

HOW TO PICK THE RIGHT TOOL TO TURN DATA INTO INSIGHT

Using data in a district context is deceptively difficult—a classic case of “data-rich, information-poor.” According to a recent survey of over 4,000 teachers across the United States, over two-thirds of teachers (67 percent) indicated that they were not fully satisfied with the effectiveness of the data and tools they had access to on a regular basis.*

A MAJOR IMPEDIMENT IS THE INFRASTRUCTURE:



Where does the data live?



How do systems “talk to” each other?



How can stakeholders access it?

WHICH OF THE NINE MOST COMMONLY REPORTED DATA OBSTACLES* IS YOUR DISTRICT FACING?

DO YOU HAVE DATA THAT IS . . .

- | | | |
|--|---|--|
| <input type="radio"/> Provided manually | <input type="radio"/> Untrustworthy | <input type="radio"/> Difficult to track over time |
| <input type="radio"/> Siloed and difficult to work with or aggregate | <input type="radio"/> Generated slowly | <input type="radio"/> Inflexible |
| <input type="radio"/> One-dimensional | <input type="radio"/> Not sufficiently granular | <input type="radio"/> Inaccessible to students |

*“Teachers Know Best: Making Data Work For Teachers and Students,” *Bill & Melinda Gates Foundation*, June 2015, <https://s3.amazonaws.com/edtech-production/reports/Gates-TeachersKnowBest-MakingDataWork.pdf>

Although every district will have needs that are unique, given the local context and strategic objectives, there are six jobs that every effective district data ecosystem must do to remain effective for educators:



Keep Data Secure

FERPA-compliant vendors are the beginning of an effective system. But how will your system provide convenient and secure ways for your educators to conduct and share further analysis? What guidance can you provide them to keep data safe while using it to inform their practice?

1

One of the most common reasons data goes unused is that it takes too long to cobble together (from blended learning systems, SISs, standardized test results, etc.) before it can provide holistic insights. Will your system allow stakeholders immediate access to the data they need in a timely and comprehensive manner?

Provide a Quick and Holistic View



Mitigate Data Quality Errors

Clear and comprehensive data governance protocols are the foundation for data quality. Will your system integrate and scan otherwise siloed systems and automatically flag potential discrepancies and errors? How will your system help you to consistently catch and resolve errors to maintain data trust?

3

District priorities change as do the needs of stakeholders. Will your solutions allow you to easily modify reports to meet these dynamic needs? Will your system enable you to turn new reports around quickly for unexpected occasions, such as a last-minute parent-teacher meeting?

Enable Flexible and Tailored Reporting



Make It Easy to Maintain and Update

A disjointed or outdated system can create slow and fragile processes that are especially vulnerable in times of turnover. How will your system employ automation, clear documentation, and deliberate redundancies to help ensure its sustainability over time?

5

When processes are automated, and holistic insights are accessible, staff delve deeper. Will your system allow staff to explore iterative hypotheses, conduct longitudinal analyses, and disaggregate results by FRL or EL status within a few clicks?

Enable Sophisticated Analysis



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Depending on what's most important to a given district, the right answer might be any one of a number of options. **Here's a quick guide to the most often used types of tools:**

	Spreadsheets	Assessment System	SIS	Cloud-Based Data Warehouse	Visualization Platforms	Homegrown Data Warehouse
Enable Flexible and Tailored Reporting	Medium	Low	Low	Very High	High	Very High
Provide a Quick and Holistic View	Low	Low	Low	Very High	Medium	Very High
Make It Easy to Maintain and Update	Very Low	Medium	Medium	High	Very Low	Low
Mitigate Data Quality Errors	Very Low	Medium	Medium	Very High	Low	High
Keep Data Secure	Very Low	High	High	High	Medium	High
Enable Sophisticated Analysis	Low	Low	Low	Very High	Medium	Very High

Spreadsheets: Easy to access and use, Google Sheets is often the go-to for the data-hungry. Although it is perfect for small projects, maintaining data quality for more than a few months and running complex analyses can quickly become challenging.

GOOD FOR:

- ▶ Teachers looking to conduct quick and informal analysis on their own
- ▶ District and school leaders who do not have the budget to invest in a more sustainable, scalable solution and are willing to invest the time required to manually aggregate data for single point-in-time snapshots to inform planning

COMMON CHALLENGES:

- ▶ Providing explorable and intuitive data visualization
- ▶ Keeping data secure while also making it accessible
- ▶ Working with data that updates frequently (attendance, formative assessments, daily behavior incidents)
- ▶ Easily analyzing data from more than a single source
- ▶ Catching data quality errors

Assessment Systems: If you use few systems and love the reports they provide, look no further, especially if curriculum development and school-based reporting are your primary interests. However, if it's important to customize or add other data systems (e.g., slice by demographic group, view by month vs. week, compare against last year's state test data, etc.), you'll want to look elsewhere.

