

Data Management and Community Colleges

A Broad View of Data Governance

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“Given the shift in how organizations are working, consistent and reliable flow of data across people, teams and business functions is crucial to survival.”

— Gartner

“Data will be one of the great drivers of growth...into the future.”

— Dr. Michio Kaku,
Renowned Futurist and Professor of Theoretical
Physics at the City College of New York

“Across business and industry, data about customers, services, products, company performance, and communications are increasingly recognized as valuable assets that can be explored to reveal competitive advantages of cost savings, brand image, and improved service delivery.”

— ECAR Working Group Paper

Four Perspectives on Data Management

- The practice of collecting, keeping, and using data securely, efficiently, and cost-effectively. The goal of data management is to help people, organizations, and connected things optimize the use of data within the bounds of policy and regulation so that they can make decisions and take actions that maximize the benefit to the organization (<https://www.oracle.com/database/what-is-data-management/>)
- The practice of collecting, organizing, protecting, and storing an organization's data so it can be analyzed for business decisions (<https://www.tableau.com/learn/articles/what-is-data-management>)

Four Perspectives on Data Management

- The practice of managing data as a valuable resource to unlock its potential for an organization. Managing data effectively requires having a data strategy and reliable methods to access, integrate, cleanse, govern, store and prepare data for analytics (https://www.sas.com/en_us/insights/data-management/data-management.html)
- The professional practice of constructing and maintaining a framework for ingesting, storing, mining, and archiving the data integral to a modern business. Data management is the spine that connects all segments of the information lifecycle (<https://www.talend.com/resources/what-is-data-management/>)

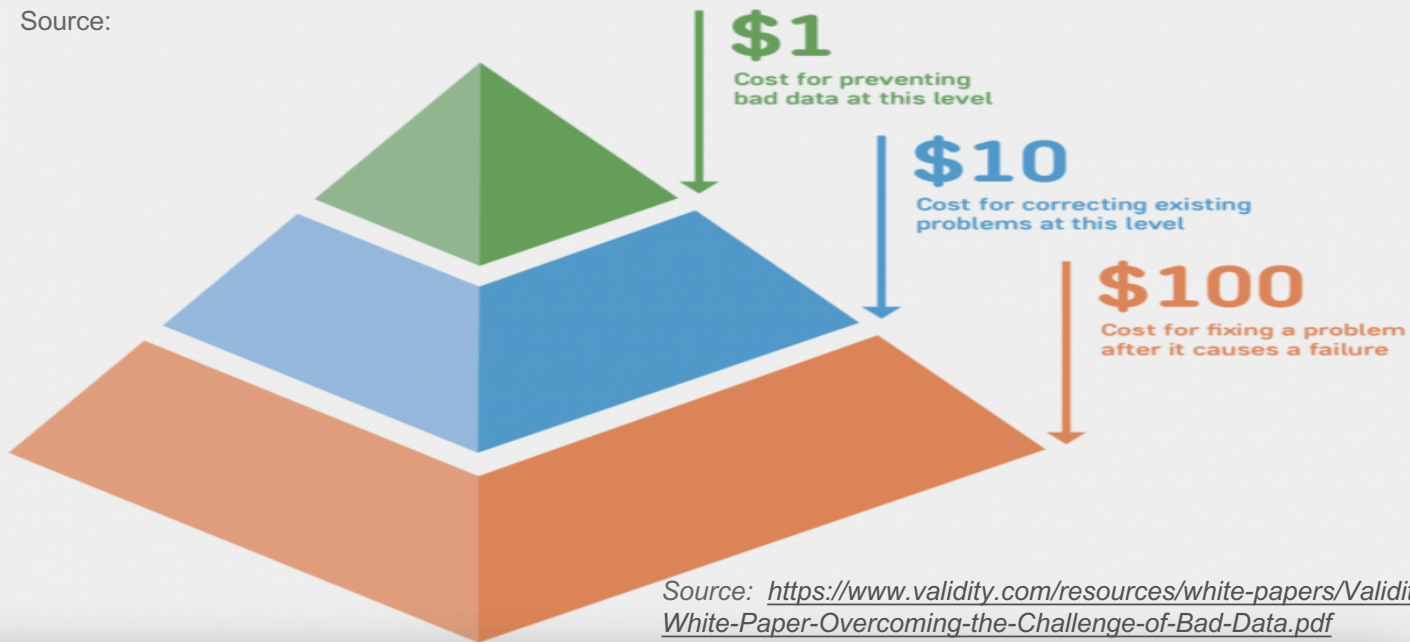
Why Good Data Management is Important

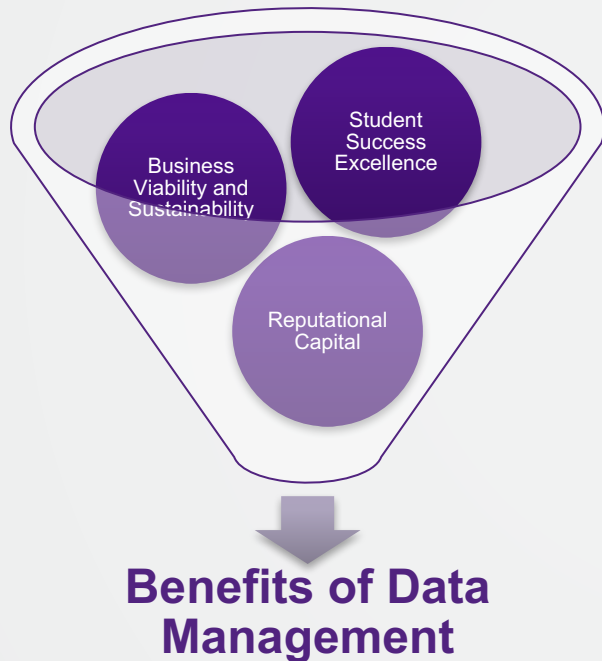
- Gartner.com states that organizations **lose \$13.3 Million yearly** average on poor data
- Cio.com states that **77 percent of** companies believe they lost revenue due to data issues
- SiriusDecisions states it costs **\$1 to prevent a duplicate**, which when left untreated amounts to a **\$100 expense**
- Kissmetrics states businesses **lose up to 20 percent** of their revenue because of bad data
- Pragmaticworks states **20 to 30 percent of operating expenses** are due to bad data

