Association of Public & Land-grant Universities

APLU's Powered by Publics
Scaling Student Success

The Data Culture Framework

Infusing Data Throughout the Campus Culture

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Introduction

The Data Culture Framework is a high-level guide designed for institutional leaders who want to create and sustain an effective data culture on campus. The Framework offers a set of practices designed to help institutions of higher education create and maintain an effective data-informed community among institutional leaders, faculty, and staff. This type of culture supported by quality data, transparent data management practices, and reliable technology and infrastructure, is the foundation for data-informed decision-making that supports student success.

Most advancements in the data space focus on building technical systems (such as dashboards for displaying data.) This framework shifts the focus to producing reliable, accurate, and accessible data specific to meet the needs of professionals who work with students and investing in training these individuals on how to use data effectively.

Why do this work? Higher education institutions want to improve student outcomes and improve their student success operations to become more efficient and effective. Silos in our culture, however, can hinder transformational change. The pandemic highlighted weaknesses in our institutional cultures, particularly for marginalized students, bringing a variety of challenges to the forefront of student success efforts. Different teaching strategies that provide a range of learning stimuli were created along with holistic student supports for learning. Data has become integral to evaluating these strategies and exploring the increasing complexity of student experiences to find innovative ways to address student needs.

Although institutions have a lot of data and potentially many tools, the data are often not integrated or organized in a way that makes it easily accessible, thus, limiting the ability of faculty and staff to address student success issues effectively. Breaking silos and improving the data culture create paths to improving the use of data to help institutional leaders solve student success problems. This framework outlines the key components and the action steps that will drive this change.

Who did this work? The Framework was developed by a group of institutions that worked together as part of the Association of Public and Land-grant Universities' Powered by Publics (PxP) initiative, which comprised 127 universities and state systems. Through 14 communities of practice or clusters, PxP aimed to reduce equity gaps and increase the number of college degrees awarded.

Two clusters worked collaboratively to advance institutional data culture: the Data Integration Cluster (Cluster 13) created a tool to assess the data culture on campus, and the Northern Cluster (Cluster 14) explored ways to improve data literacy on campus. These two clusters worked together to identify barriers to an effective data culture. Cluster 13 focused on assessing the overall data culture through an assessment tool called the Data Maturity Index, while Cluster 14 focused on building an effective data literacy program on campus by participating in the pilot Data Literacy Institute which was developed in partnership with the Association for Institutional Research. Together, these two clusters formed a community of practice and worked collaboratively to identify the key components of an effective data culture. This framework is based on their work, which spanned six years between 2018 to 2023.

What does an effective data culture look like? Data are used widely to better understand the student experience and to identify barriers in the student life cycle. Strategically managed data can help us to:

1. Identify where problems arise in the student experience that create barriers to success,

2. Design solutions that address problems and change the student experience,
3. Support and evaluate decision-making and actions to improve outcomes for all students,
4. Embrace transparency and equity, and
5. Support the institution's mission, goals, and objectives.

An effective culture is where faculty and staff at all levels feel empowered to access and use data to inform their work. An effective data culture includes training on how to use data as well as consistent communication from leaders that demonstrates the value of data in making decisions and taking action.

Without data, we make decisions using anecdotal experiences, which don't give adequate representation to the broader community. Thus, we may miss an opportunity to serve a group of constituents. Data helps us to include everyone; however, data alone cannot make change. The use of the data is the impetus to take action.

An effective data culture is a vital component of institutional transformation. It provides evidence to identify areas within the higher education business model and the student life cycle that need attention, facilitating adaptability and responsiveness to opportunities and challenges, demonstrating progress toward desired outcomes, and supporting intentional decisions around resource allocation. The increasing pressure to improve student outcomes and the expectations to support all students in all aspects of their professional development have put institutions in a position that requires a clear strategy for increased efficiency and effective change. This requires a data strategy that goes beyond just collecting and reporting. Data allows leaders, faculty, and staff at multiple levels to have consistent, relevant, and timely information to inform both planning and decision-making. Data and data tools can create greater utility and cohesion of information across the institution to better understand student success challenges in order to create and execute more effective strategic initiatives. An effective data culture is also essential in creating accountability for ourselves and our intended outcomes thus, increasing trust through transparency and communication of data to key constituents.

