget are the most likely sources of funding for technology investments.
- Process redesign components of the effort should uncover inefficiency and provide opportunities to offset the costs.

Q: How does your district typically fund expenditures for new data systems?

**Sources of Funding to Support District Technology Investments, 2007**

- Districts on average cover 80% of their new data systems and increases in local district budget or reprioritization of existing district budget are the most likely sources of funding for technology investments.
- Process redesign components of the effort should uncover inefficiency and provide opportunities to offset the costs.

Source: Parthenon District Data System Survey (n=194); Eduventures
Alignment and Change Management Necessary for Successful AIS Implementations Adds to the True Cost

- Chicago serves as the benchmark for alignment and ongoing change management costs

### Fixed Costs to Design and Align Curriculum, Per Student

<table>
<thead>
<tr>
<th></th>
<th>Base Estimate</th>
<th>High Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integration/Project Management</td>
<td>$185</td>
<td></td>
</tr>
<tr>
<td>PD Program Development</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Curriculum Design</td>
<td></td>
<td>$340</td>
</tr>
<tr>
<td>Assessment</td>
<td>$0</td>
<td>$100</td>
</tr>
<tr>
<td>Integration/Project Management</td>
<td>$200</td>
<td>$300</td>
</tr>
</tbody>
</table>

### Annual Change Management Costs, Per Student

- Start-Up Cost
- Ongoing Cost

<table>
<thead>
<tr>
<th></th>
<th>Base Estimate</th>
<th>High Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>School Leadership Support</td>
<td>$285</td>
<td></td>
</tr>
<tr>
<td>Coaching</td>
<td>$400</td>
<td></td>
</tr>
</tbody>
</table>

Note: Assumes 40K students in the district
Source: SchoolNet; Chicago Public Schools; Parthenon analysis
Full AIS Implementation Requires ~$540 per Student

- The bulk of the costs comes from change management and curriculum alignment, which would likely be paid for outside of district IT budgets

**Estimated Full AIS Implementation per Student Cost**

- AIS Data Systems: $68
- Curriculum Alignment: $185
- Change Management: $285
- Fully Funded AIS: $538

**What sources of funding can we leverage (re-allocation, federal, private or foundation)?**

Source: SchoolNet; Chicago Public Schools; Parthenon District Data System Survey (n=194); Vendor Interviews; Parthenon analysis
Classroom Reform Data Use

In order to make progress towards more effective data usage at the classroom level, districts must ...

- Recognize the need and ability to drive behavior change
  - Districts struggle to answer essential questions today
  - Willingness and ability to execute lag intentions
  - The ability to enact important culture change is a concern of many school leaders
  - Change management is broadly understood and can be tailored to education

- Have technology supportive of analysis
  - Most districts lack the full suite of required tools and don’t collect the necessary data in “electronic and accessible” form
  - Market for tools is large
  - Growth in certain categories is strong and the total profit pool is ~$200MM, though IMS is a concern
  - Trends are positive – interoperability, consolidation, improving functionality, cross functionality
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- Identify, implement and train on necessary systems
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  - Supply of those integrators is likely very limited (we have identified 4)
  - Training is a mixed story, but it appears that overall quality is low because districts don’t value and pay for it

- Pay for the system
  - District IT budgets are modest and these investments are outside of operating budgets
  - Data system projects are expensive, estimated at ~$70 / student
  - Most projects are funded by districts themselves
  - Alignment and change management add greatly to the total cost of successful AIS implementation
    - Costs that one might reasonably expect to require for a data project

**Districts**

- There is a need to increase the urgency at the district level to adopt data systems
  - Linked to clear evidence that doing so will improve outcomes or provide ancillary benefits
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Survey Respondent Overview

Survey Respondent Demographics

Position
- Principal
- Manager / Director of Assessment
- Manager / Director of Information Systems
- Chief Information / Technology Officer
- Superintendent or Assistant Superintendent

IT Decision Relationship
- Yes, but I am familiar with the data systems
- Yes, I contribute to a team decision-making process
- Yes, I am the primary decision-maker
- Other

