



Data, Dashboards, and Decision-Making

An Introduction to Unified Data
for Institutional Insights

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About the Organizations



Founded in 2018, Partnership for Education Advancement (Ed Advancement) is a nonprofit that works collaboratively with Historically Black Colleges and Universities (HBCUs) in support of their mission to advance socioeconomic mobility for their students. By providing highly individualized, sustainable solutions, Ed Advancement helps HBCUs serve their students and meet strategic enrollment, graduation and advancement goals.



For more than 20 years, Whiteboard Advisors has collaborated with the most transformative organizations, individuals and investors in education. Our diverse team of educators, wonks and storytellers brings in-depth understanding of policy, technology and practice to bear on cutting-edge research, powerful writing, and the design of communications and advocacy campaigns that challenge the status quo. Whether we're working with startups or the most established organizations in education, we're passionate about taking breakthrough ideas to scale.

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Introduction

Asking good questions is a sign of thoughtful leadership. But for many higher education institutions, there are more good questions than can be answered, given both internal resources and data availability constraints.

Even as institutions have rapidly adopted digital platforms, the data collected by these platforms doesn't always translate to insights. Data lives within siloed systems: Customer relationship management (CRM) platforms support recruitment, retention and possibly alumni engagement; learning management platforms (LMS) support teaching and learning; student information systems (SIS) serve as a compliance system of record for enrolled students (as well as a system of record for admitted students at many institutions).

Unfortunately, none of these systems can independently offer either a full view of a student's experience or aggregated insights on broader institutional trends. And many other systems and siloes also exist: individual colleges within a university may have their own independent CRM; departments like housing or athletics may also have other platforms that collect student information.

Connecting siloed data into a single data core offers the promise of facilitating deeper institutional insights, improving customer service for students, and identifying trends in student course selection or other inflection moments that impact student success.

When data is unified through a flexible infrastructure, institutional leaders can both save significant time and answer different types of "what if" questions to predict outcomes that would not be possible to answer using independent systems. For instance, a [case study](#) of a unified data project at Case Western Reserve University found that, "Questions that once took weeks to solve can now be answered in minutes, with easy reference to a shared portal."

In many ways, the value of a data core—a cloud-based, unified data source—for higher education matches the incentive for the transition to electronic medical records: connecting information across disconnected systems to improve outcomes and experience for individuals. For medical records, this means that when a general practitioner recommends diagnostic imaging (e.g., X-ray, ultrasound, MRI), a radiologist can receive and analyze it, and a specialist can access the results of that analysis—as well as have access to related blood work, family medical history or other relevant information. As a result, practitioners have the information necessary to guide treatment, saving time during each visit and saving the patient the hassle of trying to access copies of results for each physician.

For higher education institutions, a unified data core offers the foundation for establishing greater transparency for administrators and faculty as well as a more personalized experience for students. With a cross-system record, a student only needs to provide information once during their journey to ensure that the information will be available across departments. Faculty and staff across an institution gain a holistic understanding of an individual student's needs and can create a seamless user experience for students. Meanwhile, dashboards with real-time data visualization support campuswide decision-making and allow a wider set of institutional stakeholders to analyze student journey gaps and trends and identify students who may benefit from additional support.

As Colonel Alexander Conyers, president of South Carolina State University, noted in the Partnership for Education Advancement's [AI Primer](#), dashboards populated from multiple data sources allow the university to “stay engaged with students, better store and retrieve information, and improve the customer experience for students so that wherever they go on campus, they don't need to tell their story every time.”



Unlocking Value Through a Unified Data Core

Imagine a student whose grades suddenly drop. A faculty member with insight into the student's performance in their course (but only their course) may recommend that the student visit the tutoring center. But what if the performance drops across the board and the student, who used to swipe in to use the gym every day, has stopped doing so? A more complete view of the behavior may make the intervention—and urgency of the intervention—very different.

From supporting student mental health to improving course selections to identifying students who would benefit from additional resources to aiding institutional decision-making, a unified data core can enable valuable insights.

