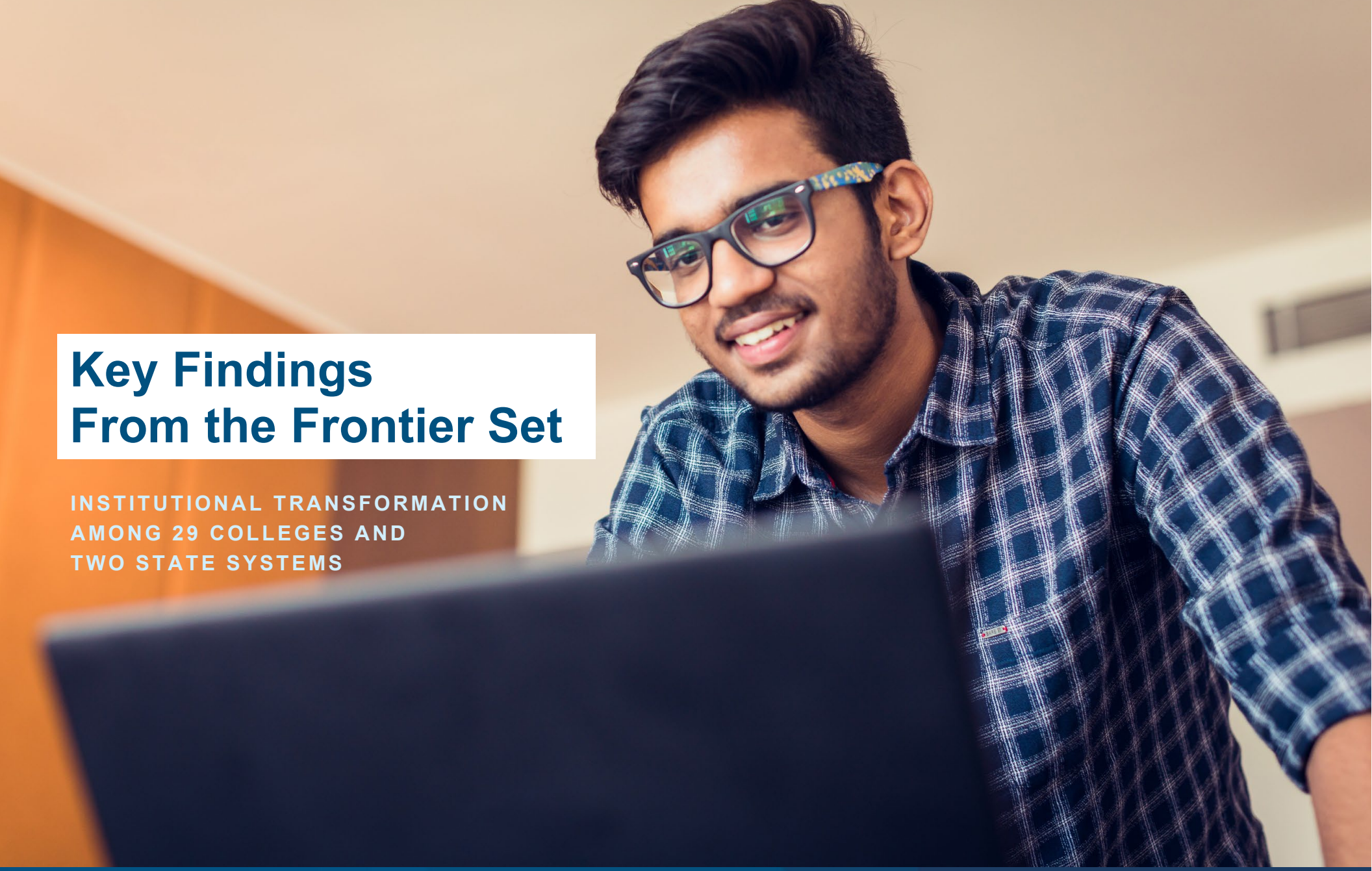

Key Findings From the Frontier Set

INSTITUTIONAL TRANSFORMATION AMONG 29 COLLEGES AND TWO STATE SYSTEMS

AIR®

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Key Findings From the Frontier Set: Institutional Transformation Among 29 Colleges and Two State Systems

Executive Summary

This report examines institutional transformation (transformation) among the Frontier Set network: a group of 29 colleges, universities, and state systems (institutions) committed to pursuing transformation as a process of deep and pervasive change (Eckel et al., 2001; Kezar & Eckel, 2002). The Frontier Set network was brought together to better understand transformation—what it is and how it happens. Throughout a multiyear initiative funded by the Bill & Melinda Gates Foundation (the foundation), these institutions, working in a networked approach alongside intermediaries and support partners, collaboratively implemented, supported, and developed insights into transformation as a change process. In this process, the Frontier Set network came to collectively define transformation as that which involves the realignment of institutional structures, cultures, and business models to improve student success and drive equitable increases in outcomes. This definition of transformation, co-created by Frontier Set institutions, also evolved over time to encompass equity for students (equity). In the initiative and in this report, equity refers to the intentional, institutional pursuit of a state where race and socioeconomic status are no longer entrenched and reliable predictors of student experiences and outcomes.

In this report, the American Institutes for Research® (AIR®), which served as the research and learning partner for the Frontier Set initiative, presents key findings for transformation as a change process, with a particular focus on institutional efforts to advance student-centered approaches, implement evidence-informed practices, and build and realign organizational capacities and business models to improve and make more equitable student outcomes. These findings are based on in-depth analyses of multiple rounds of site visits and data collected from leaders, faculty, and staff from the 29 institutions and the two state systems over the course of the 6-year initiative. These key findings reflect efforts by Frontier Set institutions Key performance indicator (KPI) data from the participating institutions also were collected and analyzed over time to better understand the students served by the Frontier Set and help situate what was learned about the transformation efforts and experiences within the context of the institutions.

Key Findings Observed Among Frontier Set Institutions

1. **Catalysts and Conditions for Transformation.** Five types of catalysts appeared to benefit institutions in their efforts to launch a student-centered transformation process: (1) visionary and strategic leadership, (2) participation in student success-oriented partnerships or networks, (3) evaluations of institutional performance (4) changing student demographics, and (5) state policies and mandates in serving students.
    - Although these types of catalysts facilitated change, two conditions—prior organizational experience with change initiatives and stable finances—were identified as important factors that helped to ready institutions to implement transformation.
    - The catalyzing of transformation at Frontier Set institutions varied by condition and starting point. Two primary examples include institutions varying how they considered equity at the beginning of their transformation journey and whether they used a pre-established framework or a snowballing approach to choose the right initiatives for their institutions.

2. **Taking an Integrated Approach to Transformation.** Institutions engaged in a series of key processes that, when implemented, helped them to bring together various people, departments, and initiatives into more closely coordinated efforts to improve student success and a more coherent approach to transformation. These processes included (1) strategic planning, (2) implementing student experience frameworks, (3) cross-functional efforts, and (4) reflection.
    - These four areas did not operate in silos within institutions. Instead, they were interconnected and informed other processes.
    - Notably, the use of cross-functional teams helped institutions sustain the work of transformation by raising awareness around student success approaches, encouraging joint ownership of problems and solutions, and including more diverse perspectives into institutional processes.
3. **Mid-Level Leaders in Transformation.** By collaborating with faculty, staff, and leaders within and across units, mid-level leaders played an essential role in connecting the various change efforts during transformation.
    - Common competencies of mid-level leaders that surfaced as important to transformation included communication, collaboration, and the use of data to generate student-centered approaches and set priorities while being aware of the student experience.
    - Mid-level leaders were also crucially supported by senior leaders, both in playing a strong role in transformation and asserting the competencies to do so. At multiple institutions, senior leaders empowered mid-level leaders in the transformation process by (1) positioning mid-level leaders as decision makers and innovators as a way to develop in them a sense of shared ownership in the transformation, (2) democratizing budget processes to increase transparency and buy-in, (3) aligning purposes through strategic priority setting, and (4) increasing access to actionable data.
4. **Targeted Institutional Improvements to the Student Experience.** Institutions, in their pursuits of student success and through ties to the initial stated priorities of the Frontier Set network, prioritized advising, developmental education, and digital learning reforms to improve student success. Prior research (e.g., Dabbagh et al., 2019; Grossman et al., 2015; Jenkins et al., 2018; Karp et al., 2016; Park et al., 2018) has shown that the following areas of the student experience are promising targets for institutional improvements:
    - Improved advising practices—including implementing advising technology initiatives, overhauling advising structures and staffing, implementing new advising strategies and policies, and implementing new advising programs and supports—were characterized as the most common and earliest targeted reforms.
    - Several institutions also enacted developmental education reforms by redesigning curricula, implementing corequisite courses, and implementing general academic and nonacademic support programs to meet the developmental needs of students (e.g., course and supplemental supports on proper study habits).
    - Institutions improved and expanded digital learning reforms by implementing adaptive courseware; developing online degree programs and courses; training faculty and students on digital learning & courseware; providing students with digital resources, such as hardware and software; and standardizing the quality of online programs and courses.

5. **Technology and Data Support for Transformation.** Information technology (IT) and institutional research (IR) capacities played a clear role as structures and instruments to support transformation efforts.
    - Leaders, staff, and faculty characterized IT as a department and a team of people, as a strategic partner in implementing student success initiatives and related improvements, and as key contributors to improving access to and streamlining the student experience.
    - Meaningful and systematic data use, facilitated by IR, appeared to be integral to transformation efforts, through either a centralized or decentralized approach. Colleges used data to create increasingly data-driven cultures, facilitate evidenced-based decision making, and develop and refine student success initiatives.
6. **Student Data and Key Performance Indicators (KPIs).** Although improvements in student outcomes overall and for specific student groups may seem slow and incremental, , Frontier Set institutions appeared to advance the broad goals of the initiative to improve postsecondary student success.
    - Frontier Set institutions saw modest and steady increases in near-, medium-, and long-term KPI metrics.
    - There was little evidence that KPIs were disproportionately lower for Latino students and students who were recipients of Pell Grants compared to students overall. However, disparities in student outcomes persisted for Black students.

In presenting the key findings and insights from the data collected, this report makes connections between institutions' experiences of transformation; prior literature on higher education, student success, and organizational change; and equity.

In our observations, AIR did not attempt to assess whether transformation approaches described as equitable by campus leaders and staff might be more accurately described as universal and equal approaches targeted to all students. For institutions interested in equity-centered transformation practices, we recognize that some of these findings need a closer look before being described as those that reflect truly equitable practices in transformation and for college students, especially Black, Latino, and Indigenous students and students from low-income backgrounds. In our reporting, AIR has used the language of campus leaders and staff when describing approaches motivated by a commitment to equity.