State
- MT
- WA
- OR
- IN
- IA
- MA
- GA
- KS
- WI
- MI
- MN
- OK
- NJ
- TX
- OH
- NY
- IL

District Type
- Urban
- Suburban
- Rural

Student Overview
- >75%
- 50%-75%
- 25%-50%
- <25%
- Don't know

Districts by Enrollment

U.S. Overall
- Less Than 2K
- 2K - 5K
- 5K - 10K
- 10K - 25K
- 25K+

Survey Respondents
- Less Than 2K
- 2K - 5K
- 5K - 10K
- 10K - 25K
- 25K+

5K+ Survey Respondents
- Less Than 2K
- 2K - 5K
- 5K - 10K
- 10K - 25K
- 25K+

Note: District type reflects self-reported district locale
Source: Parthenon District Data System Survey (n=194)
Districts Report an Appreciation for Integrated Data

Q: Based on your experience, how important is it to integrate academic and administrative data from various district technology systems?

Q: Do you believe a K-12 enterprise management approach would enable your district to be more effective on behalf of its students?

Note: An "enterprise management approach" refers to "districts' efforts to integrate and manage multiple products within and across one or more of the three business segments" (SIS, IMS, BMS)
Source: Eduventures K-12 Trends in Enterprise Management Follow-Up, September 2007
Cost and Human Capital Concerns Pose Significant Barriers to Data System Implementation

Q: On a scale of 1-7, where 1 indicates “not a significant barrier” and 7 indicates “extremely significant barrier,” how significant are the following barriers when implementing a new system?

Legend:
- Overall
- Superintendents
- Non-Superintendents

1 Superintendents were not asked question
Source: Parthenon District Data System Survey (n=194)
## Comparison of Data Elements Reported and Key Questions

<table>
<thead>
<tr>
<th>Question</th>
<th>Data Elements Reported</th>
<th>Suggest Can Answer Question</th>
<th>Cannot Answer Question Easily</th>
</tr>
</thead>
<tbody>
<tr>
<td>What is each school's promotion and graduation rate (according to the 2006 NGA graduation compact?) (4, 5, 6 yr)</td>
<td>n=69</td>
<td>100%</td>
<td>0%</td>
</tr>
<tr>
<td>Which schools produce the strongest academic growth for their students?</td>
<td>n=59</td>
<td>100%</td>
<td>0%</td>
</tr>
<tr>
<td>Are students (across categories) showing incremental gains towards meeting grade level benchmarks during the course of the year, by subject?</td>
<td>n=56</td>
<td>100%</td>
<td>0%</td>
</tr>
<tr>
<td>Which teachers are meeting benchmarks on state standards with their students?</td>
<td>n=35</td>
<td>100%</td>
<td>0%</td>
</tr>
<tr>
<td>How much money is spent by type of student?</td>
<td>n=38</td>
<td>100%</td>
<td>0%</td>
</tr>
<tr>
<td>Which educational programs/curriculum choices and contextual factors make the most difference with respect to student achievement?</td>
<td>n=27</td>
<td>100%</td>
<td>0%</td>
</tr>
<tr>
<td>What high school performance indicators are the best predictors of students' future success in high school?</td>
<td>n=29</td>
<td>100%</td>
<td>0%</td>
</tr>
</tbody>
</table>

Source: Parthenon District Data System Survey (n=194)
Reported Average System Costs per Student

Q: What was the approximate **UPFRONT TECHNOLOGY** (hardware/software licensing) cost associated with the new system?

Q: What was the approximate **IMPLEMENTATION/TRANSITION** (data integration, process redesign, and training) cost associated with the new system?

Q: What is the approximate ongoing annual **MAINTENANCE** (system and human resource) cost associated with the new system?