Connecting data across systems (and layering an easy-to-use dashboard on top of the connected data) can provide insights that improve processes and outcomes across three areas:

- **Student support:** Whether calling in to a technology help desk, attempting to register for courses or navigating a challenging course load, there are many points during a term where a student receiving timely advice or guidance can significantly impact their academic trajectory. A unified data core can provide insights, resources and data (either directly to students or via faculty and staff) that can meaningfully improve student experiences and outcomes.
 - **Student-facing resources:** Institutions have used unified data to identify insights on the best ordering of academic courses—offering recommendations in real time during the course enrollment process that indicate the academic path that is most correlated with success. Other institutions have used a data lake to identify behaviors correlated with positive outcomes and use automated “nudges” to remind students about steps they need to take.
 - **Student experience:** Dashboards that pull all relevant student information into a single source can help staff across the institution provide more personalized support or guidance. Data sharing across departments means that a student only needs to share their personal information once, and all relevant departments (housing, academic or financial, for example) will have the necessary information. This structure offers a more

welcoming environment for students, who no longer need to share potentially sensitive information repeatedly, and provides administrators or faculty with well-timed insights that allow them to better support students.

- **Operational improvements:** Access to unified data can help institutions answer more questions more quickly, speed up reporting, and even help answer “what if” questions. Using trends from historical data, institutions can predict student needs or choices and respond accordingly.
 - **Institutional insights:** Unified data systems allow institutional leaders to understand the impacts of a range of decisions (for example—a change in policy around outstanding fees) on student enrollment, progression and graduation. It can also streamline important reporting tasks that are arduous to complete manually across siloed sources.
 - **Faculty experience:** By improving data flow, accessibility and the presentation of data (e.g., in easy-to-use dashboards), institutions can create efficiencies and enable more self-service usage by staff and faculty.
- **Data ownership:** A unified data core frees data from proprietary systems and creates a centralized, institution-managed structure. This model prepares institutions with data ownership in the event of a vendor disruption. And because historical student data will exist outside of the proprietary platform and be more accessible, it also allows institutions to more easily consider potential new provider options that may lower costs or offer a better product (potentially due to adoption of emerging technologies).

Of course, there are other potential values beyond student success for unified data: Some campuses are using the data platform to support data archiving or analytics for researchers or for capturing and analyzing campus security data.

Supporting institutions with the technology infrastructure to own and effectively use their data is crucial, especially for historically underfunded schools, including HBCUs [Historically Black Colleges and Universities]. Current predictive models for student support may not accurately reflect institutions serving large proportions of students of color and those from low-income backgrounds. Institutional data stewardship, where faculty and administration use technology and data to enhance efficiency, is vital for schools with limited resources to meet the needs of today’s students.

Jinann Bitar, EdTrust’s director of higher education research and data analytics

Supporting Students at Ivy Tech Community College and Maryville University

Ivy Tech Community College is the nation's largest community college, with over 170,000 students enrolled annually—and over 1.7 million records in its database. The [implementation](#) of a data lake (a unified data architecture that leverages unstructured data) allowed Ivy Tech to both collect and comprehensively analyze large amounts of student data, including academic performance, attendance and engagement metrics, to identify “patterns of success” across its student population.

Using past data and trends of student behavior, advisors and academic staff at Ivy Tech can now flag students who need additional support and intervene with tutoring, counseling or academic advising. According to Ivy Tech's Chief Technology Officer Lige Hensley, the school can now predict a student's likelihood of success during a 16-week semester to about [82% accuracy](#) within the first two weeks of class. Timely assistance can now make its way to students who may not know how to ask for help—or even that they need it.

What's more, new data lake technology has empowered Ivy Tech staff to evaluate student needs and respond to student queries far more quickly than before. Before establishing the data lake, Ivy Tech staff members were waiting [up to 40 minutes](#) for a single query and up to eight hours to process routine reports. Through this system, staff is able to complete queries in seconds and gain insights on student behavior just as quickly, speeding up the advising process exponentially.

