



# Data in Focus:

## **A Clearer Path to Progress Through Institutional Analytics**

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# Introduction

Analytics continue to be a major influence in the success of higher education institutions. UT Austin recently listed predictive analytics as one of the top factors in increasing their graduation by 34%. As Bridget Burns, Executive Director, University Innovation Alliance, wrote in an article for Forbes, the sector may be at a “jumping-off point for policies and practices that define higher education in the digital era.” But as the full promise of analytics is on the horizon, institutions often end up with an obstructed view because they are not looking at the full data spectrum. To make meaningful progress towards their goals, colleges and universities need to bring data into focus by taking a broader view.

To get there, institutions need visibility into the connections between enrollment, student success, and institutional financial data. Without it, there is too much information left in the periphery, allowing institutional blind spots to persist.



## The Cost of Institutional Blind Spots

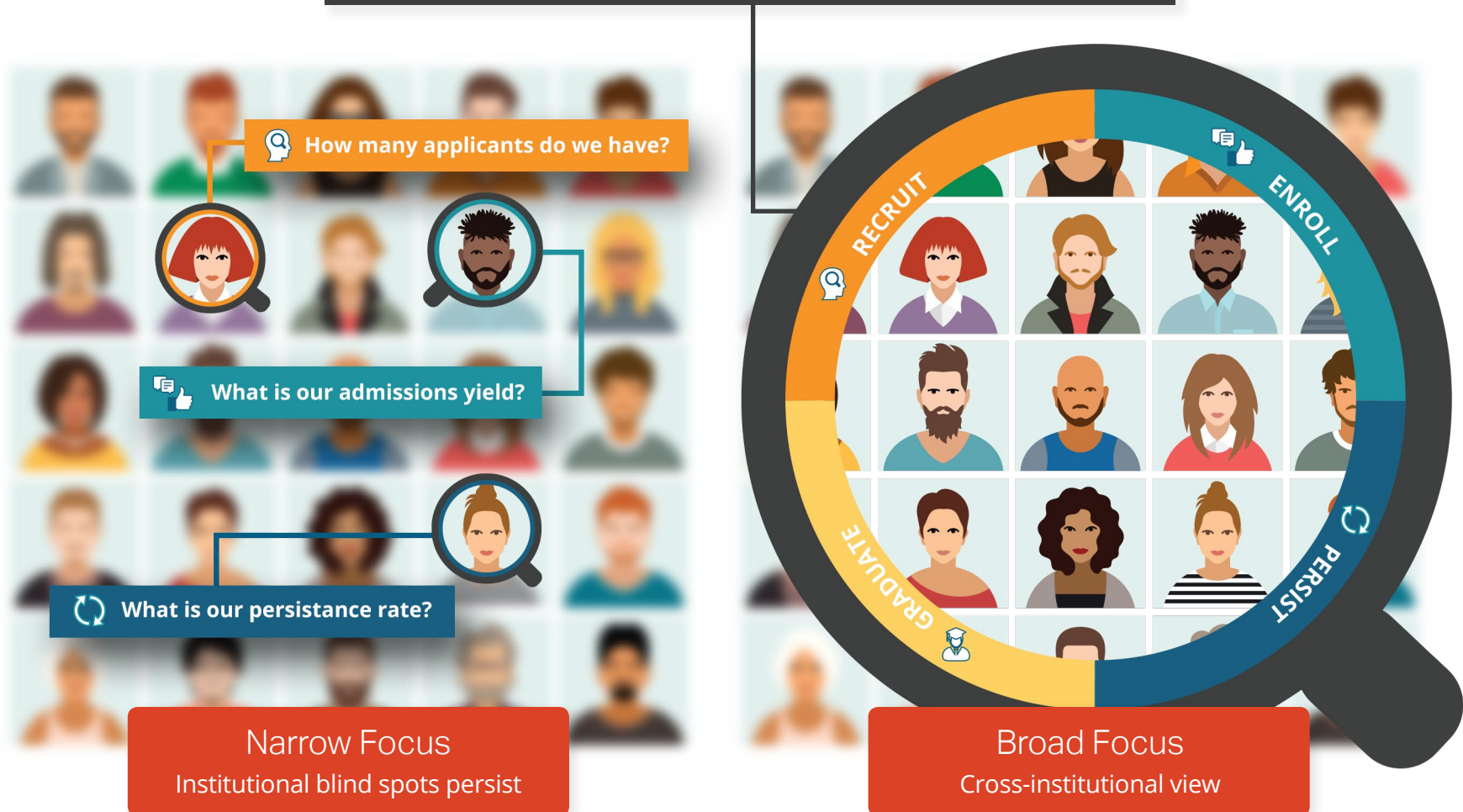
When considering the top concerns of college and university presidents are complex challenges such as student success initiatives, controlling costs, and raising non-tuition revenue, it is easy to understand why colleges and universities are eager to use analytics to implement solutions. But those challenges can only be addressed if all relevant information is considered. The cost of ignoring potential institutional data blind spots is that policies, practices, and processes are put in place with good intentions but, due to lack of information, end up magnifying the problem, instead of diminishing it.