1-10-100 quality principle

According to the 1-10-100 quality principle, the relative cost of fixing a problem increases exponentially over time

Source:



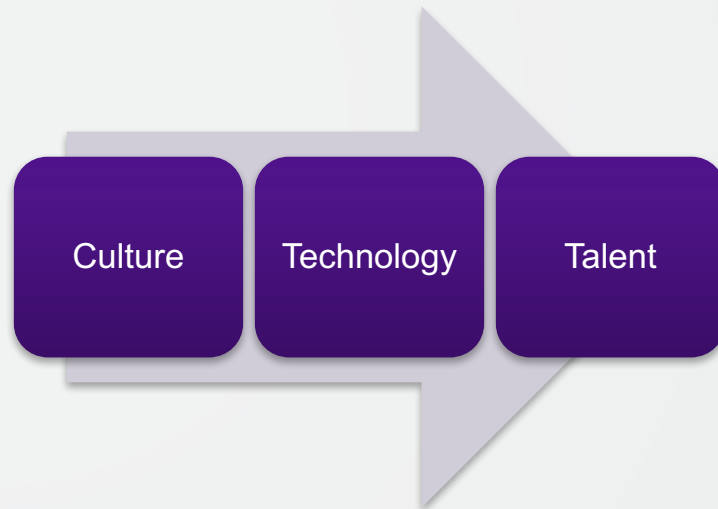


- Fosters collaboration/eliminates silos
- Aligns with strategic planning
- Improves data quality, accuracy, and reliability
- Sharpens data collection and sharing
- Enhances data security
- Enables effective reuse and replication
- Reduces risk
- Assists with informed decision making

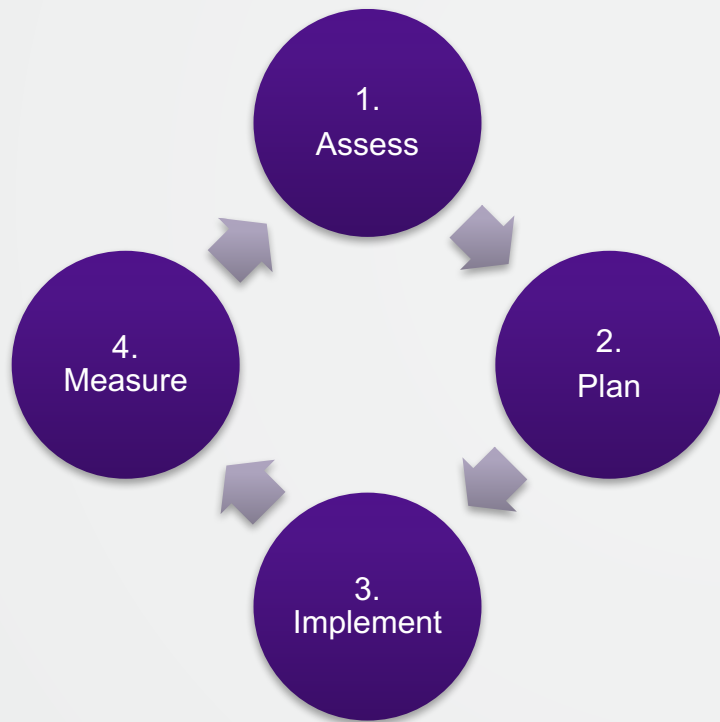
Deloitte

Data-driven Culture Help Companies Outperform Goals

- 77% of companies with a data-driven CEO are more likely to have exceeded their business goals significantly
- These companies are also 59% more likely to derive actionable insights from the analytics they're tracking

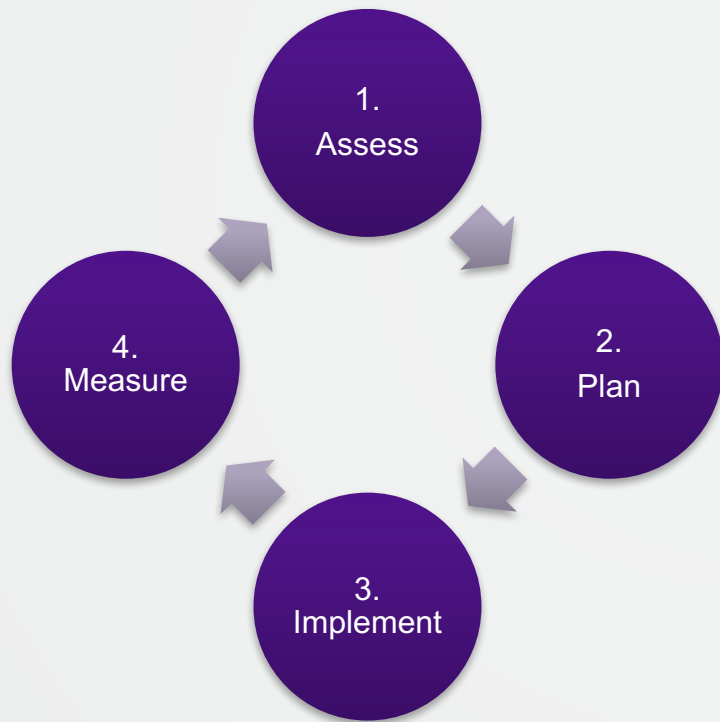


Essentials for Effective Data Management



- Conduct meetings, focus groups, and surveys with organizational stakeholders to assess the current state of data management activities
- Plan for and create the underpinning infrastructure for an effective data management program inclusive of identifying divisional synergies needed and the organizational learning necessary for success