The key findings for transformation outlined in this report offer insights into how a select set of institutions took significant steps to improve student outcomes and the student experience, "removing race and income as predictors of student success" and "integrated implementation of student-centered approaches." Such findings are informative for research and practices in higher education. In line with prior research (e.g., Eckel et al., 2001; Kezar & Eckel, 2002), these institutions engaged in transformation through a series of deep, pervasive, and *strategic*—in the sense of efforts undertaken for a carefully identified purpose—steps to change their structures, processes, and cultures to improve student success.

These key findings also reiterate prior research, suggesting that transformation is a nonlinear process that comes together in pursuit of an agenda and through the efforts of senior leaders, mid-level leaders, and faculty and staff at all levels (Eckel et al., 2001; Kezar & Eckel, 2002). Moving forward, more research is needed to understand the content and order of these phases of transformation, which were difficult to observe outside the start of transformation. In the future, additional research will benefit from the knowledge of how institutions pursue equity as a central part and from the onset of their transformation processes, such that all efforts in the process improve student outcomes and the student experience for Black, Latino, and Indigenous students and students from low-income backgrounds. Nevertheless, the key findings outlined in this report highlight how institutions' and system offices' pursuits of transformation came together as complementary and intersecting strategies for improving student success and these pursuits were targeted to all phases of the college student trajectory.

Home Page

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Key Findings From the Frontier Set: Exploring Institutional Transformation Among 29 Colleges and Two State Systems

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Introduction

Colleges and universities provide crucial opportunities for individual prosperity and social mobility in the United States. Comprising these institutions are the many administrators, faculty, staff, and other campus community members who work to serve their students, ideally with high-quality educational experiences that lead to rewarding careers and lives. At the same time, higher education in America has a history of exclusion, particularly for racially minoritized students and students who have experienced poverty (Thelin, 2011). Over time, institutions have shifted their understanding of who needs to change to create a more equitable system of higher education, moving away from the idea that students are underprepared for college success and completion and moving toward the idea that institutions need to change and become student-ready (McNair et al., 2022).

Growing numbers of institutions have come to recognize the deficiencies in their systems, structures, processes, and practices that disrupt all students having equitable access to high-quality support, services, and academic programming to achieve their postsecondary attainment goals. College leaders have come to realize that today's students do not fit neatly into the historical understanding or model of a *traditional* college student and that institutions need to change their approaches to serving and ensuring the success of the students they now serve. Many institutions are changing how they operate on behalf of the students they serve and have committed resources to reform or implement new initiatives to improve academic programming, student supports and services, and operational structures and practices. However, the ways through which institutions have approached and navigated change vary, with no single defining model or specific set of guiding steps for institutions to follow and implement.

As institutions pay more attention to equity and test new models and ways of serving college students, the field will benefit from a greater understanding of the contexts and conditions in which significant institutional changes to improve college student success are catalyzed and enabled. There is also a need for additional knowledge about the strategies and approaches that these institutions use to implement change, so that they can better assess the needs of the different populations of students they serve, make decisions about where and how to set priorities and invest resources, and coordinate actions across the campus to improve the experiences of and promote equity for students.

This report describes observations by the American Institutes for Research® (AIR) of how 29 institutions of higher education took a networked approach to transformation, beginning with background on the methods that comprised this collaborative approach and related observations. Through these observations, AIR has constructed and presents in this report six key findings about transformation, which paint a picture of (1) significant institutional change and the conditions and catalysts that help to launch such change, (2) the practices that institutions use to take integrated approaches to this change, (3) the role of mid-level leaders, (4) the ways through which institutions target institutional improvements to the student experience, (5) the role of information technology and institutional research in change, and (6) how key performance indicators reflect such change.

What Is the Frontier Set?

Recognizing the need to learn more about how institutions in the United States transform their practices to improve college student success, the foundation invested in a major initiative to support and study the Frontier Set—a network of 29 institutions with demonstrated commitments to institutional change and improving outcomes for the students they serve, with the goal of eliminating race and income as predictors of attainment and success. Over time, the Frontier Set clarified an emphasis on Black, Latino, and Indigenous students, as well as students from low-income backgrounds. Before the Frontier Set network began, prior research (e.g., Eckel et al., 2001; Kezar & Eckel, 2002) outlined transformation in higher education as a deep, pervasive, and strategic change process undertaken for a carefully identified purpose. As the Frontier Set network began to work together, a similar definition was developed in collaboration and consultation with the partners, institutions, and systems in the network. This definition of transformation served as a guidepost for the overall network and as an anchor for deeply studying and learning about the process of transformation, including how institutions approach and experience transformational change.

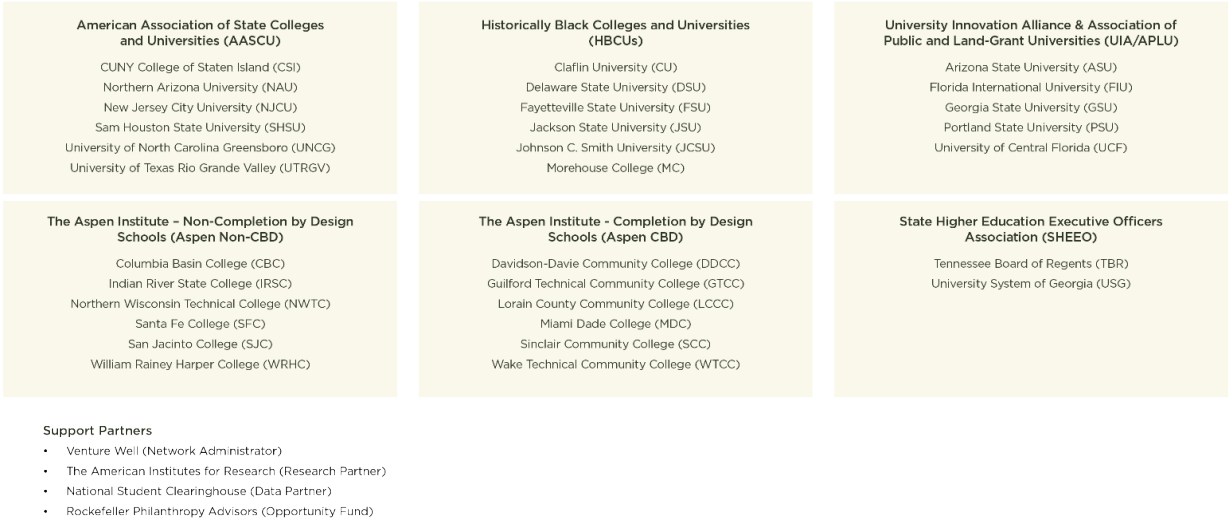
> For the Frontier Set network, AIR, and this report, transformation refers to **the realignment of an institution's structures, culture, and business model to create a college student experience that results in dramatic and equitable increases in outcomes and educational value. Transformation, as a process, involves institutions creating inclusive and coherent learning environments to achieve equitable outcomes for students through catalytic leadership and evidence-based practices that are embedded in continuous improvement processes.**

AIR served as the research and learning partner for the duration of the Frontier Set initiative. Over the course of the 6-year initiative, AIR collected annual site visit and student-level administrative data from the 29 institutions to probe and learn first-hand from the institutions about their transformation journeys (progress, challenges, reflections, and data) and the progress and outcomes of the different subpopulations of students they served. In this report, AIR presents key findings for practitioners and the public, especially audiences who are interested in understanding how these institutions and system offices changed and what they learned along the way.

A key feature of the Frontier Set initiative was the use of a networked approach to pursue, support, and understand transformation and to bring together institutions, systems, and support and research organizations in collaborative ways. Additionally, a core assumption of this initiative was that, to promote student success and equity, *institutions* are responsible for changing, rather than focusing on how *students* need to change. In 2018, the foundation, AIR, participating institutions, and other support partners collectively began to refer to this process as *transformation*. Over time, the network's collective understanding of and focus on **equity** in transformation became more explicit. **In the context of the Frontier Set initiative, the term *equity* refers to the intentional, institutional pursuit of a state where race and socioeconomic status are no longer entrenched and reliable predictors of student experiences and outcomes.** The network came to understand the importance of equitable design and equitable student

experiences to fully realize the promise of transformation. Members of the network supported each other in developing this focus, which was spurred by a growing understanding and awareness of systemic racism and the need for action on racial equity.

Participating Colleges and State Systems



Learning Questions and Observation Methods

AIR's research and learning activities evolved during the 6-year initiative. These activities were guided by a set of prioritized learning questions of interest, focused on better understanding transformation undertaken by Frontier Set institutions:

1. What are the catalysts of transformation? How do they catalyze transformation?
2. What are effective models that integrate the essential components of transformation into a comprehensive, coherent, and cohesive institutional strategy for creating more equitable student outcomes within the context of the institutional mission?
3. Through what roles, structures, and processes can administrators, faculty, staff, and students contribute to transformation most effectively?
4. What are key indicators of institutional readiness for transformation? What are key indicators of institutional progress toward transformation?

To construct this understanding, AIR also conducted a series of research and learning activities alongside these institutions. Through these activities, AIR identified key findings around transformation, described as key because they showed up frequently across institutions and sectors, intensely within select institutions and sectors, and pertain to quantitative student outcomes and equity gap data while having implications for practitioners. These research and learning activities undertaken by AIR included:

- **Conducting focus groups and interviews and analyzing qualitative data.** AIR collected and analyzed focus group data with Frontier Set institutions. During 4 years of site visits, AIR held focus groups or interviews with senior leaders (e.g., presidents, vice provosts or vice presidents, and

associate or assistant vice presidents) and mid-level leaders (e.g., directors and associate directors of student success initiatives and units related to institutional capacities such as leadership, finance, information technology, and institutional research).

- **Reviewing institutions' self-assessments aligned to the Institutional Transformation Assessment (ITA).** AIR reviewed qualitative data that were collected using the ITA. The ITA helps institutions identify areas of strength and improvement to prioritize and plan for equitable student success. AIR facilitated the ITA Sensemaking Conversations with institutions until this role was transitioned to the intermediaries in 2019. More information about the ITA can be found on the ITA website.
- **Reviewing extant documents.** AIR collected and reviewed strategic plans, institutional mission statements, and documents that the institutions and systems shared or made publicly available.
- **Conducting analyses of key performance indicators (KPIs) and institutional characteristics.** Data from KPIs, collected from colleges through the National Student Clearinghouse's Postsecondary Data Partnership initiative, included data related to overall student outcomes (credit accumulation rate, credit completion ratio, gateway course completion, retention and persistence, number of completions, and graduation rate), overall and for specific student groups. Our observations also include important considerations of what Kezar (2013) and later Klempin and Karp (2015) identified as the "three focuses of organizational functioning" (p. 6) (Table 1). By accounting for these focuses throughout our data collection and analyses, we attempted to capture, in our observations, the reality that transformation is a multidimensional change process.