Smaller institutions also benefit from this approach. Maryville University in St. Louis, which serves about 6,000 students, also uses unified data to support its students, with a particular focus on reducing the [risk of stopping out](#) within the first year.

Using its unified data, Maryville began to identify behavior that suggests learning momentum among students was slowing (e.g., identifying students who had not yet accessed important orientation resources related to financial aid or how to navigate the LMS to ensure they are ready to learn on day one). The data lake helps administration and staff understand and identify a variety of potential challenges and markers of difficulty, ranging from academic performance issues to administrative requirements.

Maryville now uses these insights to redirect its automated notification system, reminding students of key deadlines and requirements. Reaching these students via text has been particularly useful for Maryville's online students, who begin receiving texts the week before classes begin. The analytics from the data lake “nudges” students identified as at risk of losing momentum, with the goal of [providing resources for students](#) before the students even needed them.

The data-driven approach has led to significant enrollment growth. Between 2020-2021, Maryville sent out nearly 6,000 messages to students at risk of dropping out and saw a [growth of 2,300-plus undergraduate students](#) enrolled through its online programming (20% of the student population in 2021).



Unified Data: A Primer

Nearly two decades ago, a British mathematician argued that “data is the new oil.” But like oil, data needs to be refined before it can usefully power decision-making.

Transforming raw data into usable insights unlocks value across an entire institution. It also democratizes access to insights, allowing a wider range of institutional stakeholders (faculty, staff, etc.) to access real-time analysis—potentially both saving time and leading to more informed decisions.

At many institutions, limited resources prevent leaders from answering all the good questions that they generate. This may be due to lack of time, data limitations or understaffed institutional research departments. As a result, data requests can become bottlenecked and inhibit data-driven decision-making. The same can be true of other departments (e.g., the office of the registrar) that may receive similar data requests.

Building the data infrastructure to empower a range of stakeholders to answer their own questions or to have increased access to real-time data at their fingertips can be an important precursor to establishing a more data-informed culture. Taking advantage of this opportunity requires institutional investment in data and infrastructure; institutions must move away from considering technology as primarily a cost to be contained and instead embrace data management as a critical part of decision-making.

A unified data core is highly flexible and may use a data lake structure. Data lakes allow data from a range of sources to “flow” into a single, intentionally unstructured data repository. Institutions can choose as many or as few data sources, though most effective implementations include the SIS, LMS and/or CRM.

Compared to older data structures (like databases or data warehouses), the cloud-based unified data core is less expensive, more flexible, and faster to both implement and use. It allows for investigating more “what if” questions (rather than only generating reports based on a fixed set of data) and requires less future-proofing, because it can expand easily (compared to on-premise storage that requires accurate sizing from the beginning).

Data Warehouse vs. Data Lake

Imagine a child's bedroom or playroom. Perhaps everything is in labeled bins, neat and tidy—a place for everything and everything in its place. If another child came, they could quickly find anything they wanted to play with. But organizing the playroom (and organizing any additional toys that needed to be added to it) would be a time-consuming (and potentially expensive) endeavor. And items that don't fit neatly inside one of the existing bins aren't allowed in the room at all.

Now imagine another playroom without that organizational structure—dolls, blocks, dinosaurs and toy cars all mixed together without neatly labeled containers. Artwork, crafts or other items that may not be easily categorized simply exist in the space unsorted. Because multiple types of toys are available at one time, there are greater opportunities for creative play. It also takes much less effort to create and maintain this unstructured space, but an outsider looking for something likely will need help finding it.

The two rooms roughly mirror the difference between a data warehouse and a data lake. The warehouse requires everything to be sorted and stored and is limited in the types of data that can be held. It also requires significantly more effort to create (as any parent with well-intentioned labeled cubbies will tell you)—a challenge that can be insurmountable.