Essentials for Effective Data Management



- Appoint and empower a cross functional team(s) that best understand the data needs of the College to plan and implement the plan
- Factor in the time, money, and resources needed to implement well thought out and realistic action and communication plans
- Monitor and evaluate metrics to ensure continuous improvement

Essentials for Effective Data Management

Principles

- Integrity
- Transparency
- Auditability
- Accountability
- Stewardship
- Checks-and-Balances
- Standardization
- Change Management



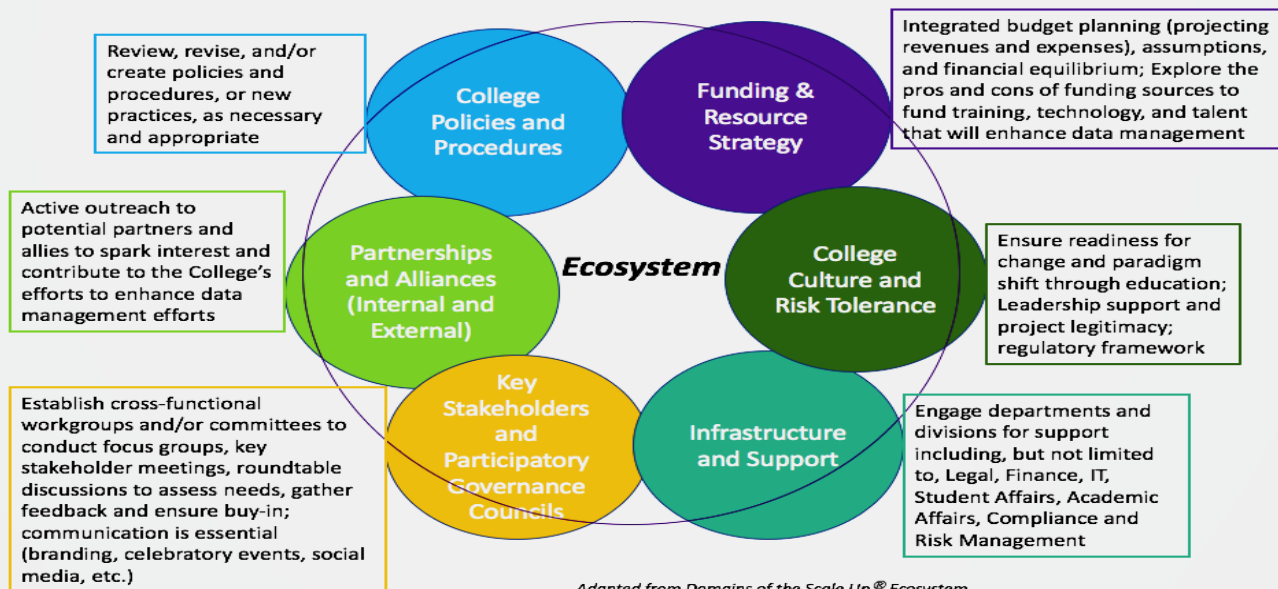
Source: <http://www.datagovernance.com/goals-and-principles-for-data-governance/>

Essentials for Effective Data Management

- Context mapping helps to move in a clear, prioritized, and structured manner
 - Higher education trends
 - Internal and external politics
 - Economic climate
 - Student, employee, and community needs
 - Technology and integration
 - Threats and uncertainties

Essentials for Effective Data Management

■ Ecosystem Development



Essentials for Effective Data Management

Training and Development

■ Goals

- Assess and build skills, knowledge, and data literacy
- Design a comprehensive training plan that meets the needs of the college-wide community
- Focus on the effective management and use of institutional data

■ Learning Outcomes

- Enhance comprehension, competence, and confidence in data literacy skills
- Understand the laws, regulations, policies, procedures, and standards related to data
- Learn to effectively gather, apply knowledge, use appropriate tools, analyze, and interpret data

Data-Driven Decision Making

- Different levels of decision making exists within community colleges
- Decisions should not be made without data (facts, metrics, insights, analytics)
- Data enables better and faster decisions in times of crisis (i.e., COVID-19)