Table 1. Three focuses of organizational functioning

Dimension	Definition
Structural	Changes to the organizational hierarchies or design of systems and business practices
Process	Changes in individual engagement, behaviors, and interpersonal interactions with systems and business practices, including planning and decision making
Attitudinal/Cultural	Changes in core underlying assumptions, attitudes, values, and beliefs

More information about the qualitative and quantitative methods used to complete this report is provided in the Technical Appendices (located in the Appendices section).

More Information About AIR as a Research and Learning Partner

The foundation engaged AIR as **the Frontier Set network's research and learning partner,** working to understand questions related to transformation, including specific initiatives and institutional changes that took part during the 6 years of the initiative. In this role, AIR worked with the participating institutions, intermediary organizations, other support partners in the network, and the foundation.

Working collaboratively, AIR collected, analyzed, and reflected on institution-level and initiative-wide data about the factors, decisions, people, structures, and processes that drove and influenced transformation on their campuses. The findings and discussions presented in this report reflect the analyses of in-depth multiyear case study data, which AIR collected from Frontier Set institutions based on what emerged as common components of the transformation process and how they appeared in practice. These findings also reflect the analyses of administrative student data to understand and examine the demographics and outcomes of the students served by these institutions.

The focus of AIR's qualitative data collection evolved during the 6-year initiative based on new knowledge, data, emerging themes, and experiences of the network. The intermediaries and AIR worked collaboratively for the duration of the initiative to engage institutional and system leaders in reflective conversations about what they were learning, how they were prioritizing efforts, their development of continuous improvement work plans, and their own self-assessments of key aspects of their efforts to improve student experiences and outcomes. These conversations deepened the understanding about the institutional context and perspectives on the work of transformation that complemented and added nuance to more formal data collection activities. In the latter years of the initiative, AIR and the intermediaries jointly conducted site visits and debriefed on key observations and field notes from AIR-led interviews and focus groups.

During these latter years, AIR increasingly collaborated and partnered with intermediaries as part of the network's collective learning journey. In these years, AIR's interview and focus group protocols, analyses, and reporting shifted to explore (a) institutional leaders' and staff's perceptions and conceptualizations of equity on their own campuses, (b) observations of institutional performance deficiencies, and (c) institutional efforts to address these deficiencies. The attention on equity came into especially high focus in 2020 and 2021 as the network as a whole and Frontier Set institutions responded with great urgency to the COVID-19 pandemic and nationwide calls to address issues of racial injustice, both of which cast a spotlight on and exacerbated troubling and persistent inequities in postsecondary education.

Terms and Definitions

Attitudinal, cultural, or process change: Changes in core underlying assumptions, attitudes, values, and beliefs.

Catalysts for transformation: Internal and external factors that motivate or notably redirect an institution's approach to transformation.

Conditions for transformation: Institutional strengths and capacities that readied institutions for transformation and influenced early approaches and decisions about where and how to prioritize, target, and implement change at the start of their transformation journey.

Catalytic leadership: Influential leaders who marshal resources to develop a new vision and strategy for student success and support institution-wide changes in structures, processes, and attitudes in service of student success.

Centralized: Organizational or structural approach where departments and/or people operate from a single unit.

Continuous improvement: An ongoing, cyclical, and data-driven process for addressing a specific problem of practice by developing, testing, and refining promising solutions. The continuous improvement process builds in time for reflection on what was achieved compared to what was expected, assessments of what has been successful, where gaps remain, and what can be improved or changed for greater results.

Co-requisite remediation: A model or approach to providing developmental education courses where students assessed as needing additional academic support take college-level, credit-bearing courses while receiving additional, concurrent learning supports.

Cross-functional efforts: Formal and informal practices in which key administrators, staff, and faculty from across departments and units work together systematically to implement their institutions' programs, policies, and overall approach to student success.

Decentralized: Organizational or structural approach where departments and/or people operate from individual units as opposed to one central unit.

Digital learning: Online courses, digital content, and instructional practices that use technology and support learning in a virtual environment.

Equity: The intentional, institutional pursuit of a state where race and socioeconomic status are no longer entrenched and reliable predictors of student experiences and outcomes.

Frontier Set: A select group of high-performing, high-potential colleges, universities, state systems, and supporting organizations committed to eliminating race, ethnicity, and income as predictors of student success by transforming how institutions operate. The Frontier Set was brought together to better understand transformation—what it is and how it happens.

Guided Pathways: Developed by Achieving the Dream (ATD), this framework is used by postsecondary institutions to guide students in making progress toward their degree plan. This framework includes four

principles or pillars: 1) clarify pathways to end goals; 2) help students choose and enter pathways; 3) help students stay on path; and 4) ensure student are learning.

Information technology supports: An institution's strategic investment in expanding information technology (IT) resources and capacity, including integrating and overhauling technology systems to improve the student experience.

Integrated approach to transformation: Set of four processes that help colleges take a more integrated approach to improving student success and drive equitable increases in outcomes (1) strategic planning, (2) implementing student experience frameworks, (3) cross-functional efforts, and (4) reflection.

Institutional transformation: The realignment of an institution's structures, culture, and business model to create a college student experience that results in dramatic and equitable increases in outcomes and educational value.

Institutional Transformation Assessment (ITA): A process to help postsecondary institutions reflect on existing student success efforts and the organizational structures that support them. The self-assessment tool helps an institution learn more about its areas of strength and improvement, which are a critical input to prioritizing and planning further action to enhance equitable student success. (https://postsecondaryita.org/)

Key performance indicators (KPIs): A set of outcome metrics that can be tracked, measured, and analyzed to assess how well an institution is doing to support student success.

Loss/Momentum framework: Developed by Completion by Design, this framework helps colleges identify students' needs at various intervals, provides guidance about the stages in the student journey that represent challenges for students, and offers structural and practice changes that eliminate or smooth barriers for students at each stage

Mid-level leaders: Campus leaders at the level of dean, director, department chair, associate or assistant vice-provosts, and faculty.

Minoritized students: Students from groups that historically constitute a racial minority in the United States "informed by Benitez's (2010) use of "minoritized" and similar to this usage is intended to refer to the "process [action vs. noun] of student minoritization" (p. 131) that reflects an understanding of "minority" status as that which is socially constructed in specific societal contexts (Stewart, 2013)

Networked approach: An approach that intentionally builds effective relationships around a shared vision to accomplish goals or build a movement.

Reflection: A process in which an individual or group identifies and discusses structural and systemic problems in the student's experience to solve or mitigate barriers through either ad hoc or integrated strategies.

Senior leaders: Campus leaders at the level of presidents, provosts, vice presidents, and vice provosts.

Strategic planning: The formal process of establishing an institution's overall direction and vision for improvement.

Structural change: Changes to the organizational hierarchies or design of systems and business practices.

Student experience frameworks: Institutional frameworks that help chart a path for staff, faculty, and students to engage with and advance the integration process. Examples included Guided Pathways and the Loss/Momentum frameworks.

Support partners: Refers to organizations that maintain various roles (e.g., evaluation, facilitation, and technical assistance) to support the Bill and Melinda Gates Foundation's Frontier Set.

1. Catalysts and Conditions for Transformation

Introduction

When institutions embark on transformation to improve student success, the true beginning of the process is not always clear, nor is the process of transformation a linear progression or step-by-step advancement from a specific starting date to an achieved end date. Often, an event or moment in time becomes apparent in hindsight as the instance when institutional directions, mindsets, and approaches to improving student success intentionally begin to take hold. While the network of Frontier Set institutions and systems committed to continuing to work on improving student success, each had different histories and trajectories in terms of when and where they were in their transformation journeys at the start of the initiative.

Overall, campus leaders and staff pointed to multiple internal and external factors that helped to catalyze their work and to some specific conditions related to institutional strengths and capacities that influenced their early approaches and decisions about where and how to implement change. Although the exact mix of these factors—conditions, starting points, and catalysts—differed across the institutions, some commonalities prompted and enabled the transformation process to begin and take hold.

Leaders and staff commonly cited a series of catalysts as the *markers* by which their institutions measured or otherwise observed the start of transformation:

- Appointment of new leaders and/or leaders significantly changing vision or strategy,
- Institutional decisions to participate in a student success-oriented partnership or network,
- Evaluations of institutional performance and deficiencies in capacity or practice,
- Notable changes in student demographics, and
- New state policies.

Although these catalysts stimulated change, certain conditions were also identified as crucial factors for starting transformation. Campus leaders and staff described these conditions, including prior organizational experience with change and relatively stable finances, as influencing institutional preparedness and capacity for implementing change.

Transformational change often requires a catalyst of some kind: a person, event, circumstance, or another factor that calls into question the status quo of operations. For Frontier Set institutions—regardless of the catalyst or set of catalysts that stimulated their attention and intentions to change—transformation began under different institutional conditions and capacities that influenced their early change efforts. For institutions looking to transform, findings suggest that efforts to begin transformation may be facilitated by (a) the presence of catalytic leaders who bring new visions and strategic approaches to improving student outcomes; (b) institutional participation in networks or partnerships with a student-success-oriented agenda; (c) evaluations of institutional performance, ; (d) changing student demographics; and (e) new state policies or mandates.

Catalysts for Transformation

During the Frontier Set initiative, we explored what campus leaders and staff considered to be the beginning points of their institutions' transformation, including the contributing factors or catalysts and in terms of when visible and significant changes began to occur. As part of our interest to deepen our understanding of transformation and the factors that affect and enable it, we asked campus leaders and staff to reflect and consider their own institutions' transformation past, including precisely what they would identify as the turning point in the institution's direction and approach to improving the student experience. In some cases, those with whom we spoke had first-hand knowledge and perspectives. In other cases, leaders and staff joined the institution after the transformation process began, providing an *outside* perspective on the factors that catalyzed the start of transformational change based on what they knew or had heard of their institution's history.