The data lake, meanwhile, allows many types of data to be added without a pre-

existing organizational structure. This lack of preordained structure makes data lakes more flexible. And because the data all flows into one place, data scientists can connect insights from different data sources. Data lakes also work well for unstructured data (like audio, video, documents or emails) that don't have a consistent format or that are hard to categorize (or both)—these types of content simply don't have a way to exist in a data warehouse.

Data warehouses can be more easily queried (it's easy to ask how many toy cars are in the playroom if they're all in one box)—but the types of questions are limited.

Data lakes require additional layers to transform, process and analyze the data. These layers are the digital version—often powered by artificial intelligence—of a child who knows exactly where to find everything, even without organization. When these layers are in place, they can populate dashboards with data from multiple sources, develop predictive analyses and more.

Data lakes and warehouses are not the only two structures; there are others like lakehouses that try to take advantage of the strengths of both data lakes and data warehouses. A unified data core may take advantage of a data lake, data lakehouse or other architecture but relies on the flexibility to include unstructured data from multiple sources—something a data warehouse cannot provide.

Supporting Student Pathways at The Illinois Institute of Technology and Portland State

The Illinois Institute of Technology in Chicago has taken advantage of its own unified data core to build a course [catalog powered](#) by artificial intelligence (AI) that makes recommendations based on past student behavior and individual student needs. With the goal of improving student retention and graduation rates, the IT team at the university sought to create a tool that would offer real-time, student-facing recommendations for classes.

The platform draws from legacy data and [offers recommendations](#) about which courses students should take next. This round-the-clock access to guidance about course selection empowers students to make more informed decisions during registration.

Illinois Tech's data lake also enables the institution's administration to identify patterns in course selection and gain insights into students' preferences. This deeper understanding has also [helped inform the course offerings](#): Popular courses are readily accessible to meet anticipated student demand.

The IT team at Portland State University (PSU) in Oregon similarly sought to make data around course selection and pathways both easy to access and simple to use. PSU is a large university ([20,000 students](#)). About [one-third of its students](#) are over 25 years old at the time of enrollment, and nearly half of all undergraduates are part-time students.

To empower more students with the tools to efficiently and quickly reach their educational goals, PSU developed a model to guide students toward the [quickest path to degree completion](#).

The model uses cumulative course histories to predict the best pathways to meet degree requirements and alerts students when they choose courses that deviate from that pathway. Because [up to 50% of PSU's students](#) have transferred from other institutions, the model can also recommend majors for students based on prior academic work from other institutions.

The model can also suggest, based on data on student performance, the optimal sequence for completing requirements as well as courses outside of requirements that may support success in future courses. PSU offers all these tools in tandem with traditional advising from a staff member.



Preparing for a Unified Data Core

The Partnership for Education Advancement supported a pilot for unified data at HBCUs, with the goal of creating best practices, shared lessons, and a model for future implementations. While the work is ongoing, it has already led to early lessons for how other institutions can prepare for a data core, particularly related to on-campus technical capacity (including WiFi strength and reliability); data governance, privacy and security; and human capital and change-management considerations.

While the concept of unified data is not new to higher education, unified data structures are not common at institutions that have managed significant and historic resource constraints. Under-resourced institutions, including many HBCUs, may need additional support to shore up systems or acquire the technical expertise to implement a unified data project.

Focusing on Fundamentals

Before taking on a new unified data core initiative, institutions should take stock of their existing tech infrastructure. Will campus internet access be strong enough to load dashboards or data visualizations, or is it weak and already limiting access to the source systems (e.g., SIS, LMS, etc.) that will push data into the unified core? Are existing systems updated (e.g., running the most recent versions), and is data flowing in consistently and with consistent definitions? What sources of data already exist on campus, and how accurate or reliable are they?

Institutions that are financially and capacity constrained frequently face trade-offs on how to spend time and money. This makes it challenging to invest limited resources into important but not urgent matters, such as ongoing system maintenance.

Similar to a car, not completing regular maintenance on institutional data systems can create compounding, more serious and costly problems down the road. As a precursor to beginning a data core initiative, institutions may find they need to prioritize deferred maintenance, set up automated backup, and update schedules for existing data sources (like SIS or LMS) or strengthen internet connectivity.