Today, this can be seen in institutions pushing efforts that focus on access without putting in place support mechanisms; students will need to be successful once they've enrolled. Or, making investments in high-end dining, recreational, and residential facilities to recruit students instead of considering modifications to need-based financial aid or investments in targeted support initiatives and interventions for at-risk students.

Another example is when an institution has a narrow focus on meeting an enrollment target without a broader view of their students' likelihood to persist or transfer out. Using analytics to ask questions focused on specific stages of the student lifecycle can certainly identify trends and patterns, but those answers often miss key sources of institutional data to provide a full view of risks and opportunities. The example shows how connecting different parts of campus can bring data into focus and leads institutions to more valuable questions and conclusions. As illustrated below, by connecting information across all stages of the student lifecycle, colleges and universities will have a clearer view of their potential for progress or risks.

# Putting Your Data In Focus

Are we recruiting students who will be most successful?






Many institutions fall into the habit of asking questions that they think they already have the answers to. But they don't really know what data they may have because of organizational and technological silos. This results in limited questions at the outset and ultimately the wrong answers. By skipping steps, an institution will get to a point where they're getting an answer that's incorrect and there's been a misallocation of resources.

**-James Wiley,** Principal Analyst, Eduventures

By shifting analysis and decision making from the narrow lens of traditional organizational and technological silos to a broader view across the student lifecycle, institutions will be better informed to make critical decisions about processes and policies that support outcomes, efficiencies, and decision making.

**So, why are higher education institutions challenged with making the best use of their data? They lack the time, talent, and technology to effectively leverage their data for high value analysis that leads to action.** Without broad visibility across the lifecycle or the technology and expertise to provide guidance on how to take action, institutions are making assumptions – and decisions – without having the full picture of current conditions, patterns, and trends.

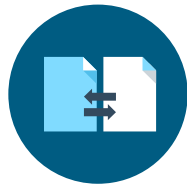


"Critical to focusing any institutional analytics effort is connecting the dots. Linking admissions, enrollment, student success, and financial data adds tremendous value, and is a prerequisite for institutional leaders to ask and answer questions critical for the institution's short- and long-term sustainability and health."

**-Darren Catalano,** CEO, HelioCampus

# Institutional Analytics: Introduction to 4 Data Best Practices

To bring data into focus and ensure they are on the path to the most informed decisions, institutions need to put four interconnected practices in place, which will be covered in more detail later in this paper:



## Centralize

Prioritize data collection, quality, and transparency around key questions the institution is facing

## Optimize

Focus on building data models and a framework for efficiently and effectively analyzing data across the institution to define and answer those key questions

## Visualize

Invest in data analysis and storytelling expertise to communicate and highlight needs across institutional leaders

## Connect

Implement “educational intelligence” to address institution-wide challenges and connect analytical insights to the most pressing problems



But at its worst,  
working in the  
dark with analytics  
can feed or  
create dangerous  
assumptions about  
student preferences,  
performance, and  
behavior.

