U.S. Department of Education

# ATTAINING C🎓LLEGE EXCELLENCE AND EQUITY

**RAISE THE BAR**

Using Data Effectively to Drive Equitable
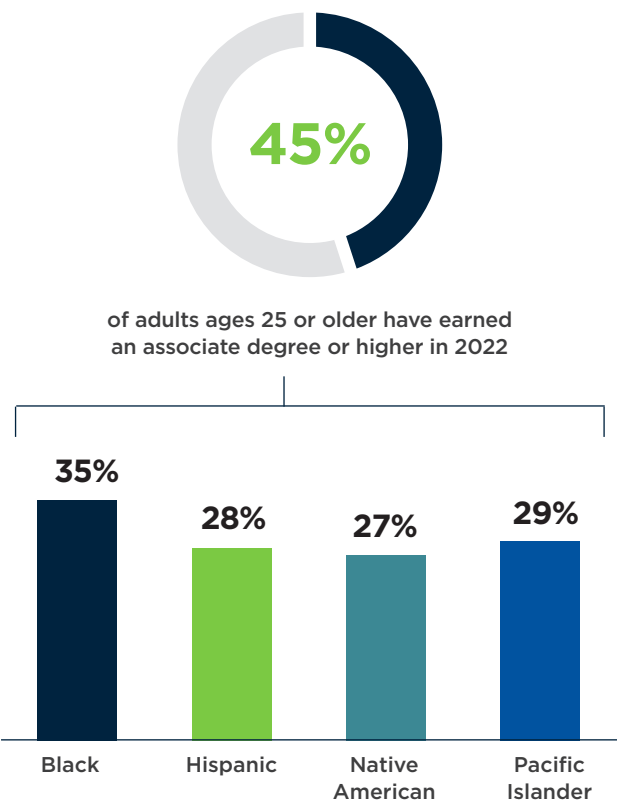Improvements in Postsecondary Student Success

# A PLAYBOOK

# Using Data Effectively to Drive Equitable Improvements in Postsecondary Student Success: A Playbook

**Despite progress since the start of the college completion movement in 2009,[1] disparities in postsecondary attainment by income and race/ethnicity persist in this country.**

While nearly half of adults ages 25 or older have earned an associate degree or higher (45 percent), just over one-third of Black (35 percent) adults and fewer than one-third of Hispanic (28 percent), Native American (27 percent), and Pacific Islander (29 percent) adults have done so.[2] These disparities are driven by continued gaps in college access and success. In the four-year sector, for example, six-year completion rates have increased by about three to seven percentage points for most groups since 2015 (2009 cohort), yet double-digit gaps remain for many students of color in comparison to overall rates (e.g., 19 percentage point gap for Black students).[3] Three-year completion rates have increased by about three percentage points in the two-year sector since 2012 (2009 cohort), yet decreased for Black and Hispanic students.[4] These and other data represent students' experiences on their pathways into and through postsecondary education.

Monitoring and responding to data, especially data that reveal opportunity and outcome gaps, is a critical component of any people-driven improvement effort to increase completion rates in our nation's colleges and universities.

Unfortunately, data limitations can make it difficult to measure these disparities. Many public data sets do not count all students and cannot accurately tell their stories. While there have been notable recent improvements—like the addition of outcomes for Pell Grant recipients to the Integrated Postsecondary Education Data System (IPEDS)—there are still many students whose experiences are missing, obscured, or invisible in these types of data sets especially when key indicators are not disaggregated.[5] In order to close completion gaps, it is crucial to close these data gaps. Leading states, institutions of higher education (institutions), and organizations have responded to these challenges in recent years by spearheading data-driven initiatives that not only leverage more comprehensive metrics to identify

**45%**

of adults ages 25 or older have earned an associate degree or higher in 2022



| Black | Hispanic | Native American | Pacific Islander |
|-------|----------|-----------------|------------------|
| 35% | 28% | 27% | 29% |

**Source:** National Center for Education Statistics (2024). *Digest of Education.*

barriers to completion, but also use these data to implement evidence-based solutions and evaluate their impact.