PHOTO COURTESY OF TEXAS TECH UNIVERSITY

An Overview of the Framework

The Data Culture Framework provides higher education leaders guidance on envisioning, designing, implementing, evaluating, and sustaining institutional practices that improve data capacity and literacy. Institutions need a vision, clear objectives, a strategy on how to get there, resources, data, and champions of change to lead the charge. This framework addresses the following components that make up an effective data culture:

1. Leadership and organizational values
2. Stakeholders
3. Assessment of the data culture
4. Data management/data governance
5. Data quality
6. Reliable tools
7. Data literacy
8. A community of practice

Each element presented with a conceptual understanding, some with recommended action steps, potential barriers, and recommendations for overcoming these barriers to ensure success.

In addition, the following are included in the section called “Community Resources”:

- An action plan
- A glossary
- Recommended reading
- Tools and resources for assessing data culture
- Examples of data infrastructure models

The Framework

I. Leadership and organizational values

Senior leaders create a vision and provide support and energy for strategies designed to meet institutional goals, particularly goals related to student success. Data are a critical part of evaluating progress toward these goals. A robust data culture is one where senior executives use data that lead to insights that result in effective strategies. Leaders set the culture and organizational values that support how data might be used in meeting institutional goals - a critical part of change management. They not only set the values with their practice but also communicate those values to the broader campus community through messages about how data are used.

Senior leaders include provosts, associate or assistant provosts, vice presidents, associate/assistant vice presidents, IT, and the heads of institutional research, student success, or student services. They may lead efforts to identify data stewards, create value in the process of maintaining accurate data, set expectations of who should access data, define what level of transparency is appropriate in reporting, and manage policies around the ethical use of data. These efforts may disrupt existing business processes which will require senior leaders to support this disruption as part of the overall change management strategy.

The following are action items recommended for leaders:

1. Assess the need for and identify the value of using data within the campus community.
2. Explore peer institutions that have embraced data and learn about their goals, strategies, and outcomes.
3. Find supporters within the community to embrace change in data culture.
4. Bring these individuals together to develop strategy.
5. Engage change management principles.
    a. Communicate a case for change.
    b. Create a vision and strategic direction based on an assessment of the culture.
    c. Distribute the vision, strategy, and expectations to the community.

There are two main barriers leaders may face: commitment and resources.

Commitment. With so many challenges institutions face, sometimes leaders may not have the bandwidth to commit to data culture change. However, a committed, cross-functional team that supports data culture change can be efficient and effective in creating goals and executing strategy.

Resources. Two types of resources are needed: 1) **time** from individuals who will manage the process and those who will participate as data consumers and data producers, and 2) **funds** to support tools, training materials, hardware, software, etc. Leaders need to dedicate financial resources – to support personnel and materials. To do so may require reallocating funds from different projects and sharing costs across divisions or departments. To increase time for individuals to support the process, consider providing work-release options, certificates to honor individual accomplishments, or a small stipend for participation. Institutions with limited funds will experience more significant challenges in implementing the infrastructure needed to create an effective data culture. Cost-sharing resources across institutions within a state, a system, or a consortium may help to reduce costs.

Below are two institutional examples of leadership support.

1. Montclair State University has installed an entirely new senior administration over the past three years. They have a strong desire to democratize data and mobilize the campus community to become more data-focused. For example, metrics were required for the first time, to support the budget process. Likewise, deans are utilizing internal and external data to determine pathways to new academic programs. To better support this new vision and focus on student success data, IR now reports to Academic Affairs. Further, the CIO has undertaken a fresh review of the institution's data governance structures.

2. Bowling Green State University also has an executive leadership team that makes data-informed decisions, especially regarding issues related to student success outcomes. The Division of Student Engagement and Success employs a Director of Student Success Analytics and Technology whose sole responsibility is to provide faculty, staff, and administrators with actionable data that enables campus community members to identify trends and work proactively to provide enhanced student support measures.

PHOTO COURTESY OF THE UNIVERSITY OF MAINE

II. Stakeholders

Stakeholders include data creators, data consumers, and those impacted by the use of data at the institution. Stakeholders who participate in the management process as a social network tend to gain the highest level of project commitment, and stakeholders who understand their role in the process tend to be more invested in the project's success. Thus, those who participate in creating an

effective data culture will not only be more committed to the development, implementation, and assessment of initiatives that support the use of data but also have the potential to become champions for the community of practice.