For many institutions, transformation started before joining the Frontier Set network. For others, their efforts aligned more closely with the initiative's launch. Regardless of when transformative changes started, institutions commonly described a significant catalyst or constellation of catalysts that built momentum or heightened a sense of urgency around addressing inequalities in the student experience and missed opportunities to improve student outcomes. These catalysts, outlined below, had a perceived effect on upsetting or otherwise disrupting business-as-usual settings in tangible ways.

Visionary and Strategic Leadership

Some institutions' transformation efforts started because of existing leaders or newly appointed leaders, who put forward and committed resources to a new vision and strategy for student success. From this new vision and strategy came a new mindset and approach that shifted visible and felt ways to improve student outcomes by addressing the student experience. A tangible way in which this type of catalytic leadership motivated and guided early efforts at transformative change was through the establishment of and communication about student-success-oriented goals and priorities in an institution's strategic plan. At two institutions—Portland State University (PSU) and Wake Technical Community College—leaders took a unique approach to cultivate a campuswide commitment to transformative change, launching internal Request for Proposal (RFP) programs that served as a clear, visible shift to a student-centric approach to

improving performance. For example, the RFP program at PSU started in 2012 with the Provost's Challenge—a one-time $3 million allocation by the university that funded 24 innovative faculty- and staff-led activities. PSU leadership felt the initiative was necessary because, although ideas for innovation existed, a lack of funding meant that none were being implemented. When the challenge launched, according to mid-level leaders, the response was overwhelming and seemed to reignite the innovative spirit at PSU.

Participation in Student-Success-Oriented Partnerships and Networks

Some institutions' transformation efforts under Frontier Set built off or complemented other student-success-oriented initiatives that campus leaders and staff described as critical catalysts in driving transformative change, including the intentional and strategic realignment of structures, processes, and business models to prioritize student success and improve student outcomes for all student groups. For example, participation in initiatives—such as Achieving the Dream and Completion by Design—helped Frontier Set's community colleges set clear and targeted student success goals, build teams to oversee student success work, and identify and address barriers to student performance and completion.

Evaluations of Institutional Performance

Formal assessments and evaluations of institutional performance—focusing on key aspects of the student experience and the effectiveness of specific student supports and services—helped to launch the transformation process for a small number of institutions in the initiative. According to campus leaders and staff, the results of these evaluations—not just the decision to conduct them—served as critical guideposts and motivators to address troubling deficiencies in existing programs, practices, models, and approaches to providing students with supportive and effective pathways to degree completion. The data from these evaluations provided the impetus for change and provided senior leaders with information to explain the need for change, including rationales for implementing specific initiatives, investments, or significant restructuring within or across units and roles. For example, the evaluation results at Claflin University led to a significant change to its student advising approach. Shifting away from its decentralized model, the university implemented a more centralized model that included strategic advising assignments to professional or faculty advisors based on where students were in their degree path. The university's leaders and staff described this initial major investment and attention to advising reform as a clear marker of early transformation.

Recognition of Changing Student Demographics

Numerous leaders and staff described how notable shifts in the demographics of their local communities or incoming student populations played a key role in catalyzing significant changes to their institutions' more traditional approaches and models for serving students. Specifically, leaders at many of the Frontier Set institutions talked about their transformation process as one that began when they recognized the need for different and more flexible types of programming, services, and learning supports to meet the growing numbers and needs of adult learners, students from low-income backgrounds, students of color, and working students who were enrolled in their institutions.

For example, Fayetteville State University initiated substantial programming changes to align with the growing military-related needs and connections in their local community. Specifically, the university launched a STEM-focused career pathway to prepare students for careers and jobs in demand at the local military base. To complement and support these academic programming investments, Fayetteville State University also adapted the DegreeWorks degree-auditing software and the Banner student information system to align with Guided Pathways. These systems enabled individual students and their advisors to map out and streamline course-taking schedules and career pathways.

In addition, several institutions pursued early transformation processes, prompted by the need to design and implement creative solutions for adapting or adopting structures, processes, or student supports to ensure that they were better prepared and positioned to serve *nontraditional* college students. These institutions pursued targeted investments in technology to provide greater flexibility for students who could not consistently get to campus or balance their postsecondary degree pursuits because of work and/or family obligations. The investments and adjustments to better serve a more diverse student population in one area signaled the start of transformation because it led to or *snowballed* into a more expansive and coordinated set or series of changes across the campus.

State Policies and Mandates

Changes to higher education-related state policies spurred institutions in some states to respond quickly, implementing plans and notable changes to past practices and models. Numerous states mandated institutions to make changes, such as reducing students' time in developmental education or completely phasing out and eliminating non-credit-bearing developmental education coursework for students testing below a college level. In response, institutions designed and adopted alternative approaches to support students at entry, particularly those who enter college with a range of prior educational experiences and outcomes. These approaches required substantial shifts in course models, content, academic support systems, faculty training, and policies and strategies for advising and course placement.

Leaders and staff at these institutions highlighted the catalytic nature of state mandates in mobilizing significant change, particularly how they approached and strategized student success. For these institutions, changes in state policies had a domino effect, where changes in one area necessitated realignment and changes to practices or programming in another. For example, Lorain County Community College in Ohio reported that a state-mandated planning requirement necessitated the college to prioritize continuous improvement, focusing on increasing the number of students earning college credits. According to leaders and staff, the rollout of this state policy marked a critical inflection point, leading to a clear focus on student success that continued to support institutional approaches and decisions during the years of the initiative. In Florida, the state's reintroduction of performance-based funding model for higher education institutions in 2014 was a primary catalyst for beginning transformation at Florida International University. The new funding model lent urgency and motivated quick actions to establish student success metrics that were aligned to the performance model; this led to new operational structures, processes, initiatives, investments, and academic programming to improve student success.

Conditions Supporting Early Efforts to Transform

Through institutions' experiences, AIR also learned that, while catalysts prompt and lend urgency to make changes, a series of conditions may also influence and help to spark the start of transformation. Campus leaders described two facts as being helpful enablers of transformative change: (a) financial stability and (b) successful, or at least positive, experiences with prior large-scale change initiatives.

Financial stability allowed institutions to invest and direct resources quickly to build capacity for scaling programs or strategies, or to purchase new technologies. Specifically, institutions that had a measure of financial stability and steadily growing enrollment numbers that coincided with the timing of their catalysts for transformation, could invest in such infrastructures as information technology (IT) and institutional research (IR). Investments in these capacity areas helped to increase accessibility to and support for interpreting and using student data to track student progress and address and improve disparities in student outcomes. In contrast, institutions with limited resources or financial instability had to start small or focus on addressing financial concerns before launching larger scale transformation efforts. Making new investments and reallocating existing funds was difficult at institutions with resources and finances that were stretched thin. Such financial instability also appeared to be connected to additional resistance from faculty and staff who were concerned about having to adopt changes on top of already heavy workloads, increasing class sizes or caseloads of students, and growing reliance on underpaid adjuncts and other cost-saving measures—all of which seemed to contradict the goal of improving and supporting student success.

Campus leaders and staff described past experiences with launching new initiatives or making reforms as another condition affecting early transformation and when and how institutions started such an effort. Institutions involved in large-scale student success initiatives before participating in the Frontier Set network described how such initiatives cultivated a student success culture and/or primed interest in using data, which allowed changes to take hold more quickly. For these institutions, momentum for transformation also grew when their missions and strategic plans matched their student success goals or built on previous work. Conversely, at institutions that experienced lengthy, expensive, and ultimately ineffective organizational change initiatives, leaders, staff, and faculty reported facing greater resistance from key players in the campus community to implementing new initiatives.

2. Taking an Integrated Approach to Transformation

Introduction

As Frontier Set institutions connected the dots and moved toward more holistic and deeper change, AIR observed these institutions integrating their student success efforts into a broader, more coherent approach. Their efforts helped to bring various people, departments, and initiatives together into more closely coordinated efforts to improve student success. They also helped to enable a more integrated approach to transformation by more tightly aligning institutions' agendas, strategies, and objectives with the means of achieving them.

Four processes appeared to help institutions take a more integrated approach to transformation: (1) strategic planning, (2) using student experience frameworks to guide change, (3) cross-functional efforts, and (4) reflection. These four processes did not occur in isolation. Instead, they were interconnected and built upon each other as the institutions' work advanced. For example, some leaders described how a focus on students' experiences during the strategic planning process led them to identify and use a student experience framework. Both the strategic plans and the resulting student experience frameworks provided the basis for systematic reflection on current practices and how they affect students. Moreover, almost every institution emphasized that student-centered change requires reflection on the student experience in a cross-functional way. Together and working in concert, these four elements forged integration by bringing together the strategic vision, direction, and the processes needed to achieve transformation.

For institutions interested in undertaking transformation, these findings suggest that taking an integrated approach (i.e., bringing together institutional resources and capacities in a coherent and coordinated way) is a key aspect of sparking and sustaining transformation. Integrated approaches may look different across institutions, but we found that strategic planning, student experience frameworks, cross-functional teams and committees, and a commitment to deep reflection are key activities that facilitate integration.

Strategic Planning

Institutions used both the strategic planning process and the resulting strategic plan to spark and sustain integrated approaches to transformation. Leaders leveraged strategic planning to orient their institutions toward student success. These leaders often grounded the process in cross-departmental structures (e.g., working groups comprised of staff and faculty from different departments), which helped to set the tone for an integrated approach. For example, leaders, staff, and faculty were heavily involved in the development of the strategic plan, "Reach and Rally," at Wake Technical Community College. Members of each group had the opportunity to provide input into developing new goals that aligned with the community college's priority needs, which cultivated broad-based understanding and buy-in. Thus, the strategic planning process brought together otherwise siloed departments and staff and helped to forge a collective understanding of student success and institutional goals.

For institutions with strategic plans or that underwent the strategic planning process during the years of the initiative, the plan itself served as a tangible blueprint and consistent reference point that helped them to organize the vision and strategize the transformation. At one college, a staff member indicated that departmental leaders were required to annually assess their progress in reference to their institution's strategic plan. According to this staff member, this annual assessment process ensured that "at all different levels, and all different units, [everyone had] the same focus, same goals." As a formal document, strategic plans help to motivate and sustain transformation by articulating the institutions' values, objectives, and associated actions and investment decisions. Strategic plans also provide a sense of continuity even when institutions experience leadership turnover; the strategic plan provide a foundation for future leaders to build and elaborate on what has already been established or is already in progress. For example, the new, incoming president at Guilford Technical Community College was able to (a) maintain the strategic plan's core focus on student success initiatives and (b) initiate a renewed vision for and commitment to equity.