This playbook provides higher education leaders with data- and evidence-based practices they can consider deploying to effectively use data to equitably improve student outcomes. This playbook was informed by leading researchers and practitioners in the field, many of whom were featured at the U.S. Department of Education's (Department) Raise the Bar Data Summit held in May 2023. The summit was one of a series being held by the Department as part of Secretary Cardona's Raise the Bar: Attaining College Excellence and Equity Initiative. Since taking office, the Biden-Harris Administration and the Department have been committed to a new vision of college excellence—one that uplifts inclusivity, equity, and excellence, rather than exclusivity and privilege. The initiative reflects the Department's commitment to ensuring that students of all backgrounds, ages, disability statuses, and income levels can succeed in any postsecondary pathway. Raise the Bar is focused on supporting institutions and states to implement key evidence-based strategies that address critical loss points along students' postsecondary education journeys, including data-driven improvement, holistic advising and wraparound services, credit mobility and transfer support, and career-connected pathways. The Administration and the Department are further supporting the use of data and evidence to improve students' outcomes through the Postsecondary Student Success Grant program among other efforts.

### How this Playbook is Organized

This playbook focuses on four key tactics that institutions can consider using to promote data-driven inquiry and continuous improvement on their campuses:

1. Creating a culture and capacity for data-driven improvement

2. Using the metrics that matter for increasing student success

3. Conducting key analyses to identify and remove barriers to student success

4. Using data to select and evaluate success strategies.

## Creating a Culture and Capacity for Data-Driven Improvement

Institutions that use data to improve student retention, transfer, and completion often cite critical actions taken by their leaders to democratize data access and use across campus. By fostering a culture that values data and supports data use, institutions can set and work toward improvement goals and make more informed and timely choices about investing in academic programs and support services that address their students' needs. Campus leaders can take action to promote data-driven inquiry and improvement by (1) demonstrating a strong institutional commitment to and investment in data; (2) convening a student success team to regularly review and act on data; and (3) building tools and capacity to enable data access and use for faculty and staff on the front lines of improving student success.

### Investing in Data

Institutional leaders play a critical role in creating a campus-wide culture and capacity for data use. By proactively developing data-driven strategic plans and investing in data systems and staffing to advance measurable goals, leaders can leverage data as an institutional strategic asset.[6] In 2016, President David Wilson of Morgan State University (MSU), a public, four-year, Historically Black College and University in Maryland, set a strategic goal to increase graduation rates to 50 percent by 2025. To achieve this goal, MSU significantly invested in data to power the Morgan 50 by 25 initiative, including a new technology-driven advising system supported by predictive and real-time analytics that help faculty and staff proactively intervene by identifying students potentially at risk based on their prior and current performance. Graduation rates at MSU have increased from 32 percent in 2016 to 46 percent today, making steady progress toward their goal.[7] As MSU shows, integrating data analytics into institutional operations can be a transformative practice to boost student success, but MSU also demonstrates how the investment must go beyond technology to inform a people-driven improvement effort. To help faculty and staff envision their role in achieving the goal, leaders at MSU broke it down to show that if every department on campus graduated just five more students each year, the university would reach its goal to help more of their students succeed.[8]

### Teaming Up with Data

To make data accessible and actionable, institution leaders should consider regularly convening data-driven student success teams with representatives from across the campus community like Florida State University (FSU). When FSU began its successful data-driven journey to increase completion rates and close completion gaps in the early 2000s, the former provost assembled a cross-campus team that met weekly to review data in order to identify and remove institutional roadblocks to student success. The team consisted of about 20 front line individuals from offices such as advising, financial aid, academic departments, and support programs, and included a student representative.[9] Sinclair Community College in Ohio also deploys data-driven work teams to implement their completion strategies. These work teams use analyses about the impact of institutional policies and practices on completion, such as developmental education placement and prerequisites, to address critical loss points where students stop out or drop out. Using this data-driven approach, Sinclair has improved three-year graduation rates from six percent in 2005 to 30 percent today.[10] Through cross-functional teams, leaders can leverage more diverse expertise and perspectives in mobilizing efforts to improve student success, and the members of these teams can become data ambassadors or champions encouraging further data use by their colleagues.[11]