Ignoring these four practices can handcuff an institution's ability to make decisions and get an accurate assessment about their most critical issues. Absent these practices, it is impossible to see the story behind pressing topics such as program sustainability, enrollment forecasting, financial aid strategy, and student success. In many cases, root causes can only be determined through identifying relationships and connections among the many sources of data across a campus. Skipping one or all of these steps is happening too often in higher education. Eager to make "data-informed decisions," colleges and universities rush into analytics, often working with too narrow of a view. The result is often enacting ineffective solutions to address the need, yielding poor results. At its most benign, this approach means small missteps or ineffective resource allocation. But at its worst, working in the dark with analytics can feed or create dangerous assumptions about student preferences, performance, and behavior.

This white paper is a guide to finding greater clarity with institutional performance analytics, which is no small task. Bringing data into focus takes an investment of time, talent, and money. By exploring the challenges colleges and universities face in effectively using analytics and offering recommendations through the four steps above, this guide will accelerate an institution's path to progress and help them see a high return on those investments.

Using institutional analytics to make better decisions and improve institutional health is no longer simply a worthwhile endeavor. It has become a pre-requisite to ensuring long-term sustainability. But that does not mean it is an easy one. **Many in higher education operate under the pretense that effectively using analytics is quick, easy, and cheap. It's not.** Compiling, analyzing, and using data from across the student lifecycle requires hard work. In part, this is because of obstacles in higher education that come from its history, structure, policies, and lack of resources. But, an upfront investment to overcome the major types of barriers can take colleges and universities one step closer to tapping the full power of analytics – and it's an investment few institutions can afford not to make.

There is no  
easy button.



## 3 Barriers to Using Data Effectively

1. **Data Silos**
2. **No Commitment of Technology, Talent, and Time**
3. **Data Immature Culture**

# Challenge #1 Data Silos

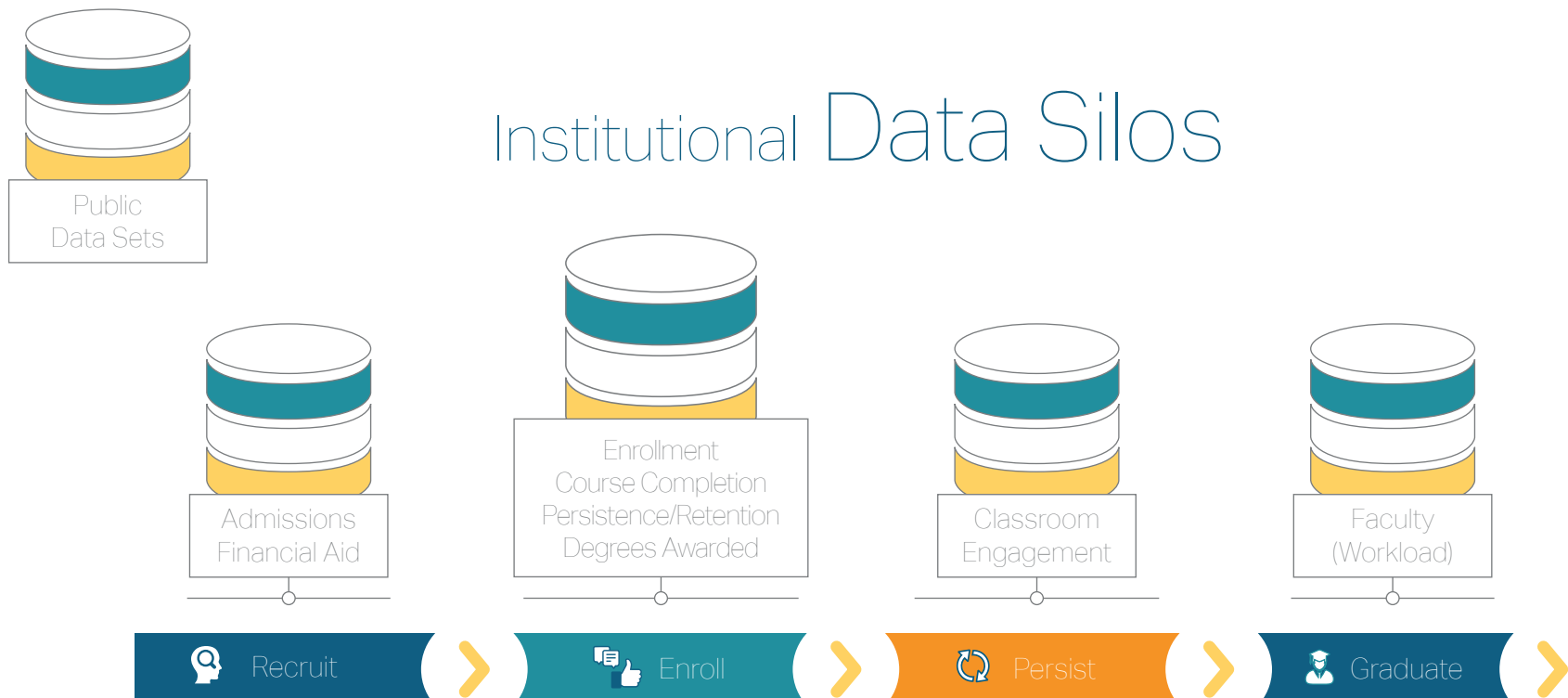
The decentralized nature of the post-secondary system has served individual departments well, allowing flexibility and creativity to meet faculty preferences and student needs. However, silos have proven to be a barrier to leveraging analytics to identify blind spots and improve institutional outcomes.