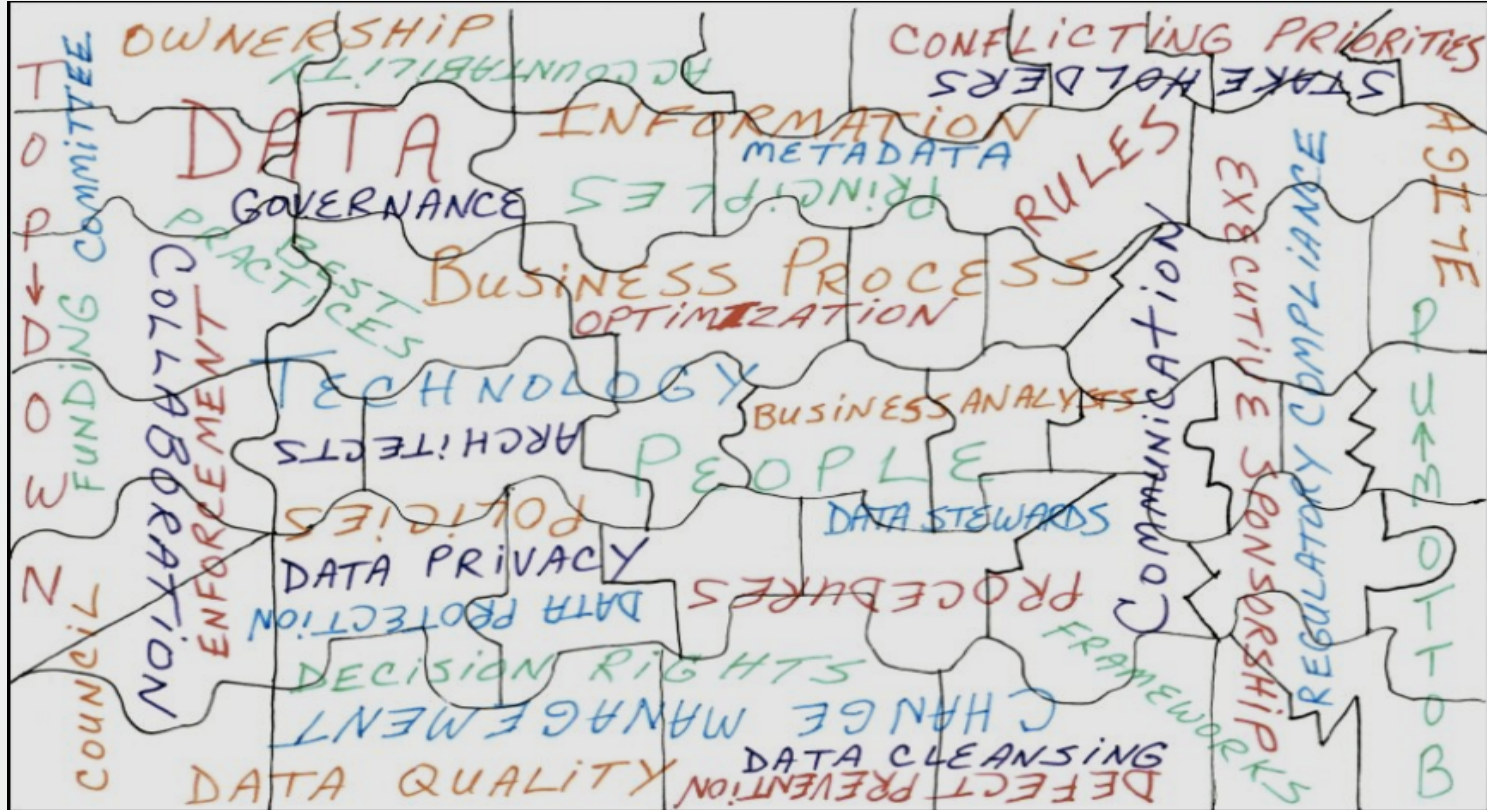
Strategic Shift in Decision Making due to COVID-19	
FROM	TO
Centralized decision making	Decentralized decision making
Ivory tower decisions	Front-line decisions with those closest to customers
Reactive planning and actions that can be misaligned with business goals, mission and values	Proactive, outcome-focused planning representative of mission, values and business priorities
Siloed data, less collaboration, delayed problem-solving	Integrated, accessible data empowering all, encouraging collaboration and helping to resolve problems
Data-aware stage (low data culture maturity), lagging in ability to analyze data and realize its value	Data-driven (or data-leading) with a scaled enterprise data culture

Source: <https://www.forbes.com/sites/tableau/2021/07/30/how-to-harness-a-new-wave-of-data-driven-decision-making/?sh=6d3b64725ddd>

Data Collection and Use

Community Colleges Versus Four Year Institutions

- Insights from John Hamman, Chief Analytics and Insights Officer at Montgomery College
 - Student data at community colleges is more complex due to the “start and stop nature of the students”
 - Community Colleges do not have a set freshman class
 - Enrollment at community colleges is more fluid
 - Collecting and comparing community college data requires a higher level of sophistication
 - Leaders and faculty must understand the nuances of community college data to impact student success



Source: <http://www.ocdqblog.com/home/data-governance-frameworks-are-like-jigsaw-puzzles.html>

ITHAKA S+R Research

National Community College Provost Perspectives

- Moving the Needle on College Student Basic Needs (April 2021)
 - <https://sr.ithaka.org/wp-content/uploads/2021/04/SR-Report-Moving-the-Needle-on-College-Student-Basic-Needs-042821.pdf>
 - Most important objective is measuring progress with outcomes like retention, graduation, course completion, and enrollment
 - Closing achievement gaps by addressing social justice issues
 - Addressing student needs and well-being
 - Challenges with collecting information that exceeds the data needed for funding and regulatory requirements

Figure 1. How important are each of the following objectives to your college?
 Percent of respondents that indicated each objective as extremely important.