### Democratizing Data

Leaders can democratize data on their campuses by investing in data tools and training that empower stakeholders at all levels to access, analyze, and utilize data effectively to improve student success. Extending data and analytics beyond the institutional research office allows this information to serve as a central resource with direct access for faculty, staff, and administrators. Lehman College, a public, four-year, Hispanic-Serving Institution (HSI) in New York, was the first college in the City University of New York (CUNY) System to implement an integrated and holistic business intelligence (BI) system to support their student success initiatives. Lehman 360, as the BI system is now known, empowers users with dynamic dashboards and predictive analytics that provide near real-time information to drive day-to-day decision-making about optimizing academic and support programs for student success.[12] Outreach and training is critical to ensuring the campus community can use these technology-enabled tools to truly power a data-informed decision culture. As Christian Collins, Vice Chancellor for Institutional Excellence at the City Colleges of Chicago, says

> Through cross-functional teams, leaders can leverage more diverse expertise and perspectives in mobilizing efforts to improve student success, and the members of these teams can become data ambassadors or champions encouraging further data use by their colleagues.

"data don't make decisions, people do." In addition to providing data tools and training tailored to the needs of different stakeholders at the strategic, administrative, and operations levels, City Colleges of Chicago deploys visual data stories that distill data into accessible and actionable intelligence for its intended audiences.[13] The City Colleges of Chicago were recognized with the Campus Technology Innovators Award for their efforts to build a "data democracy" across their seven campuses with their integrated and interactive analytics platform and tools that deliver timely insights to faculty and staff to support students.[14]

### Using the Metrics that Matter for Increasing Student Success

Data are critical to the college completion movement with a number of initiatives creating and scaling a common set of metrics to help states and institutions measure and address gaps in student outcomes. These metrics include leading indicators of early momentum toward completion such as credit accumulation and gateway course completion as well as more robust transfer and completion metrics that count all students. More recent initiatives have also focused on measuring post-college outcomes to ensure students are earning credentials of value that lead to economic opportunity and mobility.

### Mapping the Metrics Landscape

Initiatives that launched at the start of the completion movement created and collected more inclusive measures of student access, progression, and success to provide the information that campus and state leaders need to support improvement. Drawing lessons from these initiatives, the Institute

for Higher Education Policy mapped the metrics landscape to develop the Postsecondary Metrics Framework, which includes a key set of metrics that matter for improving completion and closing completion gaps.[15] This framework is now the basis of a voluntary data collection run by the National Student Clearinghouse, the Postsecondary Data Partnership (PDP), that supports dozens of completion initiatives with their data-driven improvement efforts, including a set of interactive dashboards with peer comparisons.[16] Participating initiatives such as Achieving the Dream (ATD) and Complete College America (CCA) provide extensive resources to help institutions and states not only collect these metrics, but to effectively use them as part of an intentional, institution-wide effort to improve student outcomes, including CCA's tactical data guidebook and tools[17] and ATD's data summits, workshops, and coaching.