![Bar chart showing average per student cost](chart)

Source: Parthenon District Data System Survey (n=194)
**Overview of Districts Who Developed Solutions In-House**

**Respondents Who Developed System In-House by Size**

- **Student Information System**
  - Less Than 2K: n=0
  - 5K+: n=4

- **Assessment System**
  - Less Than 2K: n=4
  - 5K+: n=4

- **Instructional Management System**
  - Less Than 2K: n=3
  - 2K - 5K

- **Data Warehouse**
  - Less Than 2K
  - 5K+

- **Administrative System**
  - 2K - 5K: n=1

Source: Parthenon District Data System Survey (n=194)
District Ability to Answer Key Questions With Current Systems

Q: On a scale of 1 to 7, where 1 indicates “Extremely difficult” and 7 indicates “Extremely easy,” how easy is it for your district to answer the following questions using the data that is collected electronically today?

Q: What is each school’s promotion and graduation rate (according to the 2006 NGA graduation compact? (4, 5, 6 yr))

Q: Are students (across categories) showing incremental gains towards meeting grade level benchmarks during the course of the year, by subject?

Q: Which schools produce the strongest academic growth for their students?

Q: Which teachers are meeting benchmarks on state standards with their students? Is there a link with PD?

Source: Parthenon District Data System Survey (n=194)
District Ability to Answer Key Questions With Current Systems

Q: On a scale of 1 to 7, where 1 indicates “Extremely difficult” and 7 indicates “Extremely easy,” how easy is it for your district to answer the following questions using the data that is collected electronically today?

Q: How easy is it for your district to answer the following questions using the data that is collected electronically today?

Q: Which educational programs/curriculum choices and contextual factors make the most difference with respect to student achievement?

Q: How much money is spent by type of student?

Q: What high school performance indicators are the best predictors of students’ future success in high school?

Source: Parthenon District Data System Survey (n=194)
Barriers Limiting Data Usage by District Size

Q: On a scale of 1 to 7, where 1 indicates “extremely uncomfortable” and 7 indicates “extremely comfortable,” how comfortable is your district with the following components of the district data system process?

Selecting and Managing Vendors

- Non-Superintendents
- Superintendents

Identifying Implementation Best Practices

- Non-Superintendents
- Superintendents

Defining the Technological Components of the Ideal District Data System

Source: Parthenon District Data System Survey (n=194)
Barriers Limiting Data Usage by District Size

Q: On a scale of 1 to 7, where 1 indicates "extremely uncomfortable" and 7 indicates "extremely comfortable," how comfortable is your district with the following components of the district data system process?

Changing Culture and Encouraging the Use of Data

Managing the RFP Process

Source: Parthenon District Data System Survey (n=194)
Small Districts Rely on State and Federal Funding While Large Districts Utilize Local Funds

- Funding for technology systems comes from multiple sources
- Districts rely on an increase or reprioritization of their local budget in many instances

Q: Please indicate the importance of each of the following as sources of funding to support new district technology investments. (Important and very important responses only)

![Bar chart showing the importance of different funding sources]

Source: Eduventures K-12 Trends in Enterprise Management Follow up, September 2007
Q: Please indicate how important the perspectives of each of the following individuals or groups are when making decisions to invest in district technology systems. (Important and very important responses only)

Source: Eduventures
Varied Challenges Exist, Including the Perception of Low Value

Q: To what extent do you agree that the following are obstacles to your district’s ability to invest in a K-12 enterprise management approach to academic and administrative data? (Agree and strongly agree responses only)

Source: Eduventures K-12 Trends in Enterprise Management Follow up, September 2007
# Integrated SIS, IMS, and Formative Assessment Required for AIS

## Data Collected in Typical Systems

<table>
<thead>
<tr>
<th>Critical Data</th>
<th>Longitudinal Capabilities</th>
<th>Student Dem.</th>
<th>Graduation Outcome</th>
<th>Transcripts</th>
<th>Teacher Information</th>
<th>School Model Descriptors</th>
<th>Finance Data</th>
<th>Attendance</th>
<th>State Asses. Performance</th>
<th>Curriculum</th>
<th>Formative Assessment</th>
<th>PD</th>
<th>Special Services</th>
<th>Col. Success Factors</th>
<th>Workplace Success</th>
<th>Perceptions Data</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Student Information System (SIS)</strong></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>IC</td>
<td>IC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Information Management System (IMS) / Learning Management System (LMS)</strong></td>
<td></td>
<td>SN</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>SN</td>
<td>SN</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td><strong>Formative Assessment</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