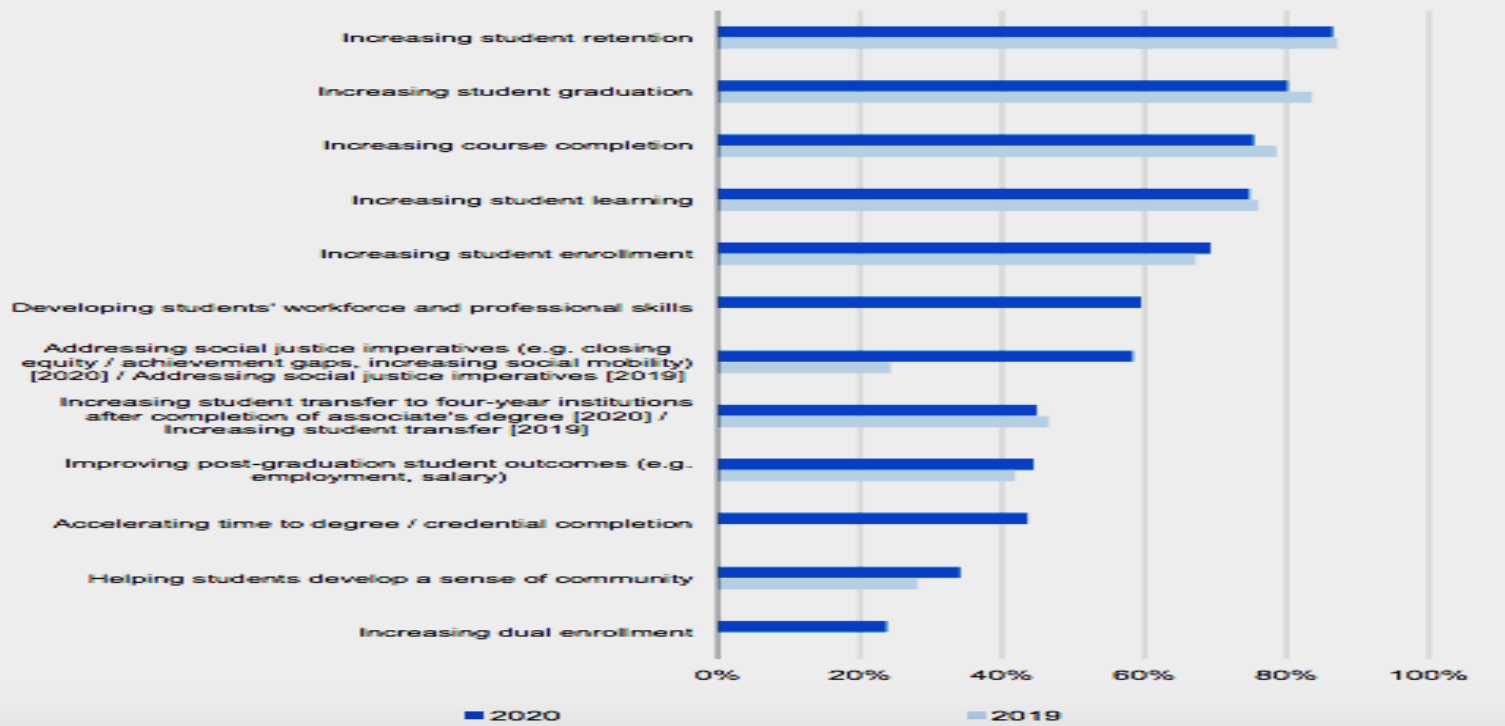


Figure 2. How important are each of the following metrics and outcomes for determining student success at your college?

Percent of respondents that indicated each metric as very or extremely important.

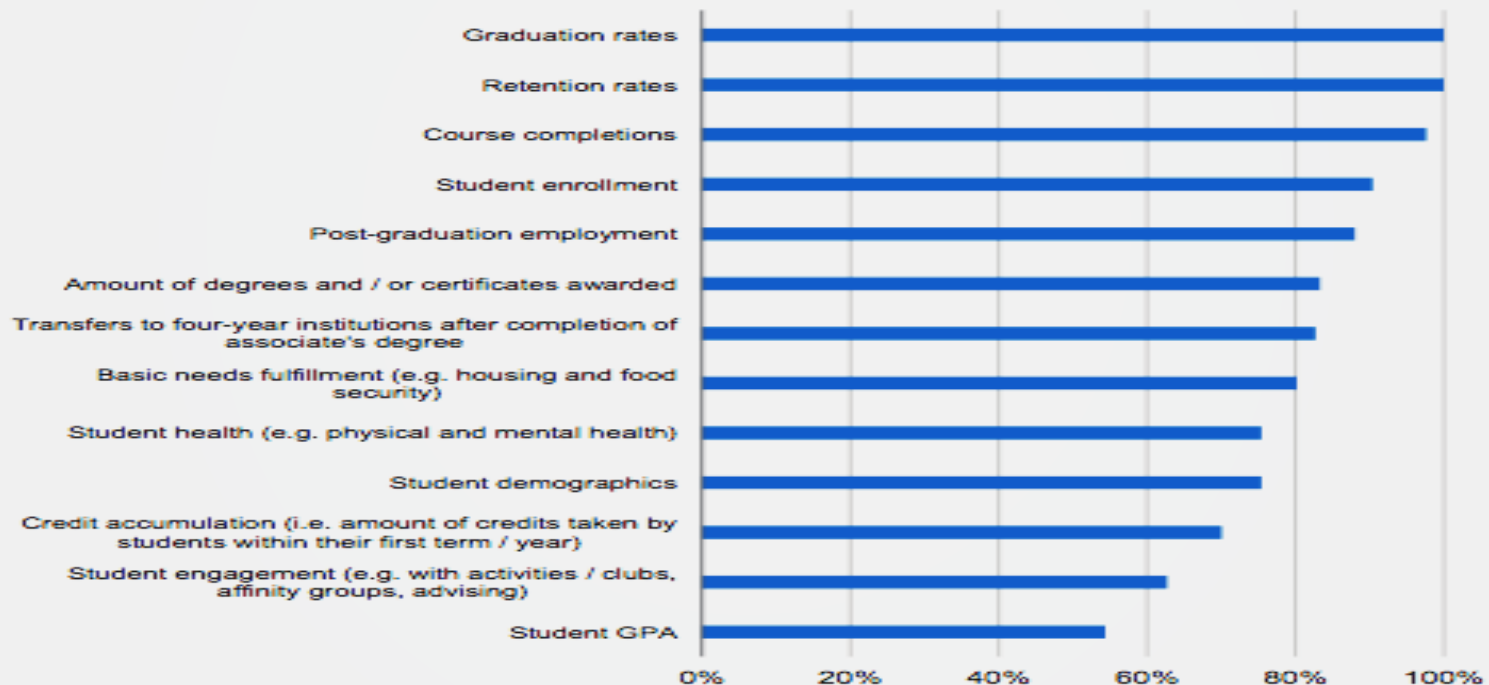
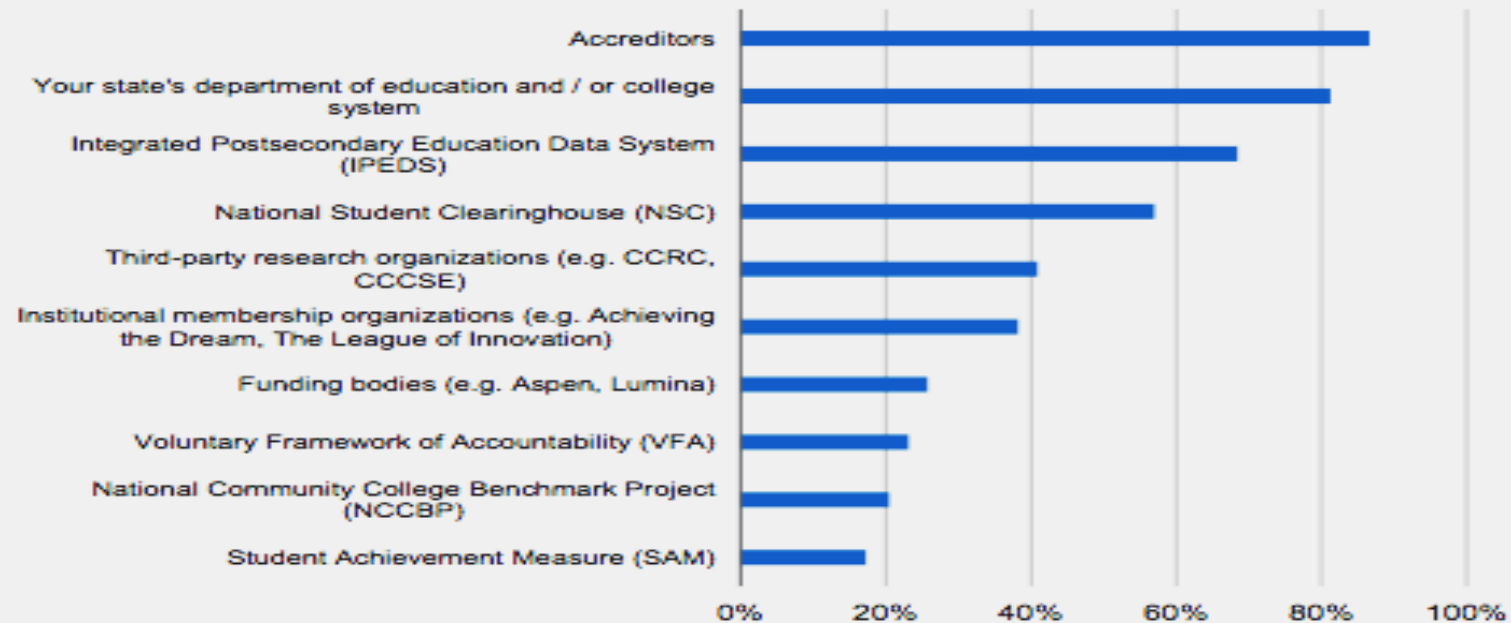