Using Student Experience Frameworks to Guide Change

Most campus leaders and staff cited student experience frameworks—such as Guided Pathways, the Loss/Momentum Framework, and other locally branded alternatives—as crucial anchors for their student experience. These frameworks also charted a path for designing, communicating, and implementing an integrated approach to transformation. Miami-Dade College's Shark Path is one example of a homegrown student experience framework. Shark Path was a coordinated and coherent set of strategies, programs, and activities designed to guide students at each stage of their college and career journey, much like the Loss/Momentum Framework.

Institutions used student experience frameworks to facilitate integration of resources and capacities in several different ways. First, student experience frameworks typically complemented strategic plans that were centered on student success, thereby anchoring student journeys and pathways to broader institutional goals and objectives. Second, student experience frameworks bridged silos across existing departments by bringing faculty and staff together on a common path toward shared student success goals. Third, institutions reported using student experience frameworks as a tool to communicate to staff across units and to help them visualize how their individual work connected to and advanced broader efforts to improve the student experience and student success. Reflecting on the implementation of Guided Pathways at one community college in the Frontier Set network, senior leaders shared, "It just felt like we were getting a direction that we hadn't had. We were all doing things, but now [our efforts] attached [themselves] to each other and now that structure could push itself forward." Student experience frameworks helped focus institutional actions (i.e., implementation of key initiatives and reforms) and provided the big picture view of how these actions advanced progress on student success.

Cross-Functional Efforts

Institutions relied on some form of cross-functional conversations to identify which, when, where, and how academic services, supports, programmatic initiatives, and institutional capacities had to be coordinated to improve and streamline the student experience. Cross-functional interactions typically involved teams with

cross-unit representation, often at the leadership level but sometimes at the staff or faculty level. Examples included subcommittees, working groups, task forces, and initiative-based project teams that brought together leaders, staff, and faculty from across the institution. Some cross-functional structures showed up as time-bound and/or project-based groups, and others were standing committees that met regularly to review data and monitor progress. Most if not all institutions had at least one cross-functional committee or working group, but their membership, charge, scope, and even duration varied widely across institutions and even within institutions.

Institutions' cross-functional efforts appeared to facilitate integrated approaches to transformation in three ways. First, by bringing together different units and people, cross-functional groups raised awareness about how their work was connected and brought clarity to how their work advanced the institution toward a shared vision for improving student success. This heightened awareness and encouraged joint ownership among leaders, faculty, and staff around problems and solutions. For example, Northeast Wisconsin Technical College relied on cross-functional subcommittees and task force structures to implement a shift from 15- week terms to 8-week terms, a change that touched every aspect of how the technical college operated. Faculty were heavily involved in these cross-function groups because the entire academic curriculum had to be revised to align with the new 8-week terms.

Second, when rooted in a commonly accepted student experience framework, cross-functional interactions helped leaders and staff form consensus and mobilize around key priorities. Cross-functional teams facilitated collaborative and inclusive sensemaking around the student experience, especially in the context of competing priorities and agendas between different departments.

Third, cross-functional structures invited a more diverse set of people and perspectives into various institutional processes, which helped to generate more broad-based buy-in across departments for the institutions' vision and strategic objectives. For example, University of Central Florida emphasized committee representation by level in the organizational hierarchy. At Claflin University, students were represented in some way on every committee convened. Campus leaders and staff typically referenced these examples as strategies that they anticipated would help them to improve the outcomes and experiences of their students.

Reflection

Systematic mechanisms and supports to encourage regular reflection enabled institutions to determine if they were generally on track with their integrated approaches to transformation or if course corrections were required. Reflective practices were often grounded in data about students' experiences, including locally defined KPIs and student-level administrative data. By disaggregating these data by different key characteristics (e.g., race/ethnicity, Pell Grant status, and first-generation status), institutional leaders were better equipped to identify potential inequities in student outcomes (in the context of their commonly shared student experience framework) and to prioritize areas of reform. Reflection presented opportunities for leaders to solicit feedback from staff and students, which reinforced a culture of accountability for shared goals and processes for student success and equity. One mid-level leader at a community college, which encouraged staff and faculty to regularly reflect within their cross-functional

workgroups, shared that their reflective practices were “very empowering to all [the] staff members” because they felt like they had a direct influence on the institution’s decision-making process.

For many institutions, reflection served as the heart of collaborative problem-solving and continuous learning—enabling leaders, faculty, and staff to jointly examine organizational structures and policies, identify and address barriers, and implement solutions and improvements. Institutional leaders reflected on the success of pilot and/or small-scale initiatives to determine which ones warranted the investment needed to scale. More broadly, reflection was a critical process by which senior- and mid-level leaders made decisions about annual budgets and the reallocation of resources. The opportunity to jointly engage in these processes in a reflective manner forged integration by encouraging faculty and staff to engage critically and regularly with the broader strategic visions and student success objectives of their respective institutions.

3. The Role of Strategic Mid-Level Leadership

Introduction

Presidents often earn the most credit and visibility for transformation efforts and institutional performance. Although senior leaders are critical in setting the vision, establishing priorities, and allocating resources, the role of mid-level leaders in enacting and implementing transformative change cannot be overlooked or underestimated. During the course of the initiative, the significant role of mid-level leaders emerged as crucial.

Senior leaders, mid-level leaders, and staff reflected on the ways that mid-level leaders often serve as critical *connectors* or liaisons between senior leaders and the faculty and staff in their divisions or respective units. Mid-level leaders do a lot of heavy lifting, making sure that everyone is cooperating and heard. Mid-level leaders are often the voice of reason for senior leadership, as they are in a unique and influential position because they have the ear of senior leaders and they can communicate up to those leaders because of their first-hand understanding and familiarity with the work, successes, and challenges of front-line faculty and staff who engage directly with students. Additionally, senior leaders often involve and engage mid-level leaders in key meetings and decisions so they also have direct and first-hand understanding and knowledge of the reasons and rationale behind key institutional decisions, priorities, directions, and actions. Therefore, mid-level leaders are in a position—and often relied on by senior leaders—to translate and champion leadership's vision and goals down to members of the campus community. Mid-level leaders also led the development of continuous improvement plans for initiative-based project teams involving multiple departments, working groups, and/or subcommittees. Mid-level leaders are not effective just by virtue of being in that position. Mid-level leaders that were perceived and described as effective exhibited and leveraged a common set of critical competencies to include communication, collaboration, and data literacy.

Mid-level leaders are crucial for transformation. They translate the senior leaders' vision to the entire campus community, and implement actions and practices in their departments that reflect and enact that vision. For senior leaders looking to transform their institutions, these findings highlight the need to support mid-level leaders in their efforts to improve student success and the strategies for doing so.

Mid-Level Leader Roles and Competencies

Institutional transformation is not achieved through the efforts of senior leaders alone but rather through collaboration across leadership tiers (e.g., provosts, directors, staff, etc.). Mid-level leaders serve as critical connectors or liaisons between senior leaders and the faculty and staff in their divisions or respective units.

Senior leaders commonly referenced communication, collaboration, and data literacy as especially important competencies for mid-level leaders to have with respect to their ability to meaningfully contribute to and positively affect transformation and equitable change. Mid-level leaders are uniquely

positioned to (a) translate senior leaders' institutional vision to the faculty and staff they oversee and (b) identify and implement actions and practices in their units and divisions that reflect and enact that vision.

The manner and effectiveness of the communication of and by mid-level leaders play an important role in gaining buy-in for change from faculty and staff. Likewise, the ability of mid-level leaders to clearly communicate up to senior leaders the concerns, issues, and questions of faculty and staff related to changes being made and what they are hearing and seeing among students can support continuous improvement and help to ensure that institutional approaches to transformation are addressing the needs of the students and broader campus community. The ability of mid-level leaders to collaborate well with others, across divisions and units, and with senior leaders and faculty and staff alike was another way through which mid-level leaders were effective in enabling and advancing transformation efforts on their campuses. Finally, mid-level leaders were described as particularly well-situated to guide positive changes when they were able to access and accurately interpret the data being reported—and then to communicate and collaborate around that data to identify where new or different student supports were needed to improve the student experience and close disparities in student outcomes.

Mid-level leaders drew on and implemented fluidly (and in tandem) three key competencies: communication, collaboration, and data literacy. Although the competencies are described separately, they are not mutually exclusive. Instead, they are interrelated skillsets that are most impactful for mid-level leaders.

Communication

According to campus leaders and staff interviewed by AIR, effective mid-level leaders communicated—via information-sharing, listening, and advocating—upward with senior leaders; laterally with other mid-level leaders representing other units; and downward with frontline staff and faculty given their place in the organizational hierarchy. Mid-level leaders also led significant portions of change management at their institutions, communicating why changes were being made and how they would affect others, which is a significant and challenging role. At many institutions, mid-level leaders used their positions to elevate student voices and ensure that student success efforts and the overarching institutional strategy reflected student needs. One mid-level leader at Sinclair Community College shared the importance for mid-level leaders to "be able to properly listen and hear what the students are saying, and then hear what my peers are saying, and the people on my team. And then transferring that information and passing it on to leadership so that it's understood to the best of my knowledge and their knowledge, so that it could add value to making everything better." In helping to promote a shared understanding of student needs across leadership tiers, communication served to ensure that the institutional strategy and corresponding initiatives were based on accurate representations of the student experience and on community needs.

Mid-level leaders also helped to elevate information about the student experience and community needs in decision-making processes. Using this approach, mid-level leaders helped to ensure that their institutions pursued transformation while considering the needs of Black, Latino, and Indigenous students and of students from low-income backgrounds. The background, priorities, and skills in navigating conversations about equity varied and may have influenced or shaped what advanced at some institutions.

Collaboration

The role of mid-level leaders often involves making cross-functional efforts work by facilitating collaborations to improve both student and community experiences. With respect to the student experience, collaboration helped mid-level leaders cultivate a shared understanding of student needs across units. Collaboration involved negotiating across departments—recognizing and identifying implications of certain decisions, programs, or initiatives across departments, including at times, where resources might need to be reallocated to best support improvement efforts. With regard to cross-functional collaboration, for example, a mid-level leader at University of North Carolina-Greensboro said, "I think it really requires people to think outside the box of what their day-to-day responsibilities are and instead kind of zoom out and be able to appreciate this change or this program or this initiative that I'm considering over here, how does that impact the work of others and the experience that students will have with others on this campus? And then bringing the right voices into the fold or elevating concerns or elevating solutions."