IC=Infinite Campus  
SN= SchoolNet

Note: Longitudinal capabilities are generally provided through data warehousing functionality; Curriculum includes lesson plans and mapped curriculum supports.
Districts Report on Ideal Data Systems

Q: In thinking about the data systems you currently have in place, which of the following would you need to purchase or replace in order to achieve the ideal level of data system functionality in your district?

- I don’t currently have the system and would need to buy it
- I currently have the system but would need to purchase or upgrade a new system
- I currently have the system and would maintain it

% Districts Need to Invest in System

- SIS: 24%
- IMS: 65%
- Data Warehouse: 61%
- Assessment: 55%
- Administrative: 49%

Source: Parthenon District Data System Survey (n=194)
District Budgets for Buying and Maintaining Data Systems

Q: What percent of the total district budget is allocated to buying and maintaining education data systems in your district?

Source: Parthenon District Data System Survey (n=194)
District Software Investments

District Investment in Enterprise Systems

1% of annual non-payroll budget for software and technology services

Source: Eduventures
## Distinctions Between Data Systems Are Blurring

<table>
<thead>
<tr>
<th>Data System Elements / Functionality</th>
<th>SIS</th>
<th>IMS</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Student Data Management</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attendance</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Census</td>
<td>X</td>
<td></td>
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<tr>
<td>Enrollment</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Fee Management</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Graduation Planning</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td><strong>Scheduling / Registration</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Course Catalog</td>
<td></td>
<td>X</td>
<td>X</td>
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<tr>
<td>Online Registration</td>
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<tr>
<td>Scheduling</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>School Choice</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Assessment / Reporting</strong></td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Ad Hoc Reporting</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Embedded Data Analysis</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>State Reporting</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Formative Assessment</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td><strong>Student / Classroom Management</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grade Book</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Individual Learning Plans</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Lesson Planning</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Mapped Curriculum Support</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Special Education</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Standard Management</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Professional Development for Teachers</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td><strong>Data Management Tools</strong></td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Data Warehousing</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Mobile Interface</td>
<td></td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>
### Stand-out Data System Vendor Profiles: IC, SchoolNet, Mizuni

<table>
<thead>
<tr>
<th>Vendor</th>
<th>Core Systems Function</th>
<th>Size</th>
<th>Differentiating Factors</th>
<th>Functionality</th>
</tr>
</thead>
</table>
| Infinite Campus | SIS                   | 67 Employees       | • Offer one system that performs the functions of a SIS, IMS, assessment system and back-office enterprise system  
• Does not require integration services  
• 100-10K student district sweet spot, has a state edition | The district-level solution includes:  
• Administrative functions: attendance, behavior, census, enrollment, health, Medicaid, school choice  
• Curriculum functions: course catalog, graduation planning, online registration, scheduling, standards management, mapped curriculum support  
• Instruction functions: assessment, grade book, individual learning plans, lesson planning, special education  
• School service functions: fee management, food service, locker management  
• Communications functions: email and voice messenger, form letter wizards, mobile interface, parent/student portal, parent/student/staff surveys, user notices  
• Reporting & analysis functions: ad hoc reporting, integrated state reporting, SQL reporting services, standard reports, data analysis and visualization, data warehousing |
| SchoolNet      | IMS                   | 125 Employees      | • IMS system that incorporates assessment, limited data warehousing, and advance reporting capabilities, all in one  
• Provides guidance and coaching for district data system development | • Partners with Microsoft for delivery of the SchoolNet platform, and is part of Intel's Managed Learning System framework  
• Instructional management functions: formative assessment tools, performance recording, form and customizable reporting, longitudinal student profile creation, standards-aligned content guidance for curriculum, online curriculum matching and lesson planning, and classroom performance profiles  
• Human Capital management functions: provides professional development tracking for teachers and administrators, as well as career planning  
• "Outreach" is a platform for sharing of best practices and communication resources among teachers  
• School IT services: data systems "coaching" and roadmap development, performance management seminars |
| Mizuni         | Integrator            | 8 Employees        | • Expertise in education integration  
• Scalable to districts of up to 190Ks students, with goal of serving larger districts in the future | • Mizuni provides consulting services in improving the data collection and use process, custom report development  
• Provides a Zone Integration Server to route data in SIF integrations  
• Data Warehouse collects data via SIF from data systems and stores it for use in informing classroom solutions; 17 of Mizuni's 20 customers use its data warehousing function  
• Customizable web portal to provide students, teachers, IT professionals and parents access to performance data  
• Mizuni also develops SIF agents for systems not already prepared for SIF integration |