Planning and Preparation

Because the value of a unified data system hinges on the availability and quality of data in existing platforms, the initial phase of readiness work must include a deep understanding of current system usage, other data types that could be collected, and the tools/approaches being used consistently and across the entire campus. As a result, a technology assessment is an important initial step toward creating a unified data core.

In addition to documenting the tech stack, mapping the data landscape at the institution should include taking stock of existing documentation. Institutional knowledge is a valuable asset, but it becomes more valuable when it is written down and a wider range of individuals (including outside technical consultants or others supporting the implementation) can use it. If processes, data definitions and other details of how the tech stack operates exist only within the staff members, these individuals may unintentionally become a bottleneck during a digital transformation effort.

Ed Advancement engaged in hundreds of conversations during its unified data pilot to deeply understand the goals and barriers for both the technical team on campus as well as the functional leaders—those overseeing recruitment, admissions, financial aid, registration and more. These conversations helped Ed Advancement define the highest-value metrics for supporting student success, available data sources and platform usage (e.g., whether grades are updated in the LMS consistently during the term). In addition, Ed Advancement encouraged the pilot institution to complete a comprehensive technology assessment that offered a fuller understanding of the status of the technical infrastructure at the institution.

Governance, Privacy and Security

A cloud-based, unified data structure has significant value but also requires preparation related to data governance, privacy and security.

“Connecting data from otherwise siloed systems allows for deeper insights that improve outcomes for both students and institutions,” notes Paige Kowalski, executive vice president for the Data Quality Campaign. “Using data effectively, however, also requires a thoughtful approach to data governance, data protection procedures, and transparency.”

Institutions or state systems may have regulations regarding storage of student data on cloud servers that require compliance. Additionally, appropriate user access controls, termination of access for employees who have either left or shifted roles, and cybersecurity protocols should all be considered as a foundational step in adopting a unified data core.

Implementing a unified data core requires a focus on privacy and cybersecurity as well as data governance. Data governance—how data is entered, cleaned and confirmed—is important to avoid the problem of “garbage in, garbage out” analytics. Important governance considerations include shared definitions of what each field means in a system (often documented in a cross-system data dictionary), processes in place for data management (including looking for and removing duplicate records), and consistency in which data points are used for calculated values (for example, defining graduation rates, retention rates, enrollment yield and more).

Supporting Users and Use Cases

As is the case in nearly every situation, a tool is only as good as its user. Identifying a cross-functional set of stakeholders to champion the implementation efforts is vital to both developing dashboards and business intelligence tools that make the unified core easily usable as well as unlocking the value of unified data.

Particularly at the outset, this is a communications challenge more so than a training or development challenge. For those institutions that Ed Advancement supports, staff often have more requests to complete than time to do them. To develop internal champions, institutions need a clear rationale and value proposition to staff. This includes:

- Offering clear examples of how other campuses benefited from a unified data core.
- Demonstrating how access to improved data can simplify or improve staff or faculty responsibilities (e.g., improving reporting burdens or removing bottlenecks).
- Highlighting the specific campus objectives that would be well-served through better data or insights.

User buy-in can begin small and grow over time. This may mean starting with staff in admissions or student success and then moving to a wider set (e.g., to faculty seeking insights on students' level of interest or progress within their major or to coaches interested in monitoring academic progress of athletes) and then to students to give more information about what might make them more successful.

Not only is it important to invest in individuals in order to support confident usage of the tools, these same efforts may also limit pushback against new platforms or approaches.

Change management can derail or delay analytics efforts. Data ownership can occasionally become political, and any time you create a new tool, or adopt a new process, there can be friction. Creating a culture of responsible data sharing requires intentionality, and purposeful engagement to share the value of a project and the impact on student success.

Matt Sessa, former associate vice president of student registration and financial services at the University of Pennsylvania

Adoption of data-oriented decision-making won't happen overnight, but implementations at other institutions indicate that once individuals begin seeing the value of the tool, they are more likely to ask for additional functionality or find additional ways to utilize it.