Collaboration is critical for building a shared understanding of community needs, which relate to and extend beyond the needs of students. Many institutions, particularly minority-serving institutions, involved community partners in strategic priority setting and solution generation to meet the needs of students and the community as a whole. For example, leadership at Johnson C. Smith University (in Charlotte, NC) collaborated with key workforce partners in the city to develop its strategic plan with the intention of increasing economic mobility in Charlotte. As is the case here and at other minority-serving institutions, collaboration with community partners reflects an institutional commitment to serving—rather than simply enrolling—Black, Latino, and Indigenous students and other prominent student populations in the surrounding community (Allen et al., 2007; Garcia, 2019). In some cases, mid-level leaders at predominantly White institutions took similar approaches, working collaboratively with community partners to fulfill their institutional missions. For example, Sinclair Community College collaborates with "workforce partners that directly impact students' success" and aligns its Guided Pathways framework with the needs of these partners because it is a community college.

Data Literacy

At transforming institutions, mid-level leaders are empowered in their roles to communicate consistently about data. The ability to read, understand, analyze, and communicate data allowed mid-level leaders to identify issues in performance within their units and make data-informed decisions about how to improve outcomes. For example, senior leaders at Georgia State University reported that mid-level leaders "are expected to use data to evaluate the impact of initiatives on student outcomes and make frequent, data-informed improvements." Mid-level leaders also routinely used disaggregated data to identify opportunities for improvement For example, mid-level leaders at one community college analyzed data specifically related to the challenges of students who are parents to identify student-centered approaches and wraparound services that addressed the unique needs of this student population.

To ensure alignment in data use, and in recognition of the role of data-informed decision-making in closing institutional performance gaps between student groups, some institutions implemented professional

development courses to help mid-level leaders increase data literacy. For example, Northern Arizona University piloted a learning community to train faculty on how to identify disparities in student outcomes and implement student-centered approaches at the course level. At another college, an office of research, analytics, and reporting works to support staff in the monitoring and ongoing evaluation of student success initiatives.

The Supporting Role of Senior Leadership

Although senior leaders typically set the tone and vision for transformation, mid-level leaders helped to translate this vision into student success improvements. Institutions reported four important ways in which senior leaders empowered mid-level leaders in the transformation process by (1) positioning mid-level leaders as decision makers and innovators as a way to develop in them a sense of shared ownership in the transformation, (2) democratizing budget processes to increase transparency and buy-in, (3) aligning purposes through strategic priority setting, and (4) increasing access to actionable data.

Example of Supportive Senior Leadership

Senior leaders at San Jacinto College (SJC) adopted several strategies to increase the visibility of mid-level leaders in the institution's transformation efforts. Mid-level leaders were regular attendees of the Chancellor's sessions at SJC, which allowed mid-level leaders to engage in routine decision making, helped put the needs of students and the community at the center of decision making processes, and increased buy-in for change among the campus community. SJC adopted a decentralized budgeting model that provided resources to support mid-level leaders in developing budgets for their departments. To increase data literacy, SJC standardized its metric definitions so that mid-level leaders could interpret and utilize monitoring data, have confidence in their measures, and implement changes as needed.

Positioning Mid-Level Leaders as Decision Makers and Innovators

Senior leadership demonstrated respect and trust by providing opportunities for mid-level leaders to attend key meetings and including them in decision-making conversations. Importantly, the intentional involvement of mid-level leaders in decision making was routinized through standing processes. These processes included recurring meetings between mid-level leaders and other campus leaders and often extended beyond punctuated strategic planning efforts. Senior leaders also encouraged a culture of solution generation and experimentation among mid-level leaders. Senior leaders were willing to test new approaches, allow mid-level leaders to contemplate student-centered approached and embrace failures as learning experiences. These supportive efforts empowered mid-level leaders to translate what they were hearing about student and community needs from collaborative efforts with faculty, staff, and students; communicate these needs across leadership tiers; and develop tailored student-centered approaches.

Democratizing Budgeting Processes

Most institutions allocated greater resources to key student success priorities and used institutional student success data to inform resource allocation decisions. More than half of the institutions

decentralized or were in the process of decentralizing budget processes in which mid-level leaders and staff in student-facing positions provided input during the budget process. Senior leaders at these institutions committed to a decentralized budget process with the realization that they would cede power over budget decisions to other staff. The inclusion of mid-level leaders in the budget process facilitated communication about budgeting across leadership tiers and cultivated buy-in for initiatives to address student and community needs.

Translating Vision Into Strategic Priorities

Senior leaders have a role in establishing and engaging the institution in a shared vision for student success, which then enables mid-level leaders to be successful in translating that vision into strategies and changes. As discussed elsewhere in this report, student experience frameworks, strategic planning, and cross-functional groups played an important role in helping to align expectations among mid-level leaders and orient transformation efforts. Senior leaders at many institutions took a strong stance on equitable student outcomes during the COVID-19 pandemic and in the wake of George Floyd's murder. This empowered mid-level leaders to grapple with tough topics and get creative in trying to meet student needs. Another strategy senior leaders used to coordinate transformation efforts was to link their institutional mission to KPIs. Almost all institutions pointed to long-term KPIs as measurable outcomes—namely, improved retention and degree completion rates. Although most institutions did not identify specific KPI targets they were aiming to hit, roughly half explicitly pointed to narrowing disparities in student outcomes as something they had hoped to achieve. Some institutions even expressed interest in developing more explicit definitions and metrics to ground efforts in measurable outcomes.

Supporting Widespread Data Use

Senior leaders have the important role of expecting timely data for decision making and making data accessible across leadership tiers. The literature describes inclusion of mid-level leaders in data interpretation and decision making as an important step in moving from a culture of evidence, in which data are collected to demonstrate the effectiveness of an approach, to a culture of inquiry, whereby practitioners use data to create institutional knowledge and inform practice (Dowd, 2005). Most institutions sought to build data infrastructure and democratize data use across functions, which are prerequisites for developing a widespread culture of data inquiry. To do this, institutions used such strategies as standardizing data sources and metrics, increasing the availability of data, and providing professional development around data literacy. Many institutions also reported using proactive reflection and data in strategic decision making (as discussed elsewhere in this report), suggesting that some institutions developed a culture of data inquiry as change leaders put new and improved data processes into practice.

4. Targeted Institutional Improvements to the Student Experience

Introduction

Transformation refers to broader and more integrated changes that affect all aspects of an institution at some point (such as the vison of leadership, strategic planning, and student success frameworks). Early on, the Frontier Set network focused on making changes to the student experience that existing research has demonstrated can improve student success. The initiative prioritized three areas for improvements in the student experience: (1) advising, (2) developmental education (i.e., new or modified course-taking models for students assessed as needing additional academic supports to complete college-level coursework), and (3) digital learning (Dabbagh et al., 2019; Grossman et al., 2015; Jenkins et al., 2018; Karp et al., 2016; Park et al., 2018). Several institutions invested in reforms in these areas before joining the initiative.

Frontier Set institutions approached transformation from different starting points and under different sets of conditions. Throughout their transformation efforts, these institutions prioritized changes around, learned about, and integrated evidence-based reforms to improve advising, developmental education, and digital learning. Based on the available knowledge base and these findings, institutions seeking to transform may want to consider these areas of the college student experience as key targets for institutional improvements to student success.

Advising Reform

Institutions described advising as a structure and function that, if of high quality and equitably accessed, plays a critical role in helping students to navigate their college experience and move along their degree pathway in ways that align with their goals. Institutions engaged in efforts to reform advising structures by, for example, reorganizing staffing, modifying or enacting new models and approaches and implementing or enhancing technology to better track students across units, and removing barriers that prevented persistence and completion. Institutions also designed strategies to enhance programming services for students in ways that could complement their campus's core advising practices, such as orientation and other holistic supports. Advising reforms included improvements in (a) advising staffing and structure, (b) advising technology, (c) advising strategies, and (d) advising programs and supports.

Advising Staffing and Structure

Institutional leaders invested in improving the capacity of advising staff to provide higher quality and more equitable advising services and in developing more student-centered practices. Several institutions reorganized departments and changed practices and policies around advising assignments, caseloads, and who served as advisors (e.g., professional advisors, faculty, or a combination thereof) to best support and advise students at different points in their degree plan. Institutions, seeking the right model for their campus, took various paths to improvement. Some institutions moved toward or sought to improve decentralized advising models, often relying on faculty involvement to guide and maintain relationships

with students. Others moved to a more centralized advising model with the intent of streamlining and ensuring higher quality, more consistent, and increasingly equitable (ideally) advising services for all students. Regardless of the reforms and improvements selected, initiatives and investments in redesigning the structure and staffing for advising were ultimately intended to increase the likelihood of persistence and on-time graduation.

An Advising Reform Example

Campus leaders and staff experienced successes, improvements, and challenges from advising-focused structural reforms. For example, one community college's transformation process focused strongly on redesigning the campus advising model. The institution saw this as a key initiative that would address multiple barriers to improving student success. Spurred by student feedback and input on what was missing in the previous model, the new model aimed to provide more cohesive and straightforward guidance on the courses in which students should enroll. This community college attempted several different strategies to meet the needs of students, moving from using specialists as academic counselors, to a generalist model, to hiring full-time student success coaches who would mentor and coach students and assist advisors. However, each transition presented new barriers, as neither generalist advisors nor student success coaches demonstrated the skills or training needed to adequately serve the student population, which includes adult learners who commute, work part or full time, and support families. The community college ultimately moved to a first-year advising model that featured career and academic advisors who provided guidance and established relationships with students from entry to completion.

Advising Technology

The addition of advising technology was among the most common advising reform. Many institutions initiated reforms in this area before the Frontier Set began. Early alert systems, chatbots, case management systems, predictive analytics, and progress-tracking technology were common mechanisms used to transform campus advising models and approaches. Several institutions also used technology to support structural changes in advising departments. For example, one Historically Black College and University (HBCU) used DegreeWorks to integrate real-time data into its newly centralized advising model to improve the student experience and support transformation.

Advising Strategies

Leaders described changes to strategies and policies related to student advising services. Several institutions worked to improve advising by implementing specific strategies and campaigns (e.g., *15 Strong to Completion*), developing new processes (e.g., creating liaison positions for communicating with departments in a centralized advising model), or implementing advising-related professional development.

Advising Programs and Supports

Institutions shared that advising services offered to students at pivotal points (e.g., enrollment and registration) and providing continuous support were integral to efforts to improve student success. Advising reforms linked to programming and supports included modifications to standard campus activities, such as orientation, degree planning, academic supports, ongoing advising, and peer or faculty mentorship. Although few institutions reported such modifications, most of these efforts were initiated concurrently with the Frontier Set initiative. For example, in fall 2017, one university introduced its Student Success Collaborative, a program designed to create a coordinated care support network for all students on the campus. Members of the IT team led the Collaborative, and staff and leaders from other units—including advising, academic supports, and student supports—also supported the development and implementation process.