Source: Company websites; Parthenon vendor interviews; Hoovers.com
Data Systems District Demonstration Blueprint – Diagnostic Tool

- The diagnostic tool serves two purposes for Program Officers
  - First, as an information source to further a PO’s understanding of the key issues related to data
  - Second, as framework for understanding a potential district partner’s level of sophistication with regards to data

<table>
<thead>
<tr>
<th>Category</th>
<th>Sub-Category</th>
<th>Minimum</th>
<th>Moderate</th>
<th>Advanced</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technology</td>
<td>SIS Functionality</td>
<td>Rudimentary SIS with no linkages to other district data systems</td>
<td>Functional SIS with few – if any – linkages to other district applications</td>
<td>Functional SIS that is linked to other applications, especially IMS or Formative Assessments</td>
</tr>
<tr>
<td>Data Warehouse with</td>
<td>Reporting Functionality</td>
<td>District has no data warehouse and no meaningful reporting capabilities</td>
<td>District has a data warehouse but does not have the ability to generate meaningful reports</td>
<td>District has a data warehouse and the ability to generate automatic and custom reports</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Formative Assessment Tools</td>
<td></td>
<td>Ad hoc, paper-based assessments in the classroom</td>
<td>Regular, consistent assessments, occasionally using technology</td>
<td>Frequent, technology-based assessments with clear linkages to academic interventions</td>
</tr>
<tr>
<td>IMS Functionality</td>
<td></td>
<td>No current IMS or LMS but district plans to invest in the near term (1-2 years)</td>
<td>Some electronic content sharing through a coordinated system or portal</td>
<td>Electronic content coordination across subjects and grades and accessible by teachers, administrators and parents. Linked to the SIS and Formative tool</td>
</tr>
<tr>
<td>Human Resource Functionality</td>
<td>Human resource data is collected and no linkages to other systems exist</td>
<td>Human resource data is collected and linked to key systems, but no analysis is completed</td>
<td>Human resource data is collected and linked to key systems, and value-add analysis is completed</td>
<td></td>
</tr>
<tr>
<td>Finance Functionality</td>
<td></td>
<td>District finance data is collected – but cost allocation is impossible – and no linkages to other systems exist</td>
<td>District finance data is collected and cost allocation is possible, but no linkages to other systems exist</td>
<td>District finance data is collected, cost allocation is possible, and linkages to other systems exist</td>
</tr>
<tr>
<td>SPED Functionality</td>
<td></td>
<td>District has inadequate special education systems with no linkages to other systems</td>
<td>District has adequate special education systems but no linkages to other systems</td>
<td>District has adequate special education systems and linkages to other systems exist</td>
</tr>
<tr>
<td>Leadership</td>
<td>Superintendent and Cabinet</td>
<td>Superintendent who does not view the use of data as a priority</td>
<td>Superintendent who views the use of data as a priority and has made strides to improve culture of data in the district</td>
<td>Established, stable Superintendent who requires the use of data as part of his/her decision making process and has established culture of data in the district</td>
</tr>
<tr>
<td></td>
<td>School Board</td>
<td>School Board that does not view the use of data as a priority</td>
<td>School Board that views the use of data as a priority and is focused on improving culture of data in the district</td>
<td>School Board that requires the use of data as part of its decision making process and has instilled culture of data in the district</td>
</tr>
<tr>
<td></td>
<td>Principals and Other School Level Leadership</td>
<td>Principals who do not view the use of data as a priority</td>
<td>Principals who view the use of data as a priority and have made strides to improve culture of data in their schools</td>
<td>Principals that have established a culture of data in their schools and require teachers to use data as part of the decision making process</td>
</tr>
<tr>
<td></td>
<td>Teachers Union</td>
<td>Union opposes the use of technology to inform analysis of teacher performance at the classroom level</td>
<td>No opposition to the use of technology to inform analysis of teacher performance and at least some vocal support</td>
<td>Full support for the use of technology to inform analysis of teacher performance at the classroom level and the use of data embedded in their professional competence models</td>
</tr>
</tbody>
</table>
# Data Systems District Demonstration Blueprint – Diagnostic Tool