Whereas separation offers protection, some good, such as privacy, and some bad, such as opportunities to avoid accountability, connections and relationships between data systems have to be established to drive value. The power of data is not in a single number, in a single average, or a single rate of change. **Data is most powerful when it is used to make connections and tell stories**, changing from just data to analytics. By keeping data separated, in different systems and different departments, it is easy to miss the forest for the trees. Colleges and universities need structures and tools to lift data out of silos and see the arch of the story they tell. By trying to interpret data without strong data structures in place or without a view into cross-functional data across the institution, key data points will remain out of focus and in the periphery, leading to the wrong conclusions or overreactions that can send an institution down the wrong path to solving perceived issues.



## Data Silos Across the Student Lifecycle

The data silos that exist in higher education traditionally align to the student lifecycle, giving an institution's leaders and administrators a false sense of a complete analytics picture. While data will always naturally align to certain points of a student's relationship with a college or university, connecting those points to tell a full story is key to getting analytics right.



## Challenge #2 No Commitment to Technology, Talent, or Time

Investing in analytics, like so many efforts in higher education, takes a holistic approach. The parts and pieces that drive effective use of data are intrinsically connected, so much so that focused investment in one area at the expense of the others can be as detrimental as making no investment at all. Instead, what is required is a measured and combined investment in technology, talent, and time. Having the right technology to collect and analyze data without trained people to extract the story the data is telling will do nothing for colleges and universities. Similarly, having knowledgeable people who do not have the time to invest in the iterative process of data discovery and refinement will produce disappointing results.

Once technology is in place, institutions must also tackle the challenge of ensuring there is enough staff available, and that those individuals have sufficient levels of data storytelling and data science expertise to analyze patterns and trends, and provide guidance on how to take action. Neglecting to provide ongoing training for staff just learning new systems or marginalizing their role by relegating them to only pulling reports instead of finding the stories within data will significantly encumber efforts to leverage insights from analytics.

"The primary talent barrier to maturing analytics capabilities is the number of staff available to do the work, not the skills of current staff in analytics support roles."