When recruiting stakeholders, consider each individual's role, as well as the project goals. Stakeholder groups may be comprised of organizational members from different leadership levels, including senior leaders who provide strategy and vision to mid-level managers who manage the implementation of the project. Given the importance of stakeholder commitment and expertise, it is important to match the project goals with stakeholders' roles, characteristics, and potential contributions. Project management literature recommends the following stakeholder roles which are central to building and maintaining a strong campus data culture.

Decision-makers are those stakeholders who will make policy decisions based on the data. On campus, such decision-makers might include presidents, vice presidents, provosts, board members, chancellors, college deans, department chairs, etc. A decision-maker might be selected to be the project's sponsor or leader.

Institutional Researchers will create and maintain systems to operationalize, collect, validate, store, interpret, and present data results. Directors of institutional research or institutional effectiveness are professionals who are team leaders with end-to-end knowledge of the data process. Statisticians and analysts will be effective stakeholders in supporting the analysis of data - identifying patterns, correlations, and effects. Data coaches may assist users in clarifying their needs, access, analysis, interpretation, and application of data.

Information Technology experts will manage the infrastructure to integrate various tools ensuring security and access to tools and data. These individuals may include the Chief Information Officer or another senior-level manager who can speak to designing systems. Because data technology innovations develop quickly, stakeholders who can understand, communicate, present, and liaise with decision-makers will be essential members of the stakeholder social network.

Student services specialists such as the registrar, financial aid, advising, faculty, and academic administrators are data consumers who will be interested in knowing how students are impacted by different policies and practices within their units.

It is important to create your stakeholder group so that they form a community of practice and have a common direction. Thus, having someone who will serve as a leader for this group will help support cohesion, engagement, and progress. Three or four people may work together to form a steering committee. Engagement by the full group of stakeholders typically improves through regular meetings and meaningful communications.

The following action items are recommended for stakeholders.

1. Create a cross-functional community of practice.
2. Identify your stakeholders from different roles and levels across campus - selecting those who are interested in improving data quality, data access, and data dissemination for the good of the community.
3. Select one individual who will lead the group and manage the charge. This person should be familiar with the various stakeholders and be in a position to get buy-in from key stakeholders, particularly leadership.

The following are potential barriers stakeholder groups may face.

1. Commitment. Similar to leadership, commitment may be a challenge. Often, those who work with data have complex roles and other priorities. It is important to communicate the importance of the group. Working collectively may increase motivation to achieve the stated goals and increase cohesion among stakeholders.
2. Engagement. Because this work will require a long-term commitment, it is important to keep stakeholders engaged. This could include clarifying roles and contributions, understanding the value of each task, and keeping the end goal in mind. Communicating the progress of the project is an important part of engagement with stakeholders and the community at large.

Here is an example exemplifying stakeholder engagement.

George Mason University's Vice Provost for Institutional Effectiveness at GMU launched a series of discussions to socialize the desirability of addressing foundational data issues on campus. Creating buy-in with senior leaders and partners, e.g., the Chief Information Officer and the Vice President for Finance, led to executive sponsorship by the Provost and the Executive VP for Finance and Administration, to launch MIDAS: Mason Insight: Data to Analytic Solutions. Drawing upon campus experience and expertise, seven focused areas were identified for improvement including:

1. End-user access
2. Reporting and data visualization tools
3. Data request portal
4. Data dictionary
5. Data accuracy, quality, and integrity
6. Identifying critical data needed for analysis not currently collected, and how to collect it.
7. Creating a "common well" for reporting for campus use that combines operational, tactical, strategic, and official data that would standardize definitions but allow for flexibility for unique needs.

PHOTO COURTESY OF GEORGE MASON UNIVERSITY

With the assistance of a consultant team, GMU is building paths from identified improvement areas to desired solutions.

III. Assessment of the data culture

It is important to have a clear understanding of the strengths and weaknesses of the existing data culture before determining a path forward.