## Leveraging Leading Indicators

The Postsecondary Metrics Framework includes leading indicators of college completion to help institutions intervene early to ensure students stay on track for success. This includes a set of early momentum metrics recommended by the Community College Research Center (CCRC) at Teachers College, Columbia University—credit accumulation, gateway course completion, and semester-to-semester retention in the first year—that college leaders can use to assess and augment their completion strategies as they are being implemented rather than waiting to see the results in lagging indicators such as graduation rates. These early momentum metrics have been shown by research to significantly predict whether students complete, with students reaching these milestones up to three times more likely to graduate than students who do not. While it is important to measure *whether* students are reaching these milestones, it is just as important to analyze *why* students are or are not meeting them, such as whether they are enrolling in and passing enough courses, especially college-level math courses, to gain this early momentum toward completion. [18] With support from Achieving the Dream, Fond du Lac Tribal and Community College (FDLTCC), a public, two-year tribal college located in Minnesota, has begun using early momentum metrics to focus on increasing first-year retention for their students. Using these and other leading indicators, FDLTCC has since developed academic progress reporting and alerts and has redesigned their advising program to better serve students' needs.[19]



## Measuring Post-College Success

In recent years, a number of efforts have emerged measuring whether postsecondary education is making good on its promise of economic opportunity, especially for students from low-income circumstances.[20] Drawing on this work, the Postsecondary Value Commission developed a comprehensive framework to measure students' post-college earnings in relation to a series of meaningful thresholds, including whether students are earning more than a high school graduate and enough to recoup their investment as well as whether they are earning enough to experience economic mobility. The framework also calls for disaggregating these outcomes by student demographics and by completion status to ensure that students of color and low-income students are gaining access to the life-changing benefits of earning credentials of value.[21] This framework is being used by states and institutions to address disparities not only in college completion but also in post-college outcomes. At the institutional level, Northern Arizona University, a public, four-year HSI, has set its strategic vision "to be the nation's preeminent engine of opportunity, vehicle of economic mobility, and driver of social impact by delivering equitable postsecondary value in Arizona and beyond" under the leadership of President José Luis Cruz Rivera.[22] At the state level, the Texas Higher Education Coordinating Board (THECB) launched their *Building a Talent Strong Texas* strategic plan in 2022, which will guide the state's postsecondary education efforts through 2030. The plan sets measurable goals and targets to increase the number of Texans earning credentials of value that provide students with a positive return on investment, meaning students experience economic benefits that exceed their costs, and they graduate with no or manageable student debt.[23] Led by Deputy Commissioner David Troutman, THECB is actively helping campus leaders to use their value data to make progress toward the state's goal.

## Conducting Key Analyses to Identify and Remove Barriers to Student Success

The launch of the college completion movement led to a cultural shift in the way data are used to understand student outcomes in postsecondary education. Previously, data were frequently used to explain away low completion rates by focusing on students' prior preparation or background characteristics, which often led to a deficit-oriented perspective of students' potential to succeed. Today, there is greater recognition that demography is not destiny and data are increasingly being used to identify and remove *institutional* barriers to student success. Leading institutions are taking action by (1) using data to conduct critical analyses of key loss points in students' postsecondary journeys; (2) using predictive and real-time analytics to provide students with the right supports at the right time; and (3) using surveys to hear directly from students about what they need to succeed.

### *Conducting Key Analyses*

When Georgia State University (GSU) began their successful data-driven improvement journey to increase completion rates and close completion gaps, campus leaders asked themselves: "Are we the problem?" GSU then started to analyze data to identify institutional barriers to student success such as whether students were being advised to take enough credits, which courses had the highest D, F, and W rates, and whether students with unmet financial need were dropping out. GSU also identified barriers that kept admitted students from showing up on campus their first term, making sure that students did not drop out before they even started college. GSU uses these data to develop new or improved programs and policies to ensure students succeed and uses data to evaluate whether these work, creating ongoing feedback loops that enable continuous inquiry and improvement on campus.[24] GSU has impressively increased their graduation rates for bachelor's degree-seeking students from
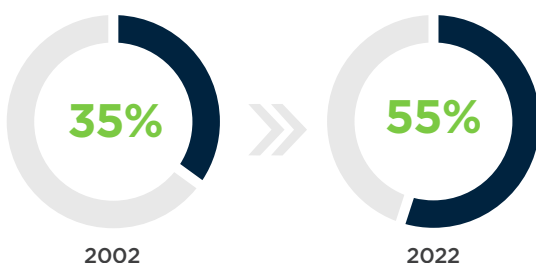
35 percent in 2002 to 55 percent today while closing gaps in graduation rates for students of color and low-income students.[25] Drawing on the experience of GSU, FSU, and other high-performing or improving campuses, the Education Trust created a Practice Guide with 10 analyses to provoke discussion and action on college completion, including examining first-year credit accumulation, program of study selection, excess credits, and more.[26] Sinclair Community College not only runs these types of analyses for their student success work teams, they also share these data directly with students themselves to inform them that Sinclair students who complete these steps in their first year are four times more likely to graduate: (1) choose a major, (2) get a credential map from an advisor, (3) complete college-level English and math classes, (4) take 30 credits (can include summer term), and (5) take nine credits in your major area.[27]