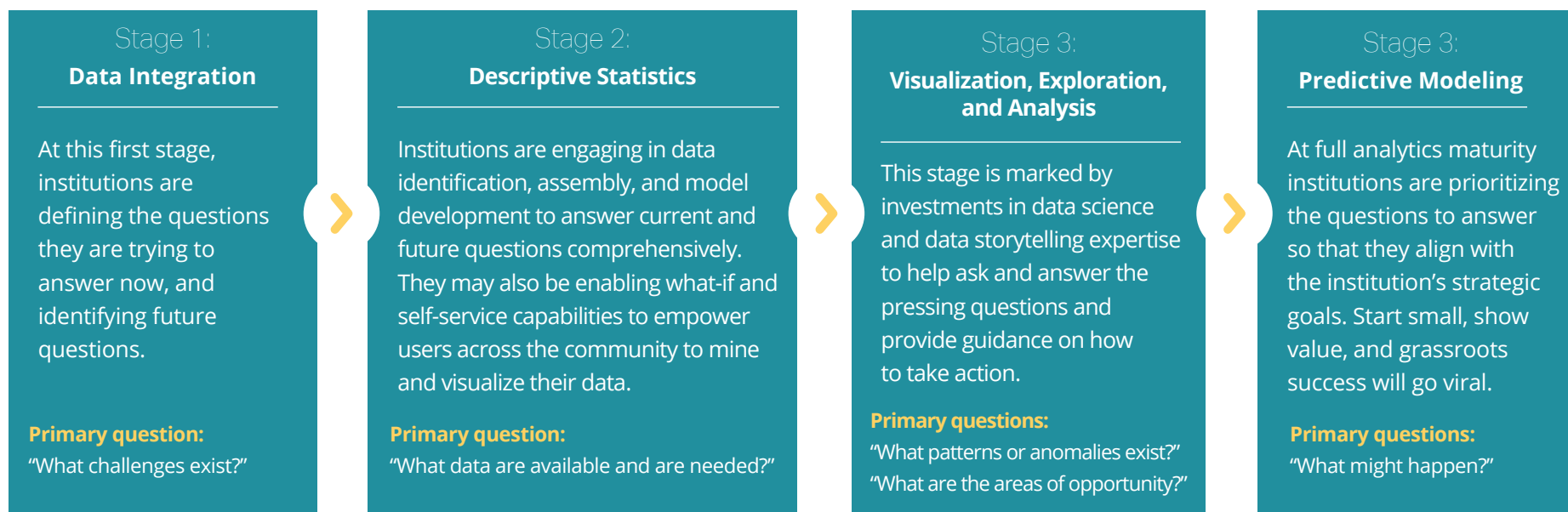
**-Eden Dahlstrom**, Chief Research Officer, Data, Research, and Analytics, EDUCAUSE in *EDUCAUSE Review*<sup>W</sup>

The challenges of technology, talent, and time are particularly pervasive when institutions approach analytics with a do-it-yourself method. Colleges and universities make large financial investments in technologies only to find they have limited capabilities or lack the level of extensibility needed to keep up with changing needs. Improving those technologies requires more time, and often more money. The University of Maryland Global Campus (UMGC) for example needed \$10,000,000 and 5 years to build a robust system on its own (read more about UMGC's story in a case study below).

# Challenge #3 Data Immature Culture

When many in higher education talk about institutional analytics, their attention focuses on predictive analytics. In part this is driven by thought leaders from Gartner naming predictive analytics as a Top 10 strategic technology in higher education, to NASPA stating that “the use of predictive analytics and ‘big data’ will increase in student affairs,” to other higher education leaders including it in their predictions for the space. But this is rarely a productive starting point.

Instead colleges and universities must develop and build their way through the stages of analytics maturity to reach a state of advanced analytics.



While this concept is far from new, it is still relevant and serves as a cautionary reminder that institutions should not try and jump ahead to predictive analytics. Spending the time to glean key insights from descriptive statistics and diagnostic analyses is critical.

There is an incredible amount of actionable data and value in the early stages with understanding an institution’s baseline and being able to answer the key questions of the educational enterprise. High value insights can be gleaned by focusing on descriptive statistics and diagnostic analysis to support stakeholders and provide greater visibility into the critical connections between enrollment, student success, and institutional financials. Doing these well are critical to informing any efforts to leverage predictive analytics at an institution.