"You Can't Really Know Where You Are Going Until You Know Where You Have Been" - Maya Angelou

Several tools are available to create a meaningful needs assessment. Those tools are outlined in the Community Resources section of this framework, including one tool developed by the Powered by Publics. The Data Integration Cluster (Cluster 13) created an assessment tool that describes seven components of a robust data culture. This assessment is called the Data Maturity Index (DMI) and contains approximately 30 items organized into seven categories one overall category:

1. Data governance
2. Data collection

3. Data quality
4. Data dissemination
5. Data analysis
6. Culture and application
7. Evaluation
8. Overall

"It is important to have a broad picture of the strengths and weaknesses of the existing data culture before setting goals."

The results identify areas of strengths and opportunities for change within the institution's cultured. The assessment is based on respondents' perceptions.

The implementation of the DMI comes in four steps:

1. Identify a cross-functional group of stakeholders across campus.
2. Disseminate the DMI survey to all stakeholders.
3. Review the results to identify strengths and weaknesses.
4. Bring participants together to discuss the findings and to set priorities on where to focus resources to improve the data culture on campus. Below is a brief protocol to guide this conversation:
    a. What did we learn about ourselves?
    b. What are our strengths?
    c. What are the areas where we need to focus?
    d. What are the key barriers to data literacy?

Below are action items to support the assessment of the data culture.

1. Create the assessment in a survey tool.
2. Identify stakeholders who will complete the survey.
3. Implement the survey, considering carefully who should complete the survey and how to encourage participation.
4. Evaluate the results and present findings to the stakeholders.
5. Use the results to inform actions (see "An Action Plan" in community resources).

Below are two challenges that may arise when assessing the data culture.

1. The response rate may be low. Respondents may not complete the survey on the first request. Send reminders frequently and stress the value of the survey as well as the amount of time it will take to complete. (Keep the survey short!)
2. In scheduling a follow-up meeting, help individuals understand the importance of their input and schedule the meeting when most people can make it. (Offer an incentive if that is feasible.)

Here is one example of how the assessment was implemented at an institution.

Texas Tech created the initial data maturity matrix that was used to assess the value of data used for student success initiatives. By participating in APLU's Powered by Publics' Data Integration Cluster, Texas Tech representatives worked with the Data Integration Cluster to revise, simplify, and expand the tool to fit a broader audience. The final tool, called the Data Maturity Index, was implemented at 15 institutions. The results identified strengths and weaknesses in specific areas of the data culture. The results are used to prioritize different strategies to improve the data culture at the institution.

IV. Data management/data governance

Data governance refers to the organizational structure that manages data for the institution. It ensures that data has integrity, validity, and reliability from collection to reporting to interpretation. It is led by a governing body that monitors and guides processes for collection, strategies for maintaining quality, acceptable practices to secure and store data, protocols for accessing data, methods of dissemination, and training on how to use the data. Successfully implemented, the results can be high-quality information available to meet tactical, operational, and strategic goals.

PHOTO COURTESY OF OHIO UNIVERSITY

The organizational structure around data governance requires a leader and a collaborative team (a data governance committee) to create policies, procedures, and standards.

The data governance committee is an appointed group of stakeholders who will work together to improve the data culture on campus. The committee is responsible for gathering information from the campus community to identify and prioritize issues related to data management. They set expectations and goals, develop a plan to manage data, articulate strategies for improving the data culture, and communicate progress on the work to the campus constituents. From their work, policies and practices to guide data management and data use will be developed and implemented. (See Sample Guiding Principles for Data Governance in the Community Resources section.)

A robust data culture includes measures to ensure the privacy and security needed to protect the individuals behind the data and the data itself. Policies need to be in place to articulate how individuals may share institutional data. An individual who receives access to data should also learn how to use, secure, and communicate the data. There is also a process for terminating access when that individual no longer needs access. These practices are shared broadly with the community. The first step to granting access is to create an inventory of existing data and data sources to clarify how the data should be secured.

It is important to have a clear vision of the stages of data management and to be transparent on the progress and formation of the governance structure. The following are recommended action items to support data governance and good data management.

1. Clarify the need. What is the problem and how can data help with solving the problem?
2. Assess what structures exist at the institution to support data governance.
3. Get leadership buy-in. This would include dedicating resources to building a sustainable structure to improve the data culture. Senior leaders will also empower a lead to execute data governance.
4. Appoint a central data leader to lead data governance. This person might be an individual or a unit to organize the work.
5. Select a formal committee that will work together to establish goals and strategies.
6. Develop a communication plan to keep the leadership and campus stakeholders informed.
7. Execute a data culture assessment. Evaluate the results. Work together to identify goals and build an action plan. Set a regular meeting schedule to measure progress and activities.