Maricopa Community Colleges

Maricopa Community Colleges in Tempe, Arizona, supports a diverse student body of 136,000 students across 10 campuses; its advising team faces high advisor-to-student ratios (nearly 900 students for each advisor) that make it difficult to offer effective support to every student.

In response to this difficulty, Maricopa Community Colleges began developing its ASSIST for Higher Education platform in 2021. The platform was built to support admissions, enrollment, advising and support functions across Maricopa's 10 campuses. The ASSIST platform also informs strategic enrollment initiatives (through targeted advertising campaigns); fosters outreach to students prior to enrollment; and helps engage students who are already enrolled (by reaching out to students who have received D, F or W grades and encouraging them to retake courses the next semester).

Today, the ASSIST platform [contains more than 3.6 million student records](#) and has facilitated over 450,000 calls and 91,000 chats districtwide. By connecting data, making it more accessible, and speeding up processing time, the ASSIST platform enabled an estimated \$7 million in savings. For large, complex data sets, the ASSIST data layer (connected to Tableau for visualization) is 300 times faster than using the legacy data sources, according to Maricopa Community Colleges.

A Powerful Tool but Not a Panacea

Of course, unified data with dashboards or other analytics will not be a panacea for every data and communication issue on campus. Staff involved with the Partnership for Education Advancement pilot noted that many students already have a portal to update their personal information and check for alerts and status, but too few use it effectively. A faculty-level dashboard will ensure that others can also see some of those alerts, regardless of whether students are regularly checking their own; but faculty awareness won't fix the broader issue of student agency.

Similarly, while dashboards should help break down some of the siloes that exist on a campus, they will not be solutions for every pain point. Solid business processes still need to be in place. Academic departments will still need to provide up-to-date records to the registrar, for example; the benefits of an AI-powered recommendation engine will be short-lived if the recommended course isn't actually offered.

And while a unified data core and dashboards will help faculty have more data at their fingertips, faculty won't be able—nor should institutions expect them—to answer every question for every student. Nuanced and important questions (for example, about a financial aid package or related to veteran status or benefits) will still require connecting with the appropriate office or staff member. While dashboards will help provide some information, not all information will be shared with every staff member, and institutions should not expect staff members to be experts in every aspect of a student's campus experience.

Unified Data Readiness Checklist

Connecting data into a unified data core can provide meaningful process improvements and a better student experience—but also requires thoughtful preparation. The following checklist is intended to support higher education institutions in identifying the components they should keep in mind when considering adoption of a unified data core. Additional readiness factors are included in the [Unified Data Action Plan](#) from Educause.

Executive Leadership Readiness

Challenge/ Opportunity	Assessment Criteria
Strategy	<ol style="list-style-type: none"> 1. How does the use of unified data align to achieving your institution’s mission, vision, goals, and values? 2. Are you adequately equipped to leverage unified data’s potential benefits and understand the challenges? 3. Do you have a designated point person or team for overseeing the adoption, procurement, and management of unified data within your institution? 4. Do you have a cross-functional team (i.e., Technical, Operational, Academic, Financial, Legal, Administration, Communications, and Students) that provides oversight and guidance on the adoption, implementation, management of and communication about unified data at your institution? 5. Do you have an adoption strategy that addresses how to manage and govern the allowable uses of unified data such as: <ul style="list-style-type: none"> • Instructional • Academic achievement • Business • Operational • Data reporting and analytics 6. Do you have metrics to evaluate the use or impact of the use of unified data at your institution? Do you have a process for considering the financial impact and ongoing financial support of unified data at your institution?
Legislation and Administrative Rules	<ol style="list-style-type: none"> 1. What are your state laws related to collecting and using student data? 2. If you are a public institution, are there state laws or policies regarding the security protocols or other safeguards you are required to have on a data system? 3. Are there state laws regarding storing student data in the cloud? 4. Are there state laws related to the use of algorithms that aim to change student behaviors? 5. Are there any state laws that would impact the ability to use AI to analyze unified student data?
Training	<ol style="list-style-type: none"> 1. Do you maintain a schedule for continuous and updated role-specific training (for faculty, administrators, other staff, etc.)? Do you track completion of this training? 2. Do you have an onboarding program to train new hires in the acceptable/responsible use of unified data policies, processes, and procedures? 3. Does your use policy include a requirement that the use of unified data be cited in the creation of content by educators, administrators, communications staff, support staff & students?