"When we think about the value of analytics for an institution, we approach it through the lens of the data needed to support institutional KPIs. We believe it's important to have a balance of descriptive, diagnostic and predictive to provide the richness needed to understand the full picture and support long-term health and profitability of the education enterprise."

**-Jack Neill,** Vice President of Client Services, HelioCampus



# The University of Maryland Global Campus Case Study

## A Focused Approach to Analytics Pays Off

**The University of Maryland Global Campus (UMGC), (formerly University of Maryland University College) began their analytics journey with a question about how to grow student enrollment during challenging times. But in the end, they discovered that the key was not about attracting more students – or increasing the volume of applicants – it was about building a broader capability for analytics to inform institutional decisions. Along the way, they also realized that their data could help with retention, financial aid, securing alumni donations, and more.**

### The First Five Years

UMGC was new to the analytics game when they kicked off their data initiative in 2011. “Getting an understanding of the baseline first was important,” says Lisa Henkel, UMGC vice president of strategic projects and compliance. “We needed to understand where the low-hanging fruit was – where we could make quick improvements before getting into the more sophisticated modeling that can help inform strategy.”

Establishing that baseline – and carefully setting up systems and processes to do so – took time. The university undertook initial efforts to collect and better use data in 2011, and it was 2014 before they were in a position to analyze the data and begin making changes. Being patient and investing the time to see the broad picture paid off for the institution, but it meant focusing on building a strong foundation first.

Starting slowly and looking for obvious ways to make changes paid off significantly. Early in the analytics program, for example, UMGC’s enrollment team found that they could increase new student enrollment by 20 percent by better targeting and communicating with prospective students as they began their applications. That increase has been followed by year-over-year growth ever since.

## UMGC Data Analytics Highlights: The First 5 Years

Investment of 5 years & \$10M

Data has informed significant policy changes ranging from the length of courses to course registration procedures



20%  
increase in  
new student  
enrollment in  
Fall 2014



7%  
increase  
in course  
completion



19%  
reductions in  
recruitment  
expenses



4%  
increase  
in student  
persistence  
2011-2015

## The Power of the Data Dashboard

Knowing that dedicated resources needed to be allocated to ensure success, UMGC established a data analytics unit. The team developed and refined comprehensive data models to represent interactions and outcomes across the student lifecycle, analyzed the trends, and worked with departments that were in contact with students to build and adapt dashboards for real-time analysis. Over time, the team developed a sophisticated, user-friendly suite of dashboards, along with processes that allowed stakeholders to parse and review data in different ways. Easily reviewing metrics became a part of the culture at UMGC, making it easy to provide actionable data to the right audiences that would guide performance towards UMGC's goals.

**“Today, neglecting analytics is no longer an option for higher education institutions. Analytics plays a key role in the success of UMGC, and we know that the need to be more efficient and effective will continue to be met by our data analytics program.” - Javier Miyares, UMGC President**

## Building the UMGC-HelioCampus Partnership

With the realization that other institutions could benefit from their expertise and proprietary technology, in early 2016 UMGC stakeholders created a separate business entity: HelioCampus. Over the years, the UMGC-HelioCampus partnership has been a win-win for both organizations. With the embedded HelioCampus team bringing the unique perspective of someone both “on the ground” within the university and armed with HelioCampus’s deep expertise across the industry, UMGC’s analytics efforts have been expanded even further.

A big part of that expansion has been finding ways to move data into workflows and CRMs that support their practical application.

“We’re using predictive tools to determine students’ propensity to enroll or reenroll – to help us understand the best courses of action or outreach. These tools enable our teams to prioritize our outreach efforts around enrollment, student retention, financial aid, and, ultimately to better support our students,” says Jamie Jaynes, UMGC’s vice president for enrollment management. “We’ve also moved our data science models into a production environment, allowing our advisors and financial coordinators to use the data to assist our students.”