### *Using Real-Time Data*

Colleges and universities do not have to have advanced data systems or tools to start doing data-driven improvement work; many often began with spreadsheets. However, there are more technology solutions available to institutions today including predictive analytics tools, real-time alert systems, and AI-powered text and chatbots. As GSU continued to evolve their data-driven improvement work, they revolutionized their advising process by developing an early-warning intervention, Graduation and Progress Success (GPS), which analyzed ten years of student data and created a list of 800 risk indicators. Since the launch of GPS, there have been over 200,000 advisor interventions to help more GSU students succeed. More recently, GSU has begun to incorporate AI tools to increase online course engagement and to provide personalized coaching to students.[28] MSU implemented a suite of data- and technology-driven advising tools to support their improvement efforts with different tools optimized for different stakeholders, including early alerts for students based on attendance, participation, and grades. MSU's internal research shows that students who receive an early alert improve their grades from mid-term to final, cutting the number of students receiving Ds and Fs nearly in half. MSU also uses these systems to conduct proactive outreach campaigns, not only targeted to students who may not have registered for classes or who may be falling behind on their coursework but also to offer kudos to students who are doing well and to provide them with information about scholarships, internships, and other opportunities.[29]

**Graduation Rates at GSU For Bachelor's Degree-Seeking Students**



**35%** 2002

**55%** 2022

**Source:** ED analysis of IPEDS data (2024)

## Listening to Student Data

While analyzing and using quantitative data is critical to any data-driven improvement effort, some institutions are also effectively using survey data to hear directly from students about what they need to succeed. Amarillo College, a public, two-year HSI in Texas, uses surveys to identify the non-academic needs that may affect students' academic engagement and performance including housing, childcare, transportation, healthcare, and hunger. Amarillo uses this information to target supports to students but also to normalize getting help by showing the prevalence of students experiencing similar challenges on campus and the positive impact of receiving support.[30] The University of Illinois Chicago, a public, four-year HSI and Asian American Native American and Pacific Islander Serving Institution (AANAPISI), has created an equity dashboard for campus leaders that includes student survey data rating campus interactions, support, and climate in addition to retention and completion metrics. All of these data are disaggregated by race/ethnicity to identify equity gaps in student experiences that may lead to gaps in student outcomes.[31] Virginia Commonwealth University, a public, four-year AANAPISI, is using text-based surveys to conduct regular "pulse checks" on students' experiences to provide ongoing feedback to campus leadership in students' own words.[32]



## Using Data to Select and Evaluate Student Success Strategies

Data can not only be used to identify barriers to completion, but also to select and implement evidence-based solutions and evaluate their impact in order to create data feedback loops that support continuous improvement on campus.  Campus leaders can take action by using data and evaluation to (1) understand and address the root cause of obstacles to student success; (2) target success strategies to students' needs; and (3) share what works with the field to support replication and scale.