Operational Readiness

Challenge/ Opportunity	Assessment Criteria
Procurement	1. Do you have a process in place for evaluating whether purchases, upgrades or renewals will impact either existing flows into unified data systems or the potential to incorporate additional data into the data core?
Staffing	<ol style="list-style-type: none"> 1. Do you have staff with the right skill-set to architect a data core? Do you need outside support? 2. Do you have sufficient staff to secure your network, and monitor any alerts from either your database (e.g., SIS) or data core? 3. Do you have the staff to offer training on best practices for using data? 4. Do you have staff with the ability to prepare data and share it with other stakeholders using the unified data core and related dashboards of business intelligence visualizations?
Third parties	1. Do you have a process in place to review and track third-party relationships (e.g., existing SIS, LMS or CRM platforms)?

Data Readiness

Challenge/ Opportunity	Assessment Criteria
Data Governance	<ol style="list-style-type: none"> 1. Do you have an assigned data steward for your institution? 2. Do you have identified data owners for enterprise data sets? 3. Is there a cross-functional team of data owners that sets enforceable data governance policies for the institution? 4. Do you track compliance with these data governance policies? 5. Have you updated your code of conduct policy to include consequences for violating these data governance policies? 6. Have you documented where all your data sets are stored, including whether on premise or in the cloud? 7. Do you have a data classification model in place? 8. Are your organization's data attributes (data dictionary, categorization) documented? 9. Do you have a plan that manages assets over their entire life? Does this plan include the retention and destruction of institutional data? Does this plan pertain to contractors/solutions providers? Is this plan regularly audited?
Data Quality	<ol style="list-style-type: none"> 1. Do you have a group of individuals or another process for controlling the data dictionary and building consensus on data definitions so that there is consensus on data standards across platforms (e.g., SIS, LMS, etc.)? 2. Do you regularly audit the quality of your institution's data (e.g., deduplication, inaccuracy, missing values, etc.)? 3. Do you have data versioning control? 4. Do you identify source systems for your data sets?
Data Privacy	<ol style="list-style-type: none"> 1. If you are already using a unified data core, have you updated the institution's data security policies, processes and procedures to include the use of unified data that aligns with industry security frameworks such as NIST CSF, NIST SP 800-53, and ISO 27005 or 27001? 2. Have you updated your code of conduct policy to include consequences for violating data privacy policies, processes and procedures? 3. Do you maintain a schedule for continuous and updated role-based training on data privacy? Do you track completion of this training? 4. Do you have an onboarding program to train new hires in the district's data privacy policies, processes and procedures?