Two potential barriers may hinder the development of a data management plan or a data governance committee: Time and commitment. Time is a major resource challenge for creating culture change. By getting buy-in in advance from senior leaders, committee members will be more motivated to prioritize the work. Motivation also impacts commitment. By communicating progress and successes to stakeholders, individuals will be more committed to doing this work.

Here is an example of one university's data governance structure.

Miami University in Ohio data quality is managed by IT. They have a community of subject matter experts who identify issues with the data and share it with IT. Because data culture is a presidential initiative, everyone is on board with improving the data quality and using data more effectively. When data are reported externally, other units know how to validate data before disseminating it to maintain high-quality and reliable data in the public space.

PHOTO COURTESY OF ILLINOIS STATE UNIVERSITY

V. Data quality

Good decisions are often informed by good data. Data quality comprises data that are collected with integrity – collected for the right reason and is useful in addressing specific questions. Too often we collect data that are not useful, but the data are used anyway. Good data are validated to be accurate and reliable. While all data belong to the university, data stewards are individuals who are bestowed with the responsibility of collecting and maintaining a segment of the institutional data. That responsibility includes maintaining quality data.

Institutions with a good data culture have processes to identify data quality issues and strategies to improve erroneous data. Processes for cleaning and maintaining quality data should be transparent

and available to all users. Accurate, reliable, and relevant data can be translated into meaningful information that is valuable to stakeholders who can make change.

To use data effectively, faculty and staff need to be able to evaluate the quality of the data to determine if it will be useful. Training and documentation are critical to providing stakeholders with a sense of trust in the data. Documentation that is accessible and provides data definitions in clear understandable terms is necessary for users to feel confident in using data.

Below are action items that can help create a data environment that supports data quality.

1. Identify the data stewards.
2. Document how data are collected.
3. Build and share processes on how data are cleaned and validated.
4. Provide clear protocols on how individuals may access the data.
5. Disseminate documentation and data definitions.

The primary barrier to achieving quality data is the complexity of the process. This will vary depending on the institutional data sources. The process can be time-consuming. It requires collaboration across units and clarity of roles and tasks. It necessitates trust to ensure everyone is doing their part in addressing poor-quality data. Ideally, this process is seamless and fluid.

Next are two examples of institutions that have processes designed for data quality. First, Tennessee State University's IT office created error reports that are automatically disseminated to various data stewards during the registration period to validate data from the student information system. These weekly reports are used to make corrections to data in the source system. The overall count of errors is tracked and intended to go to zero by the time the census date arrives. The census date is when the data are captured and stored for official reporting. One drawback of the system at TSU is that everyone gets the same report, requiring each office to comb through the report to find the data they need to correct. Ideally, each data steward would get a report with only their data to review. While their process works well, TSU recommends creating a community to discuss and improve the process for maintaining quality data.

Bowling Green State University has a similar system. They also provide training on how to access and use data. They have found that faculty and staff have a higher level of trust in program-level data because they understand where it came from, what it represents, and how it can be used.

COMPUTER HISTORY MUSEUM, PHOTO COURTESY OF CARLO NARDONE

VI. Reliable tools and systems (data infrastructure)

A robust data culture requires good data and good infrastructure. Infrastructure is the variety of systems designed to collect, store, process, and disseminate data. The infrastructure model displays multiple systems (such as the student information system, the learning management system, the human resources system, the customer relations management system, or the reporting platform).

A data warehouse often serves as a centralized data resource that houses data from different systems. The data warehouse not only integrates data from multiple systems, but it typically processes and prepares the data for reporting and analysis. The advantage of a data warehouse is that it can reconcile variables with different definitions, making it easier for users to interpret and reducing data inconsistencies.

Most source systems have reporting features; however, there are a variety of tools to support reporting. Many institutions purchase an enterprise reporting platform (such as Tableau or Cognos) that provides secure access to interactive and custom reports. The reporting tool pulls data from the data warehouse or another system. The community resource section of this framework provides examples of institutional data infrastructure models.