Figure 3. How influential are each of the following organizations and data collection entities in shaping the metrics your college currently uses for determining student success?

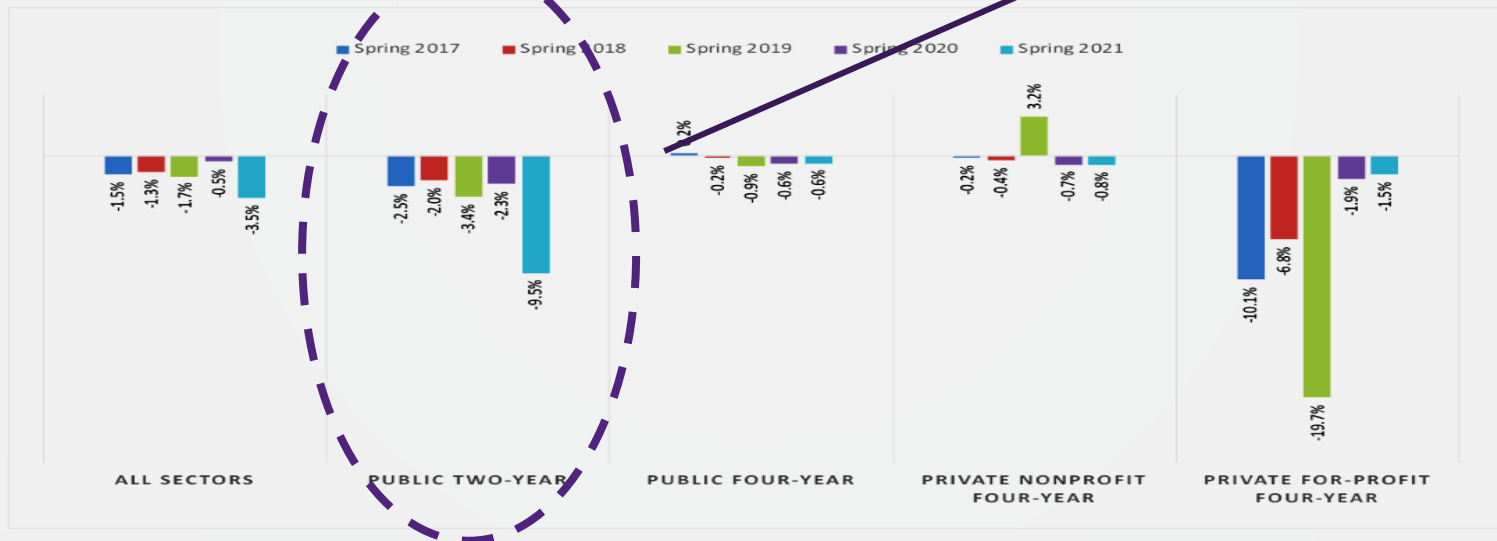
Percent of respondents that rated each organization as very or extremely influential.