Developmental Education Reform

Institutions commonly focused on reforms to developmental education models or alternate approaches to supporting students who need academic support to be successful in college-level gateway courses. Nationwide evidence suggests that students are more likely to succeed in core college-level courses if they have adequate access to additional academic supports (Boatman, 2021; Coca et al., 2022; Edgecombe & Bickerstaff, 2018; Logue et al., 2016, 2019; Miller et al., 2022). Even institutions that did not have formal, prerequisite, noncredit developmental education models recognized the importance of ensuring all students have access to academic supports to successfully complete key gateway courses, to be on a streamlined path to earn college-level credits, and to graduate on time. For example, some institutions revised developmental education placement practices and policies to improve accuracy of placement or to ensure that students testing below college-level could get the level and type of academic supports needed to successfully engage in and complete a college-level course. Other types of reforms in this area included (a) curriculum redesign, (b) corequisite remediation, and (c) general academic and nonacademic supports.

Curriculum Redesign

Curriculum redesign involved modifying the content and/or the sequence of core courses (e.g., math, English) to support student learning and, often, to align the content across courses. Several institutions reported engaging in efforts to revise their curricular models, many of which indicated having started such reforms before joining the initiative. For example, one university redesigned its gateway courses to improve and standardize teaching and learning practices. The university targeted courses with low passing rates (e.g., algebra) and redesigned the course curriculum to help students, who are impacted by systemic issues with under preparation, to become more likely to complete foundational courses and succeed in upper-level courses.

Corequisite Models

Multiple institutions implemented corequisite models that place students directly into credit-bearing courses that are supplemented by additional and simultaneous learning supports. The goals of these

models are to (a) eliminate the time and stigma of being placed into prerequisite courses and (b) help students to build momentum toward their degrees. Such changes are part of an effort in many states. In fact, state mandates were a common impetus for such reforms, and multiple states required institutions to adopt corequisite models, in some cases well before the initiative began. For example, one community college developed a corequisite model in 2017 to meet a state mandate. The state mandate requires 100% of students, who are assessed as needing developmental education, to be enrolled in corequisite courses as of the 2020–21 academic year. The community college started realigning practices, academic programming, coursework, and course placement policies and advising. The process was challenging and difficult, particularly in terms of addressing institutional capacity to serve the students in corequisite models, but the college was able to meet the 100% enrollment target.

Other institutions implemented accelerated learning models for their developmental math and English courses. For example, William Rainey Harper College worked with its feeder high schools to develop and implement strategies to reduce remediation in both math and English. The partnership focused on curriculum alignment that resulted in a math course and an integrated reading and writing course that seniors could take in high school and use for placement at the college. The corequisite math and English courses that were developed drastically reduced the path from entry to completion of gateway courses.

Other institutions opted for broader, more holistic strategies to support such students. For example, the Biddle Institute at Johnson C. Smith University provides personalized attention, tutoring, and advising to students who do not meet GPA or testing (i.e., ACT/SAT) requirements for admission while they are enrolled in gateway courses.

General Academic and Nonacademic Supports

Beyond developmental education reforms, many institutions developed either targeted or universal supports for first-year students, supporting both academic and nonacademic needs (e.g., financial, social, emotional, physical, and mental well-being). Although all institutions addressed such needs to varying degrees, a few institutions appeared to do so with intent, applying specific policies and procedures to center those needs across campus units. Strategies in this area ranged from implementing student success courses and supplemental supports, to instilling effective study habits, to initiatives that seek to improve students' sense of belonging. For example, one university targeted supports to underrepresented groups as a core component of its approach to transformation. The institution implemented multiple intensive supports, including a program that provides a holistic system of support to improve retention and graduation rates of Black male students.

Digital Learning Reform

Many institutions implemented and expanded digital learning reforms to improve students' outcomes and experiences. Although investments in this area began before 2020, the transition to virtual learning spurred by the COVID-19 pandemic accelerated institutional efforts to transform digital learning environments and provide additional resources. Many institutions set out to increase student success by using digital strategies and providing faculty and students with training and adaptive courseware to promote more

equitable outcomes for all. Depending on their previous digital learning efforts and their overall strategies for digital learning, institutions prioritized different aspects of digital learning reforms, including (a) implementing adaptive courseware, (b) training faculty and students on digital learning and courseware, and (c) standardizing the quality of online programs.

Implementing Adaptive Courseware

Institutions reported that their investments and improvements in digital learning infrastructure, particularly initiatives related to adaptive courseware, largely started during their participation in the initiative. Adaptive courseware provides students with a flexibly paced and personalized learning opportunity for a particular course based on current knowledge and skill to improve the rates at which students pass the course. Several institutions, including multiple 4-year institutions and institutions in the University Innovation Alliance–Association of Public and Land-Grant Universities, implemented adaptive courseware technologies.

Training Faculty and Students

Many institutions developed training for faculty and students on how to effectively access, use, and engage in online teaching and learning platforms and content. Although many institutions invested in digital learning reforms before 2020, the COVID-19 pandemic caused several institutions to invest in digital learning-focused professional development for staff and faculty. The priority on faculty training was driven by a belief that online learning would have a positive effect on students if faculty were trained to ensure that their instruction and student engagement activities were consistent with best practices for online learning. For example, one university supported faculty and staff by creating communities of practice, including a unit supporting pedagogical practices for digital learning and courseware. Other institutions established helplines to provide ad hoc support for faculty and staff as they transitioned to a virtual learning environment. Institutional efforts to expand and improve virtual learning often resulted in an overall expansion and increase in digital learning capabilities across campus communities. Many institutions also provided digital learning supports and services to students to help ensure they could effectively access and engage in online learning. This included providing alternative access to courses and services for students with limited internet connectivity and for those without personal technological devices.

Standardizing the Quality of Online Programs

Four-year institutions tended to create additional online degree programs to support transformation, and 2-year institutions tended to focus on standardizing the quality of their online programs and courses. Efforts to regulate quality included enhancing existing structures and processes that support online education; investing in digital resources (including software and hardware) to support digital learning reforms; increasing accessibility to course materials; and sourcing digital tools including open educational resources, iPads, and laptops.

5. Technology and Data Support for Transformation

Introduction

Across institutions of higher education, campus leaders and staff are increasingly looking to harness IT (information technology) and IR (institutional research) capacities to support their institutional operations, including their efforts to enrich the student experience and improve student success. Research suggests that (a) IT can serve as a valuable tool in facilitating a personalized and self-directed learning experience and in providing timely feedback to students (Dabbagh et al., 2019) and (b) IR can provide vital data and insights to inform and facilitate institutional actions around student success (Gagliardi & Johnson, 2019). Moreover, by strengthening the integrated and cross-institutional use of IT and IR supports, institutions can implement broad institutional strategies for student success more quickly and efficiently (Parnell et al., 2018).

Consistent with this research and broader higher education trends, Frontier Set institutions commonly turned to IT and IR to support transformation. They became increasingly dependent on these two functional areas to inform decision making and guide specific student success initiatives, especially when it came to integrating and providing implementation support for software and technology-based systems, and to using disaggregated and timely data to identify priorities and target resource allocation. Institutions also sought to break down siloes between IT, IR, and other institutional units in recognition of the critical and integral role of these capacity areas in driving cross-functional and cross-departmental collaborations.

For institutions seeking to transform, these findings suggest that to maximize effectiveness of these efforts, institutions should be strategic in and plan carefully for their investments in IT and IR, with an eye toward integrating systems, data literacy training and professional development, communication, and staff and faculty engagement. When considering how to engage IT and IR capacities in transformation efforts, institutions may need to consider how factors unique to their institutional or state context may affect their work or decision making. For example, structural barriers related to institutional reorganization (e.g., merging or adding campuses) affect how IT and IR systems may be combined or work across newly added campuses or units.

Information Technology Supports

Strategic investment in IT capacity supported institutions' work on student success in two ways. First, institutions sought to integrate IT into the process of designing, implementing, and reviewing student success initiatives involving technology systems or platforms, often by including IT staff in cross-functional teams designed to oversee the initiative. For example, when overhauling its technology systems to better support student success initiatives, the University of North Carolina-Greensboro purposively involved IT as a strategic partner. As part of the IT steering committee, the chief information officer met weekly with the provost and chief financial officer, and the chief information officer reported directly to the chancellor. By

leveraging the expertise and support of IT staff, Frontier Set institutions were able to mitigate unanticipated technical issues and provide smoother adoption of technology.

Second, institutions used their IT capacities to better meet student needs. In particular, they looked to online student supports as a way to broaden student access to key resources and supports beyond the brick-and-mortar campus; this is a key consideration in providing equitable supports for students for whom commuting to a physical campus may be difficult (e.g., those located in remote or rural areas, or those who have work or family obligations that make accessing services during business hours challenging). In addition, IT systems supported more coordinated responses to student needs by allowing those in different positions across campus access to student information (e.g., case management systems). For example, many institutions integrated pathway planning and degree mapping into new or existing technology platforms—such as Canvas, Moodle, Blackboard, and DegreeWorks—to streamline course trajectories, especially for students who strayed from their established plans, and to reach the ultimate objective of improving college course completion rates.

Data Access

At many institutions, investment in IR accelerated institution-wide decision making. In general, institutions used one of two models to leverage IR:

- Centralized, in which a team of IR staff provide compliance and research data on request, and
- Decentralized, through which administrators and staff at all levels have access to data to make decisions.

Whether IR is centralized or decentralized within an institution has implications for how IR supports transformation efforts. When IR is centralized, institutional efforts can be streamlined; however, a centralized IR function can limit broader access to data and data literacy. On the other hand, a decentralized IR function can democratize data access across campus for broader use but it requires intentional investment in professional development and training to support increased data literacy. For example, one university placed business analysts in departments across campus to ensure faculty and staff have access to timely support in accessing, interpreting, and applying data to their work. Data literacy trainings at this university have demonstrated success in helping faculty and staff respond to student success metrics.

Regardless of the model used, institutions that actively used data in making strategic decisions sought to establish a more data-driven institutional culture by incorporating IR leadership into key decision-making structures and incorporating KPIs in key documents and systems, such as strategic plans, dashboards, and performance scorecards. For example, Santa Fe College adopted data circles, in which faculty and staff form teams that gather regularly to discuss data-related topics and issues. This approach helped the college mainstream data usage throughout the institution and improve data engagement and literacy.