While it is important to have a robust system, it is advisable to select a system and tools that meet the institution's needs with consideration for growth and expansion in years to come. Tools may be expensive, but a useful tool is more valuable than a less expensive tool that doesn't meet your needs. It is important to understand how data will be imported, processed, and accessed by the tool. Training and support are critical to making any set of tools useful to users. The Community Resources section of the framework has examples. Educause also has good resources for data tools.

Below are some criteria and processes to consider when selecting a tool.

1. Evaluate the current system and processes.
    a. Review existing tool options.
    b. Clarify the problems the tool will address.
    c. Identify the needs for the new tool.
2. Do an environmental scan to see what other institutions are using.
3. Clarify the organization's goals: data needs, budget, and timing.
4. Identify who should be at the table to make the decision.
    a. Make it a collaborative and inclusive process.
5. Identify and evaluate potential tool options.
    a. Utilize Educause and other communities of practices to identify tools.
    b. Evaluate tools, focusing on the strengths and challenges of each tool.
        i. Evaluate customer support for each vendor.
        ii. Identify costs of purchase, implementation, and support.
        iii. Determine if the tool can integrate into the existing environment.
    c. Check references, asking what they would do differently if they could do it over again.
6. Draft an implementation plan.
    a. Include a timeline to set expectations.
    b. Include training and support.

Two barriers to a solid data infrastructure are inadequate investment in resources and training. Sometimes institutions over-purchase and don't utilize the full functionality of the tools purchased. More often, institutions do not have the funds to purchase the systems that meet their requirements. The second barrier to success is training and support. No tool is useful if users don't

know how to use it. Institutional leaders can ensure success by providing training to individuals on how to use the tools. A community of practice can be a valuable resource for building enthusiasm and confidence in using the data.

> ***"No tool is useful if users don't know how to use it. Invest in helping individuals learn how to use it."***

Miami University Ohio has a solid IT team to manage the tools, systems, and data. The CIO reports to the president and has a robust team of experts who work on data management. Miami uses Oracle OBIEE for business intelligence, with point-and-click dashboards available for frequent, operational use. Power users often build custom queries to support specific questions. As Miami transitions to Workday for human capital management, finance, and student data, the institution hopes to provide faculty and staff with a wider selection of dashboards. Miami used funding from the Powered by Publics initiative to provide Tableau training making it possible for staff to build interactive, public-facing dashboards for the university website.

VII. Data literacy/Training and professional development

Training and professional development support the community of practice and the culture where individuals are comfortable and excited working with data to make decisions. Getting feedback from the community of practice can inform and prioritize data needs and research topics. Training should address important topics that the institution is facing. Stakeholders will become comfortable with gathering, evaluating, analyzing, and applying data to impact outcomes.

Training requires informing stakeholders about resources and training opportunities that are available. This can be accomplished through email, a website, a one-page flyer, or simply asking managers to share information with their teams.

Below are action items to implement a data literacy program on campus.

1. Create a program in-house or partner with a vendor such as the Association of Institutional Research to begin the implementation of a training program. See the example below for one institution's in-house data literacy program venture.
2. Select your first cohort of participants who will be champions for data literacy.
3. Invite the team to identify an issue they would like to address with data. Make sure the topic is of value to the institution.
4. Collect, analyze, and interpret data to produce results to answer the question.
5. Create a presentation for stakeholders to share their results.

There are two barriers institutions face in creating a robust training program: Time and resources. A dedicated training unit helps to ease participants' concerns about completing a program and making sure it sustains value. Building such a program takes time and dedicated staff. Getting leadership to support such an effort will ensure that the program maximizes its success.

The University of Minnesota Duluth (UMD) created a Canvas course for UMD faculty and staff. The course replicates the format of APLU's Data Literacy Institute. This course was designed with accessibility in mind, featuring closed-captioned videos and self-paced modules. Faculty and staff self-enroll into the course via the university system training hub and access the content via the Canvas learning management system. Faculty and staff who complete a module receive a digital badge, and those who complete the entire program are awarded a certificate. Additionally,

completion of the course is recorded in the participants' training record. Despite the initial interest—60 people signed up when the course was first released—only one person completed the entire course within the first three months. The course's self-paced format was chosen due to a lack of resources to provide a facilitator. However, given the initial interest, the program leads hope to explore ways to promote active participation and improve completion rates. UMD has provided a slide deck from APLU's Data Literacy Institute (DLI) Convening in 2023, which provides additional insights into the course's design and implementation.