Not only does their data program help determine which students need help, but it also informs the channels of outreach. “We take all the factors and scoring and create different communications plans for different students,” says Jaynes. “For example, a high-risk military student receives a different outreach method than a civilian student.” The benefits of UMGC’s data program also extend to development, fundraising, and alumni outreach efforts. For instance, the university’s institutional advancement group is now able to finetune their engagement with alumni based on individuals’ propensity to donate to the school. They recently worked with HelioCampus on a first-time donor model, resulting in a 5X increase in first time donors!



## The Case for Unified Data Programs

Although awareness of analytics is growing in the higher-ed industry, efforts at many institutions still remain disjointed, with disparate stakeholders making decisions in silos. That's where HelioCampus can help.

**"Building a centralized data service brings everything together," says Jaynes, "and when everyone is on the same page, we're automatically correcting against each other—getting a more accurate picture of the issues facing the university and our students."**

The result is a unified data program that streamlines decision-making, increases efficiency, and builds positive returns for universities and students alike.

## Institutional Efficiency Through Analytics

- › Enrollment and marketing efficiency analysis to keep UMGC competitive in a quickly changing market;
- › Predictive modeling for applicant scoring and persistence scoring;
- › Institutional Advancement first-time donor model leading to a 5X increase;
- › Continued support and analysis for strategic institutional decisions.

# 4 Steps to Putting Data In Focus

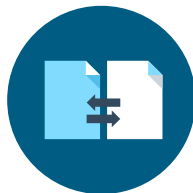
While there is certainly a long way to go for higher education to put data in focus, and it will take large investments of resources and time, it is possible. Starting meaningful conversations on campus and following four data practices ensures there is a clear path to progress and connects the dots to enable decision making across the institution.

1. **Centralize**
2. **Optimize**
3. **Visualize**
4. **Connect**

# Step 1 Centralize

Centralizing key data from across the institution is the foundation for any institutional analytics initiative. Defining the types of questions administrators, faculty members, and even students might want answers to is core to determine what kind of data is collected and how it is done. Then that data must be protected to ensure its integrity. Institutions need to avoid a “garbage in, garbage out” approach to analytics. Aligning the collection and centralization of the data is a critical first step to ensuring data is of high quality and there is transparency around its collection and potential use.

Once questions and their corresponding data sources have been identified, a framework should be put in place to provide insight across the institution and effectively bridge the traditional silos. Additionally, institutional leaders need the authority and influence to refine and broaden the scope of data inquiries, and the will to embrace transparency and communicate objectively. Lastly, institutions must have a data culture in place that enables users access and insights using data across different function to define questions that need answers.



## Centralize

Data is gathered from source systems and replicated into the platform.

## Optimize

Data is normalized and modeled in a central repository.

## Visualize

Data is presented in a series of intuitive and interactive dashboards.

## Connect

A dedicated analyst helps you interpret the data, identify key trends, predict and take action.



## Step 2 Optimize

Institutions must focus on optimizing their data by building out an infrastructure that enables institutional leaders and functional users to explore, connect, test assumptions, and analyze their data. This high-value analysis provides that next level of insights institutions need which traditional operational reporting tools cannot provide. Extensible data models help efficiently identify and capitalize on the connections and relationships between multiple data sources and contexts versus single-threaded reporting. To truly optimize their data, institutions will have to make serious commitments to resources. Investments in high-performance computing, data integration and modeling, an intuitive data-visualization platform, and expertise in data storytelling and data science should be a priority. The platform institutions choose also needs to be extensible and flexible enough to grow and expand as the college or university's needs evolve, as well as make it easy to analyze data across systems and add additional datasets.

## Step 3 Visualize

The ability to uncover insights and translate into actions or business outcomes are critical for improved insight-to-value conversion rates. This is often easier said than done. The problem is that numbers alone do not represent the whole picture. As data visualization expert Stephen Few said in a Forbes article, “Numbers have an important story to tell. They rely on you to give them a clear and convincing voice.” The key is having the expertise to give data that voice.