### *Getting to the Root Cause*

Roane State Community College, a public, two-year college in Tennessee, was named an Achieving the Dream Leader College of Distinction in part for their use of data to drive their comprehensive strategy to improve student outcomes. Roane State uses critical root cause analysis to break down the barriers that students are facing on their campus, to understand how many and which students are experiencing the problem, and to identify and develop specific solutions to address those barriers. To redesign their advising model, Roane State first asked why students were unsatisfied with their advising experience, which led them to identify that students were facing barriers with accessing advising services and with navigating the college curriculum. They then asked why students were experiencing these barriers to reveal siloed offices, confusing course catalogs, and difficulty tracking progress toward completion as root problems. Roane State designed their new advising model to address these issues and used operational and outcome data to measure progress through implementation. When some students still were not using the services and some faculty were not using the early alerts, Roane State went back to analyze the root cause of those issues, using data to iteratively improve on their advising services on an on-going basis. Graduation rates have increased from 17 percent in 2013 to 33 percent in 2022 as a result of their data-driven efforts.[33]

### *Targeting Strategies to Students' Needs*

As the University of Texas at San Antonio (UTSA), a public, four-year HSI, undertook their almost 15-year effort to improve their retention and completion rates, campus leaders mapped their progress against the interventions they put in place. With every percentage point increase, UTSA leaders asked themselves what they could do next to reach their

goal of increasing first-year retention rates from 56 percent in 2009 to 85 percent by 2028. Five years (and a nearly 10 percentage point increase) into their initiative, UTSA undertook a major reform to their advising program. Within six more years (and an over 10 percentage-point increase), they added retention grants, online tutoring, and chatbots. UTSA has an iterative and ongoing approach to data use to ensure they continue to improve the student experience—and student outcomes—by evaluating their interventions along the way and they are nearly at their goal with 80 percent first-year retention today.[34] Arizona State University (ASU), a public, four-year HSI, has been at the forefront of developing and using data- and technology-driven tools to support their students through to completion. Using predictive analytics, ASU identifies students' risk of attrition – high, moderate, or low – and tailors proactive outreach and services based on their level of need. Students with low levels of risk are encouraged to use self-directed services while students with moderate and high risk are encouraged to use 1:1 tutoring, coaching, and other high-touch care.[35]

### Sharing What Works

The success of the completion movement depends on generating and sharing evidence about institutions that are improving so that others may learn from their experiences to adapt what works for their own students. MDRC offers the *Putting Evidence to Work Toolkit* for institutions seeking to harness the power of data in selecting and evaluating their student success interventions. The toolkit provides practical guidance to institutions on leveraging evidence-based practices to enhance student support services, including how to effectively collect and analyze data to identify areas of improvement and tailor interventions to meet the unique needs of their student populations.[36] Excelencia in Education features over 200 programs in their database of evidence-based practices that

improve student success, especially for Latino students.[37] And the Institute for Education Sciences' (IES) What Works Clearinghouse provides a wealth of information about the evidence supporting the use of specific postsecondary interventions - from Practice Guides to Intervention Reports to Reviews of Individual Studies—including the use of data and technology to guide students to success.[38] IES also sponsors the Regional Education Laboratories (RELs) to help institutions implement evidence-based practices.[39] Institutions can do their part to advance the completion movement by using data to evaluate their student success strategies and sharing their stories in order to generate actionable evidence for the field, like GSU which created the National Institute for Student Success to help other institutions embark on their own data-driven improvement journeys under the leadership of founding Executive Director, Tim Renick.[40]



## Call to Action

This playbook is one in a series being produced by the U.S. Department of Education to disseminate lessons learned from the Raise the Bar: Attaining College Excellence and Equity summits. Future playbooks will focus on holistic advising and wraparound services, credit mobility and transfer support, and career-connected pathways. Our "Raise the Bar: College Excellence and Equity" initiative is about lifting-up—and learning from—inclusive institutions that are pioneering new approaches to close equity gaps and propel more students to graduate into well-paying jobs and lead fulfilling lives. Through policies, investments, and convenings, we are calling on America's colleges and universities to raise the bar by supporting inclusive student success, increasing completion rates, and living up to higher education's promise of upward mobility.

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