VIII. A community of practice

End users need seamless access to the data, data definitions, training, and technical support to become champions of the data. The end goal is to make everyone who works directly or indirectly with students comfortable with using data. End users should know what questions to ask, how to read and interpret data, and how to determine the best course of action. But even the most adept data consumers will face challenges or have questions about the data.

A data working group or community of practice is where stakeholders can come together to share ideas and talk about challenges they face in using data. This community of practice can be utilized to disseminate messages to the community and promote the value of data. Active participants in this group are typically valuable resources to the data governance committee.

Below are action items that can help to build and sustain a community of practice.

1. Identify key stakeholders.
2. Identify a leader who can organize the group and document activities.
3. Bring stakeholders together regularly.
4. Complete a data culture assessment (such as the Data Maturity Index.)
5. Collectively identify barriers to data literacy within the culture.
6. Discuss the results of the data culture assessment.
7. Identify areas that need attention.

One challenge in building a community of practice is getting stakeholder buy-in and commitment. Creating engaging activities and offering incentives may entice stakeholders to contribute.

Bowling Green State University participated in APLU's Data Literacy Institute. The initial cohort of participants gained a greater understanding of and appreciation for how accessing and analyzing data – and then acting accordingly – can impact the student experience. BGSU created a subsequent cohort on their campus made up of individuals who followed the data literacy program with facilitation by one of the original cohort participants. The community of practice examines topics such as how the racial/ethnic makeup of sociology students compares to that of the rest of the university when honors students move out of the honors college, and how a new writing course has impacted student success in different majors. The program has opened doors for faculty and staff who did not realize that data at the course and program level was so readily available.

Montclair State University has a small but mighty community of practice. Stakeholders meet regularly to review freshmen data and report findings across the campus community. Dozens of data visualization dashboards have been developed over the past three years and are shared with key stakeholders for decision-making, academic program reviews, and programmatic assessment.

Community Resources

An Action Plan

1. Identify a group of stakeholders who value data and are in positions that can champion the use of data to their colleagues and the leadership. Discuss the importance of and potential strategies for getting others on board.
2. Get buy-in from senior leaders. Explain how data and data literacy align with and support the strategic goals of the institution.
3. Identify a leader for the group to lead the charge.
4. Clarify the charge.
5. Form a data governance committee.
    a. Establish a mission and purpose.
    b. Meet regularly.
    c. Create a communications strategy.
    d. Formulate a data users' group.
6. Conduct a data culture assessment. Select a pre-formed tool or create a home-grown survey. Implement the assessment across the campus with a wide variety of stakeholders.
7. Report on the strengths, weaknesses, and gaps in the data culture.
8. Discuss the results of the assessment with a group of stakeholders.
    a. Identify strengths and opportunities.
    b. Discuss and prioritize opportunities for improving the data culture.
9. Develop short-term and long-term goals.
10. Create an inventory of the current data systems.
11. Clarify and document how data are collected, stored, transformed, mapped, and disseminated across all the data systems.
    a. Establish policies for maintaining sound data management practices.
    b. Communicate the data flow and data management practices to faculty and staff.
12. Clarify how users access the data and data definitions.
    a. Make data definitions easily accessible.
    b. Create a feedback mechanism to identify problems with the data.
13. Confirm training opportunities for staff.
    a. Develop a robust training program and promote it across campus.
14. Evaluate your process and your program and continuously make improvements.

Glossary

Data: The raw information collected by our institutions that are used to operate, process, organize, and evaluate programs and artifacts in the business of educating students. Raw data are not useful without a clearn understanding and interpretation providing the opportunity to take action.

Data literacy: Data literacy is a term encompassing the competencies and skills, such as reading, creating, and communicating data, to describe, comprehend, and inform both internal and external

audiences the meaning and value of numeric information. By extension, this includes the ability to recognize misleading numeric information and critically analyze the appropriate use within context and purpose. Data literacy is an important part of the data culture as it is often connected to decision-making whether framed as "data-informed" or "data-driven". Advanced practitioners of data literacy can turn raw data into meaningful information and meaningful information into impactful actions.