National Student Clearinghouse Research Center

Data helps with agility and flexibility in times of crisis

Percent Change in Enrollment from Previous Year by Institutional Sector: 2017 to 2021



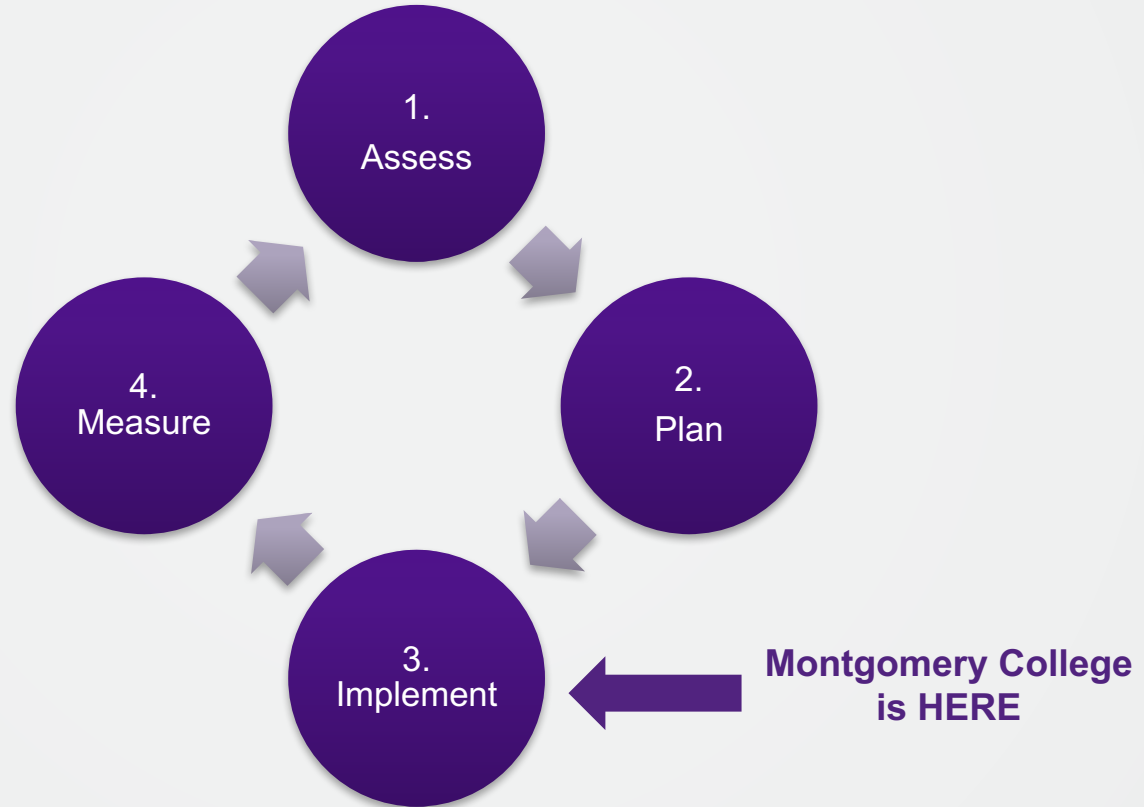
American Council on Education (ACE)

Leading Change in Community Colleges

- TOOLS IN A TOOLBOX
 - <https://www.acenet.edu/Documents/Tools-in-a-Toolbox.pdf>
- Community Colleges serve 35 percent of the nation's students
- Being evidenced-based increases trust and data utilization while simultaneously making decisions more effective
- Data enhances institutional learning processes and continuous improvement efforts
- Data drives ownership, accountability, and stakeholder buy-in

Example: Montgomery College

- Fiscal Year 2021 Institutional Goal
 - Data Asset Management Plan (DAMP)
- Interdisciplinary Executive Advisory and Data Stewards Committees created and launched
- Monthly Data Asset Executive Advisory meetings
 - Included various guests from the MC Community
- Data Stewards continue to gain understanding of MC and key stakeholder (internal/external) data and information needs
- Data Asset Management Plan (DAMP) completed and submitted for review and approval



Initial Mission Accomplished: The DAMP

Data Asset Management Ecosystem

Data Asset Management Committee
Provide strategic direction for the program and identify appropriate data management, measurement, effective use, and response to future needs

Data Integration Support
Establish connections, relationships, and an open, safe environment to share data for program, academic, and administrative purposes

Priority Setting and Resource Allocation
Empower collaborative, strategic, and critical decision-making, enhance productivity, increase accountability, encourage advancement, and foster self-empowerment

Communication and Data Profiling
Ensure strategic communications and stakeholder engagement (internal and external)

College Culture and Innovation
Review, create, update and reinforce the College's core values, standards, and policies to ensure data improvements across the College

Funding and Resource Allocation
Manage the demand for changes to data processes, policies, and standards; assist in budgeting and provide financial resources to meet needs

College Culture and Innovation
Data change management and design data strategy, training, and education (as well as audit) at the level of an engaged leader, integrate roles

GOAL 1 BUILD INSTITUTIONAL CAPACITY FOR DATA ASSET MANAGEMENT

For our students and faculty to be able to use data to improve their performance and advance their careers, we must build institutional capacity for data asset management. This includes:

- Developing a data asset management strategy
- Establishing a data asset management committee
- Creating a data asset management ecosystem
- Building a data asset management culture
- Developing a data asset management framework

Professional Development's Role in Supporting Institutional Development Growth and Change

Professional Development
Awareness, Desire, Knowledge, Ability, Relief or ease

MC MONTGOMERY COLLEGE

Data-Informed Decisions
Plan, Implement, Evaluate, Improve

Culture Growth

Adapted from Prosci's ADKAR Change Management Model (Prosci, n.d.)