Technical Readiness

Challenge/ Opportunity	Assessment Criteria
Identity and Access Management	<ol style="list-style-type: none"> 1. If you are already using a unified data core, have you created and published formal policies, processes and procedures for role-based data access controls when using dashboards or BI platforms powered by unified data so that users only have access to the data they are permitted to see? 2. Have you updated your third-party vendor contracts to include role-based data access controls when using unified data, including consequences for violating the policy? 3. Do you track compliance with your data access control policies, processes and procedures? 4. Do you have role-based training about data access controls when using unified data? Do you track completion of this training? 5. Do you have an onboarding program to train new hires about data access controls when using unified data? 6. Do your dashboards, BI tools or other staff-facing data connect to your multifactor authentication or enterprise single sign-on solutions?
Tracking and Monitoring	<ol style="list-style-type: none"> 1. Do you have controls in place for monitoring access to and use of data from the unified data core? 2. Is logging enabled across the institution, and are anomalous events flagged for IT staff? When sensitive information is accessed, are logs gathered and stored?
Technical Controls	<ol style="list-style-type: none"> 1. Are you identifying and evaluating other ancillary architecture that may be needed to adopt unified data in your institution? 2. Do you have a review process in place to ensure proper technical controls have been implemented to comply with all unified data policies, processes and procedures? 3. Does your institution properly retire hardware and software once they are no longer being updated with the proper security controls and are no longer in compliance?
Algorithms and Transparency	<ol style="list-style-type: none"> 1. If you are using predictive algorithms informed by historical data in your unified data core, is there a process for reporting or alerting IT staff about algorithms that are potentially biased or otherwise problematic? 2. Is the use of AI at your institution related to the data core explainable and transparent? 3. Do students know when they are interacting with an AI bot (e.g., during enrollment periods) rather than a human being?
Backups	<ol style="list-style-type: none"> 1. Is data backed up at an off-site location? Is the data protected both in transit and at rest during this process? 2. Is data backed up at regular intervals? Is this automated and does it occur weekly or more frequently? 3. Are backups or other maintenance scheduled in ways that do not disrupt the use of tools or access to data during the workday (at least during the academic term)?

Security Readiness

Challenge/ Opportunity	Assessment Criteria
Security Safeguards	<ol style="list-style-type: none"> 1. Do you have a designated individual responsible for cybersecurity within your organization? 2. Do you have a security framework in place? Do you have an incident response plan? A disaster recovery plan? 3. Does your security framework include protections for the use of unified data? 4. Does your security framework include safeguards for malicious actors? 5. Do you have a process in place to remove access or modify access levels in a timely manner (e.g., removing access of former employees)? 6. Do you have policies and network diagrams for Federal Trade Commission (FTC) safeguard compliance? 7. Is sensitive data encrypted? 8. Are all systems up to date on patches or other security updates? Do you have software that regularly scans for vulnerabilities and updates systems as needed? 9. Do you have software that regularly scans for vulnerabilities and updates systems as needed?
Cybersecurity Training	<ol style="list-style-type: none"> 1. Do you have role-based cybersecurity training that has been updated to include the use of unified data for educators, administrators, support staff and students? Do you track completion of this training? 2. Do you have an onboarding program to train new hires on cybersecurity that has been updated to include the use of unified data? 3. Do you have a designated individual responsible for creating and delivering cybersecurity training within your organization?

Legal/Risk Management

Challenge/ Opportunity	Assessment Criteria
Legal Remediation	<ol style="list-style-type: none"> 1. Has the legal team formally documented the consequences for violations of employee policies, and have these been communicated to all employees? 2. Does the legal team have remediation plans in place for instances of violation of policies, procedures or processes specifically concerning the use of data from a unified data core? 3. Do you have the legal right to all of the data that the proprietary systems collect that is flowing into your data core?
Risk Management	<ol style="list-style-type: none"> 1. Has your district updated relevant audits to include the creation of a unified data core? 2. Do your contracts include a data retention and ownership agreement with third-party vendors and data-sharing partners? 3. Do your vendor contracts provide you with rights to pull your data from their system into a data core? 4. Is institutional leadership (or even state-level leadership for public institutions) aware of what your insurance plan will cover for the intended and unintended consequences of using a unified data core at your institution? 5. Has your institution completed required FTC safeguards and GLBA risk assessments, if your institution accepts Title IV funds?
Loss Notification	<ol style="list-style-type: none"> 1. Have you developed and disseminated formal policies, processes and procedures specifically for notifying affected parties in the event of a loss of identifiable data? 2. Do you actively monitor adherence to your formal policies, processes and procedures regarding data loss notifications? 3. Do you maintain a schedule for continuous and updated role-specific training about data loss notification due to the use of unified data? Do you track completion of this training? 4. Do you have an onboarding program to train new hires in data loss notifications due to the use of unified data?

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