GOOD FOR:

- ▶ Teachers who want a central repository for item banks, curriculum resources, grading, etc.
- ▶ Teachers looking to break down assignments by skill (for example: state standards, Common Core, GLE's, etc.)
- ▶ Teachers looking to make informed decisions on what to spiral and/or re-teach

COMMON CHALLENGES:

- ▶ Understanding the impact of nonacademic factors
- ▶ Integrating data from various siloes to develop holistic insights
- ▶ Creating custom reports that align to your strategic plan and allow you to display your progress

SISs: They are the trusty foundation of any district's data infrastructure, but they are not a springboard for change. Everyone's already familiar with them and you've likely got an SIS administrator keeping an eye on data quality for enrollment and attendance purposes. Plus, many SISs allow you to import a limited range of other datasets into their systems. However, their primary function is to simply house data; they don't offer holistic, action-oriented reports.

GOOD FOR:

- ▶ District staff looking to record and store important information in a centralized place (e.g., attendance, schedules, rosters, etc.)
- ▶ Accountability personnel who meet state compliance requirements (e.g., reporting on ADA, suspensions, etc.)

COMMON CHALLENGES:

- ▶ Crafting visually compelling or custom reports that are tailored to your district's strategic priorities
- ▶ Understanding how attendance, behavior, and achievement trends are influenced by factors in your financial, HR, or blended learning data
- ▶ Combatting complex challenges such as chronic absence or monitoring for inequitable suspension rates

Cloud-Based Data Warehouse: This is a place to safely store a myriad of datasets within a common framework combined with a customizable visualization platform. Cost—both in terms of dollars and employee time—varies greatly, but no matter who you go with, data warehouses are usually not the cheapest option. Look for data warehouses with strong customer support and a vibrant community. Having smart thought partners you respect pays in dividends once you have a tool you can get ambitious with.

GOOD FOR:

- ▶ Data teams with 1–3 personnel who could partner with an outside vendor to project-manage a cloud-hosted data warehouse implementation
- ▶ School leaders and teachers who want to understand how various nonacademic factors are affecting achievement
- ▶ District leaders looking to monitor leading indicators that are aligned with their strategic plans so that they can make data-informed resource allocation decisions in real-time

COMMON CHALLENGES:

- ▶ Allocating time investment from 1–2 data savvy personnel to collaborate with an outside vendor during implementation
- ▶ Developing a thoughtful change-management and rollout strategy with integrated professional development to maximize impact
- ▶ Integrating with less common or homegrown systems (this may not be available, take time, and/or require significant upfront investment)

Visualization Platforms: Many of the visualization/business intelligence (BI) platforms out there do an amazing job of beautifully visualizing the data you provide. However, with nonexistent data storage and expensive report-sharing, making this option work in a district setting comes with hidden costs.

GOOD FOR:

- ▶ Data teams that already have a data warehouse but want more powerful report-creation tools to better engage their stakeholders with more compelling reports
- ▶ District staff who have already learned how to use these tools and are looking for more intuitive ways to visualize and share the results from the analyses they have conducted via spreadsheets

COMMON CHALLENGES:

- ▶ Keeping custom dashboards up to date with fresh data and catching data quality errors
- ▶ Obtaining and maintaining data in a format that is ready for visualization
- ▶ Allocating the time and skills required to design, build, and then maintain a growing library of intuitive and timely reports for all stakeholders over time

Homegrown and/or On-Premise Data Warehouse: As with any self-directed, custom IT project, the trade-offs are extreme. On the one hand, you'll be able to customize the data architecture, reports, and system integrations to your exact needs, down to the field names. On the other hand, the talent, time, and resources required make it a long-term, high-cost project that can easily crumble if the wrong staff member leaves your organization.

GOOD FOR:

- ▶ Large data teams that include database developers and data visualization analysts who can design and maintain a secure, timely, comprehensive, and reliable solution over time
- ▶ School leaders and teachers who want solutions that can be fully customized to their needs and are willing to operate on a multiyear implementation timeline
- ▶ District leaders who are able to make significant upfront investments and want full control over their data solutions

COMMON CHALLENGES:

- ▶ Allocating the time and investment required to implement (usually multiple years)
- ▶ Recruiting and retaining the in-house technical expertise required and maintaining service in the event of staff turnover
- ▶ Keeping integrations online as vendors update their data formats (e.g., when your SIS updates its grades tables)
- ▶ Maintaining and updating hardware that's required over time