Some people are comfortable looking at numbers but have trouble drawing connections and extracting stories from them. Others are not comfortable with data at all, easily getting overwhelmed by reports and models. This is where investment in data analysis and storytelling expertise is of value for higher education. All stakeholders need training to build up data science and storytelling expertise, but especially the people who will be looking at the analytics most – the power users. Appropriate support and training for these data professionals empowers them to be proactive and engage the university community in a significantly different way in order to facilitate meaningful conversations. **This will also help teach these data storytellers how to take the complexity out of institutional data and present it in an easily understood and consumable fashion to leaders and stakeholders across campus.**



# 5 Questions "In Focus" Data Can Answer





## Step 4 Connect

Technology and subject matter expertise alone will still not provide institutions with the ability to put data into focus. Institutional culture and a will to purposefully evolve to a data-driven organization are critical components. Despite an institution's best efforts, as its analytics maturity advances, organizational silos can persist perpetuating a lack of visibility into hidden insights. It is crucial, then, for institutional leaders to remain committed to putting practices, policies, and leaders in place that foster connections across the organization and support the evolution to an evidence-based culture. As the research and advisory firm Gartner notes in its research, Data and Analytics Leaders Key Initiative Overview, data and analytics leader roles are needed to “help organizations use the most impactful data, so that they can analyze, collaborate, and make more effective decisions.”

There are several approaches to connect a campus. One approach is the “Networked Leadership” model outlined in the ACE publication, *Evolving Higher Education Business Models*. Networked Leadership calls for leaders to “increase transparency, empower frontline community members, and guide performance standards and metrics,” and serves as a strong blueprint for an integrated transition towards institutional performance based on a common set of metrics.

Another, not entirely separate, approach is creating a layer of independent and objective oversight, like an Office of Data and Analytics, that can bridge connections across organizational silos and build a culture of data-driven leadership at all levels of the institution. While the roles and responsibilities of such an office may already exist at many institutions, they are often decentralized. A centralized office, acting as an independent actor can facilitate the use of impactful data to make effective decisions, inform institutional practices, and help drive a purposeful, cultural evolution. Increasingly, institutions are creating data-focused roles on campus as well. Titles such as Chief Data Officer, Vice President of Analytics, and Data Analyst are becoming more common, while simultaneously analytics are a growing part of the roles of student success professionals and academic advisors.



# Conclusion

As higher education institutions put in place practices to put data in focus and develop their analytics maturity, it is important to keep in mind that the numbers are not the end goal. The ultimate goal is to find ways to impact students' individual experiences across their lifetime relationship with their college or university. From considering whether to apply to an institution, to enrollment, to the first day of class, through graduation, and establishing an alumni relationship with an institution, analytics can help shape those experiences to be the best they can be. Institutional analytics can also drive key decisions to help support pressing issues like increasing access and diversity, while simultaneously building the right student success supports for all students.

But getting to the point of making those critical decisions – of having data that is truly in focus, takes hard work. Colleges and universities need to make the right investments in technology, talent, and time to use analytics to see the stories happening across campus, connect silos, make better informed decisions, and prioritize based on fact instead of intuition.

Following the four data best practices outlined in this report is the first step. Those practices will ensure institutions have the right foundation and technology and the necessary data visualization and storytelling capabilities to support ongoing analyses that lead to action. Institutions looking to touch on all of these features in a do-it-yourself model, should also keep in mind doing so is resource intensive and oftentimes leads to a high level of investment with a low ROI, resulting in analytics project fatigue.

Still there is hope that these endeavors can be successful. High profile cases of how analytics help transform campuses can be found. Cases like UMGC's, presented earlier, serve as a beacon of what is possible, demonstrating that using institutional performance analytics effectively can impact the institution-critical goals of supporting student success, access, and diversity. However, it's not possible without visibility across the entire institution, and seeing the true story within data. Only then can institutions use analytics to increase overall health and long-term sustainability.