Recommended Readings

1. Chapters 1 and 2: Developing a Data Culture (pg 3-11) in Cultivating a Data Culture in Higher Education, Henderson, Angela E.
2. Chapter 3: Organizational Habits for Effective Use of Data (pg 51-68) in Creating a Data-informed Culture in Community Colleges: A New Model for Educators, Phillips, Brad C.
3. Thriving Data Culture Starts with Data Literacy Assessments Data literacy assessment is vital to data culture. (quanthub.com)
4. How to Build Data Literacy: How to build data literacy in your company | MIT Sloan
5. Chapter 2: Linking Planning, Ownership, Governance, and Execution-fundamental steps in building an effective data culture (pg 12-26) in Cultivating a Data Culture in Higher Education, Henderson, Angela E.
6. Chapter 6: Pursuit of Analytics and the Challenge of Organizational Change Management for Institutional Research (pg 71-87) in The Analytics Revolution in Higher Education: big Data, Organizational Learning, and Student Success, Gagliardi, Jonathan S.

Additional Resources: https://www.ohio.edu/iea/assessment/administrative-review/ASSUR/9101. Go to the Institutional Effectiveness and Analytics link.

Tools and Resources for Assessing Data Culture

Sample Guiding Principles for Data Governance

These are tools that would be useful for assessing data culture.

1. Data Maturity Index (APLU Powered by Publics Cluster 13) – 30-item assessment designed to evaluate 7 components of an effective data culture. The tool is designed to help administrators determine the strengths and weaknesses of the current data culture.
    a. APLU's Data Maturity Index – can be found in two places:
        i. https://pxp.crowdstack.io/fileSendAction/fcType/5/fcOid/706851413796113447/fodoid/706851413796113442/Data%20Maturity%20Index%20APLU%20PxP%202022.pdf
        ii. https://www.aplu.org/wp-content/uploads/Data-Maturity-Index-March-2023-APLU-PxP.pdf
    b. The DMI has been implemented at 15 institutions and has shown that the areas of greatest improvement are in training and access to data.
2. Analytic readiness (Educause) - EDUCAUSE's new framework for student success analytics
    a. https://library.educause.edu/resources/2022/5/a-framework-for-student-success-analytics
    b. https://library.educause.edu/resources/2021/8/analytics-institutional-self-assessment

    c. http://surveygizmolibrary.s3.amazonaws.com/library/132240/Analyticsassessment.pdf
3. OU and UNT – Simon and Taylor 2022 Assessment Worksheet (Assessment Worksheet Simon and Taylor 2022.xlsx)
4. Carnegie Mellon University Data Maturity Framework-Data Maturity Framework – Data Science and Public Policy (datasciencepublicpolicy.org)
    a. 3 content areas
        i. Problem definition
        ii. Data and technology readiness
        iii. Organizational readiness
    b. Data maturity framework
        i. Questionnaire and survey to assess readiness
        ii. Data and technology Readiness Matrix
        iii. Organizational Readiness Matrix
5. Article on Assessing Data Literacy: A Data Literacy Guide For D&A Leaders (gartner.com)
    a. Gartner Data Literacy Individual Assessment (paywall) Toolkit: Data Literacy Individual Assessment (gartner.com)

Examples of Data Infrastructure Models

Based on data gathered from the clusters, these are popular systems and tools at institutions along with reported strengths and challenges experienced at the institution.

1. Source systems
    a. CRM: Salesforce and Slate
    b. SIS: Banner and Peoplesoft
    c. LMS: Canvas, Brightspace, Blackboard
    d. Student success platform: EAB Navigate or SSC
    e. Data warehouse: mostly home-grown systems
    f. Reporting: Cognos; Power BI, and Tableau
2. Strengths:
    a. Coordination and collaboration across units
    b. Access
    c. Highly skilled staff
    d. Data ecosystem
    e. Data governance
    f. Custom queries
3. Challenges
    a. Integration and interconnectivity of multiple decentralized data sources
    b. Definitions to clearly understand the data
    c. Accuracy of data and reliability of reporting
    d. Data gaps
    e. Knowledge and skills needed to use data effectively
    f. Data governance

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