Harvard Strategic Data Project

Objective	Strategic	Operational	Technical
Identify data assets and their value	Identify data assets and their value	Identify data assets and their value	Identify data assets and their value
Identify data assets and their value	Identify data assets and their value	Identify data assets and their value	Identify data assets and their value
Identify data assets and their value	Identify data assets and their value	Identify data assets and their value	Identify data assets and their value

Key Messages

- Identify data assets and their value
- Identify data assets and their value
- Identify data assets and their value
- Identify data assets and their value

DATA ASSET MANAGEMENT PLAN DEVELOPMENT TIMELINE

Phase	Key Activities
Fall 2018 Milestones	<ul style="list-style-type: none"> Approved by the College Developed a Data Management Strategy Approved by the Board of Trustees Approved by the Board of Trustees
Spring 2019 Milestones	<ul style="list-style-type: none"> Approved by the Board of Trustees Approved by the Board of Trustees Approved by the Board of Trustees Approved by the Board of Trustees
Fall 2019 Milestones	<ul style="list-style-type: none"> Approved by the Board of Trustees Approved by the Board of Trustees Approved by the Board of Trustees Approved by the Board of Trustees
Spring 2021 Milestones	<ul style="list-style-type: none"> Approved by the Board of Trustees Approved by the Board of Trustees Approved by the Board of Trustees Approved by the Board of Trustees

DATA ASSET MANAGEMENT PLAN SUMMARY

Area	Current	Target
Leadership	Established a Data Asset Management Committee	Established a Data Asset Management Committee
Strategy	Developed a Data Asset Management Strategy	Developed a Data Asset Management Strategy
Communication	Established a Data Asset Management Ecosystem	Established a Data Asset Management Ecosystem
Integration	Established a Data Asset Management Framework	Established a Data Asset Management Framework
Measurement	Established a Data Asset Management Culture	Established a Data Asset Management Culture
Implementation	Established a Data Asset Management Framework	Established a Data Asset Management Framework
Monitoring	Established a Data Asset Management Culture	Established a Data Asset Management Culture
Reporting	Established a Data Asset Management Framework	Established a Data Asset Management Framework
Improvement	Established a Data Asset Management Culture	Established a Data Asset Management Culture

Guiding Principles

- Integrity**: Establish transparent processes that ensure data is collected, stored, and used in a secure and ethical manner.
- Accessibility**: Ensure data is accessible to all who need it, in a secure and ethical manner.
- Reliability**: Ensure data is accurate, complete, and up-to-date.
- Security**: Ensure data is protected from unauthorized access, use, or disclosure.
- Privacy**: Ensure data is collected, stored, and used in a secure and ethical manner.
- Compliance**: Ensure data is collected, stored, and used in a secure and ethical manner.
- Transparency**: Ensure data is collected, stored, and used in a secure and ethical manner.

DATA ASSET MANAGEMENT PLAN DECISION MAKING FRAMEWORK

Decision Making Framework
Data, Information, Knowledge, Wisdom

MONTGOMERY COLLEGE DATA ASSET MANAGEMENT PLAN

June 2021

MC's Website Leads to Completed Applications

14,000,000 VISITS

4,000,000 LEADS

10,000,000 APPLICATIONS

Idata Top Recommendations

Process Focus	Priority: Immediate	Priority: High	Priority: Long Term
Management and Governance	Establish a Data Governance Oversight Committee	Develop a Data Management Strategy	Establish a Data Quality Program
Tools and Systems	Develop a Data Catalog	Develop a Data Integration Strategy	Develop a Data Security Strategy

MEASURABLE OUTCOMES

To work toward our shared vision of creating a culture of evidence and inquiry, it is important that we have clearly defined assessment strategies to evaluate the progress of the data asset management plan. To that end, there are three metrics against which we will measure our progress.

- Measuring our progress against the timeline goal set in the DAMP**: At the end of each fiscal year, we will measure the progress of each of the system items laid out in this plan. As technology and needs change, the data will be updated every two years with an updated timeline.
- Professional use of data at the institution**: As measured by the Achieving the Dream (ATD) All data citizens were allocated for under their program or partner-related data sets to inform decisions and if the College uses that data to make informed decisions in the fall of 2021. This assessment instrument should be re-administered in fall of 2021 and every two years thereafter as a way to measure our work. Actually, the ATD should be responsible for updating a usability maturity model metric in the area of:
 - Personal
 - Process/process: standard procedure
 - Process/process: standard procedure
 - Data availability
 - Data availability
 - Data usability
 - Reporting timeliness
 - Reporting format and structure

Data System Flow Map

Data System Flow Map

The Plan the MC Community Built

MC's Data Asset Management Plan (DAMP)

- Reflects active MC community feedback from various MC community members
- Updates with the President and quarterly progress reports provided
- Quotes from MC data citizens incorporated into the plan
- Updates provided to senior leadership
- Internal discussions with internal partners and key stakeholders on website design, podcasts, blogs, etc.
- Working with internal partners on training and educating the MC Community and professional development
- Accessibility built in on the front end of the process

The Plan the MC Community Built

- Aligned with strategic plan and other important MC initiatives
- Refreshed every two years due to the depth and breadth of the subject matter
- Ecosystem development and the need for a strong support system is heavily emphasized
- Adopted Principles from the Data Governance Institute
- Embedded a high level action plan and a decision making framework
- Metrics will help MC to make informed decisions and the most of our data

*Initial Mission Accomplished...But There
Is Plenty Work To Do Moving Forward*

Key Takeaways About Data Management

- Great leadership is imperative (top down) and senior leaders must make data management an institutional priority
- Good data management is essential to student success and business viability
- Collaboration and communication up, down, and across the college enhances the ability to be data-informed and to make good data-driven decisions
- Everyone owns and is accountable for institutional data as it crosses division and departmental boundaries
- Data management is a long term continuous improvement program

The Association for Institutional Research (AIR), EDUCAUSE, and the National Association of College and University Business Officers (NACUBO) stand together with a strong sense of urgency to reaffirm higher education's commitment to the use of data and analytics to make better strategic decisions...We strongly believe that using data to better understand our students and our own operations paves the way to developing new, innovative approaches for improved student recruiting, better student outcomes, greater institutional efficiency and cost-containment, and much more. Data are an institutional strategic asset and should be used as such.

MC

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