<table>
<thead>
<tr>
<th>Category</th>
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<th>Minimum</th>
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<th>Advanced</th>
</tr>
</thead>
<tbody>
<tr>
<td>Training and Usage</td>
<td>Teacher PD</td>
<td>Little ongoing teacher training or collaboration time allotted</td>
<td>Non-coordinated or siloed teacher training within subject and grade</td>
<td>Coordinated and integrated new and experienced teacher training on both instructional techniques and content, with structured time allotted for teacher best-practice sharing and coaching</td>
</tr>
<tr>
<td></td>
<td>Teacher Use</td>
<td>No familiarity with data-driven individualized instruction</td>
<td>Moderate data use exists in the classroom</td>
<td>Data used on a regular basis in the classroom, especially formative assessments with feedback loops</td>
</tr>
<tr>
<td></td>
<td>Administrator PD</td>
<td>Little new administrator training or ongoing leadership training</td>
<td>Training for new administrators only</td>
<td>Robust leadership and analytical training for both new and experienced administrators</td>
</tr>
<tr>
<td>Resources</td>
<td>Financial</td>
<td>Inadequate funding is available for technology-related system investments or transition support</td>
<td>Adequate funding is available for technology-related system investments but no resources exist for transition support</td>
<td>Adequate funding is available for technology-related system investments and resources exist for transition support</td>
</tr>
<tr>
<td></td>
<td>Information Technology</td>
<td>Inadequate information technology staff at the district office and within schools</td>
<td>Adequate information technology staff at the district office but limited resources within schools</td>
<td>Adequate information technology staff at the district office and sufficient IT resources within schools</td>
</tr>
<tr>
<td></td>
<td>Analytical</td>
<td>Inadequate analytical staff at the district office and insufficient understanding of data constituent needs</td>
<td>Adequate analytical staff at the district office but insufficient understanding of data constituent needs</td>
<td>Adequate analytical staff at the district office and sufficient understanding of data constituent needs</td>
</tr>
<tr>
<td>Planning</td>
<td>District IT and Data Usage Plan</td>
<td>Inadequate strategic IT and data usage plan in the district</td>
<td>Detailed strategic IT plan exists but data usage plan in the district is inadequate</td>
<td>Detailed strategic IT and data usage plan developed and appropriately resourced</td>
</tr>
<tr>
<td></td>
<td>Change Management Plan</td>
<td>Inadequate change management and communication plan developed, and no resources allocated</td>
<td>Adequate change management and communication plan developed, but no resources allocated</td>
<td>Detailed change management and communication plan developed, and sufficient resources allocated</td>
</tr>
<tr>
<td></td>
<td>Alignment of Curriculum and Instruction</td>
<td>Inadequate alignment of curriculum and instruction and no clearly articulated AIS strategy</td>
<td>Clearly articulated AIS strategy but curriculum and instruction are not aligned</td>
<td>Clearly articulated AIS strategy with core subject alignment across curriculum and instruction</td>
</tr>
</tbody>
</table>