In addition, institutions used data to develop and refine student success initiatives. Institutions that were most successful in using data to guide student success efforts were those that encouraged cross-functional

teams and ideas and had a robust data infrastructure, which systematically provided the necessary data to make informed, evidence-based decisions. For example, Delaware State University's deep investment in its IR team's capacity to improve data-informed decision making helped to strengthen students' transitions into college. IR identified inequalities in students' experiences with advising and developmental education approaches, which led to such reforms as the creation of individual development plans to improve student advising and the elimination of noncredited developmental education courses.

6. Student Data

Introduction

To observe how institutions advanced the goal of improving student success outcomes overall and for specific student groups, AIR examined KPIs at the 29 Frontier Set institutions, using data from the National Student Clearinghouse's Postsecondary Data Partnership (PDP).[1] Three KPIs were of particular interest for this analysis: 15/30 credit accumulation rate (CAR)[2] (near-term metric), retention rate (medium-term metric), and 150% graduation rate (long-term metric). These findings are descriptive in nature and focus on summarizing progress toward the broad goals of the Frontier Set initiative. The findings do not support causal inferences about how specific interventions or initiatives affect student outcomes.

It is important to keep in mind that the Frontier Set is a diverse group of postsecondary institutions that vary in enrollment size, undergraduate student demographics, and minority-serving institution (MSI) status. It is also important to acknowledge that because the Frontier Set initiative was not implemented as a specific intervention model with a defined or standardized program of institutional practices and transformation efforts, consistent student success outcomes across institutions and performance indicators are not expected. However, exploring the KPIs and trends over time can serve as determine directional signals to help contextualize and gauge whether the variety of structural, procedural, and practice and program changes implemented by Frontier Set institutions seem to be aligned with improved student success outcomes.

AIR's analysis of KPIs suggests that Frontier Set institutions advanced their broad student improvement goals. Based on KPI measures, institutions saw modest or steady increases in student outcomes, and when comparing student group outcomes to overall institution-level outcomes, there was little evidence that KPI rates were disproportionately lower for Latino students and students who were recipients of Pell Grants.[3] However, gaps in student outcomes persisted for Black students.

[1] Through the PDP contract process, Frontier Set institutions authorized AIR access to their PDP data. As part of these data sharing agreements, AIR agreed to use de-identified data elements for the purpose of producing reports of aggregated data and to maintain a comprehensive program of risk mitigation and information security.
[2] The 15/30 CAR represents the share of entering credential-seeking students who successfully completed enough credits to satisfy yearly credit thresholds in their first year (30 credit hours for full-time students and 15 credit hours for part-time students).
[3] This analysis uses Pell Grant recipient status as a proxy to identify students from low-income backgrounds, as the available data files did not include information on other indicators of income such as Pell Grant eligibility.

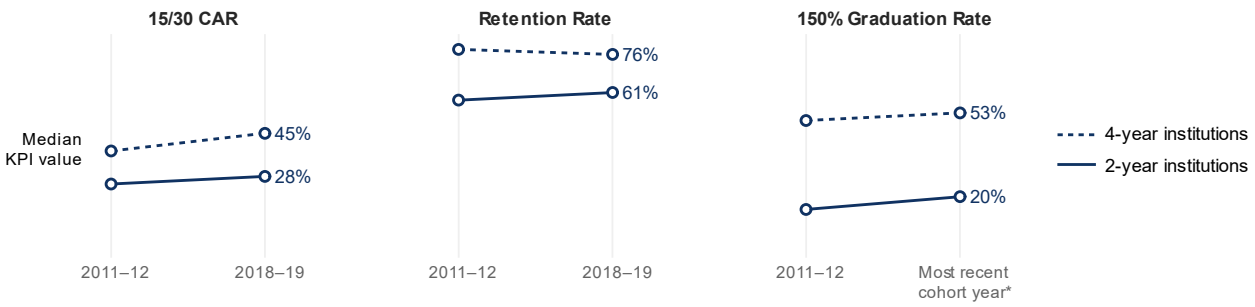
Institutional transformation might spur a lot of activity quickly, but it takes time to see changes—for example, changes stemming from investments in IR—that improve the student experience and KPI outcomes. Changes in outcomes may look slow and incremental, even if substantial changes in practice are happening. Based on the data available, we found that for Frontier Set institutions, improvements in KPI outcomes have been incremental. Institutions looking to transform should be prepared to see incremental improvements in KPIs, but they should not lose sight of the possibility that small improvements may add up to larger changes to student outcomes over time.

Overall Trends in Student Success KPIs at Frontier Set Institutions

Embedded in the definition of *transformation* is an implied theory of change that redesigning institutional structures, processes, and culture will enrich the student experience and ultimately accelerate improvement in student success outcomes. To strengthen our understanding of institutional improvement in KPIs, we studied the change in median outcomes between the 2011–12 cohort year and the most recent cohort year available (Exhibit 1).

- **There were promising increases in CARs,** a positive and near-term indicator of students' timely degree progress in recent cohorts. In particular, the median 15/30 CAR for 4-year institutions increased 7 percentage points between 2011–12 and 2018–19 (from 38% to 45%). Improvements in 15/30 CARs were more modest among 2-year institutions, with the median 15/30 CAR increasing 3 percentage points (from 25% to 28%) over the same period.
- **In general, retention rates remained steady.** The median retention rate fell by 2 percentage points for 4-year institutions (from 78% to 76%) and increased by 3 percentage points (from 58% to 61%) for 2-year institutions between 2011–12 and 2018–19. Because retention is a leading indicator of degree completion, these findings may forecast stagnant rates of improvement in the 6-year graduation rates at 4-year institutions and increased rates of improvement in the 3-year graduation rates at 2-year institutions.
- **Similar to CARs, 150% graduation rates saw positive gains**. The median 150% graduation rate increased 3 percentage points (from 50% to 53%) for 4-year institutions and 5 percentage points (from 15% to 20%) for 2-year institutions. Although encouraging, these increases may reflect activities implemented before the start of the Frontier Set initiative—particularly for 4-year institutions—due to the time lag between when students enter college and when they graduate.

Exhibit 1. Changes in median KPI values between 2011–12 and the most recent cohort year, by institutional level and KPI



* Due to the time lag between when students enter college and when they graduate, the most recent cohort year available is 2014–15 for 6-year graduation rate (150% of normal time), and 2017–18 for 3-year graduation rate (150% of normal time). The base cohort year for all KPIs is 2011–12.

Source. National Student Clearinghouse, Analysis-Ready data files, spring 2021.

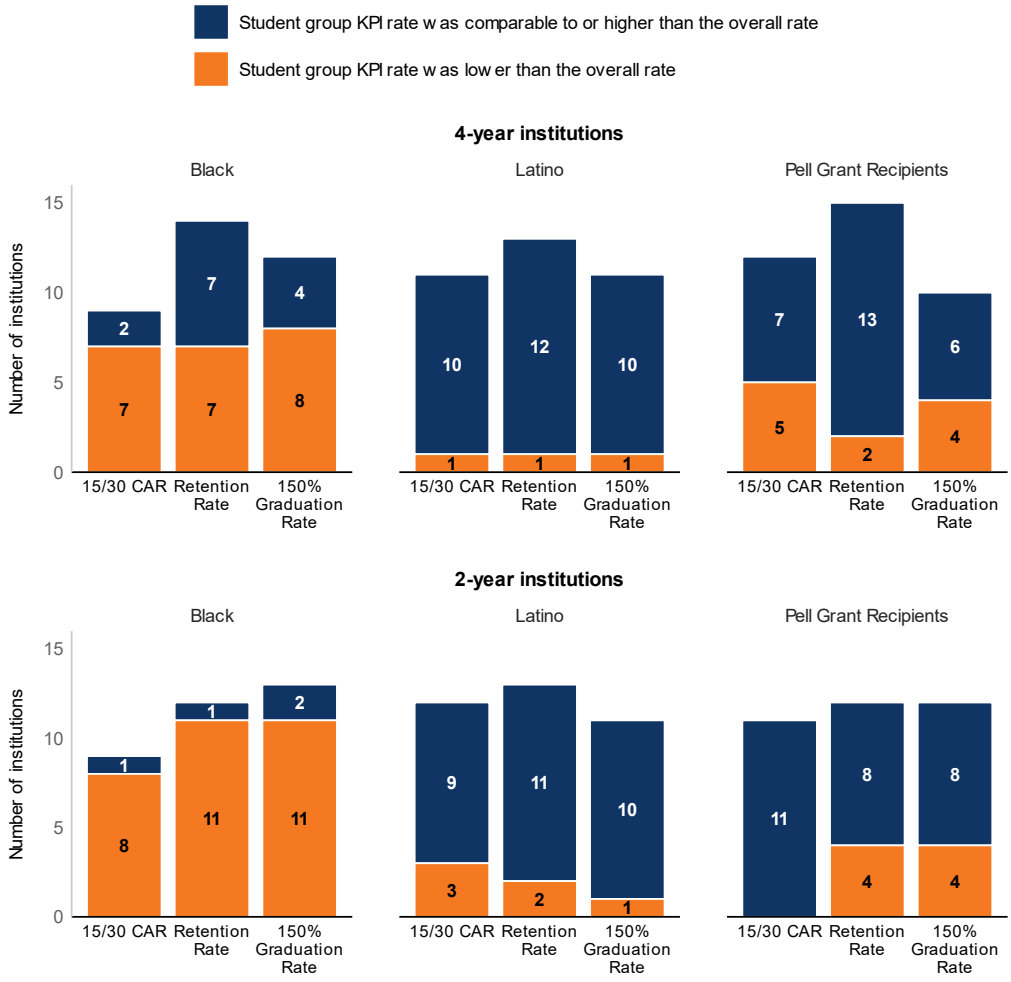
Equity in Student Success Outcomes at Frontier Set Institutions

Institutions seeking to achieve equity in educational outcomes among students from different sociodemographic backgrounds are working to change culture, organizational structures, and business models to reduce barriers to student success, particularly for racially minoritized students and students from low-income backgrounds (Carnevale & Strohl, 2013; Perna & Finney, 2014; Witham et al., 2015). Despite many ways to measure equity, this report compares a student group's KPI rate with the overall KPI rate at the institution (Exhibit 2).[4]

- **Across the KPIs examined, Latino students and students who were recipients of Pell Grants generally attained outcomes at rates comparable to or higher than the overall rate.** Among both 2- and 4-year institutions, no more than three demonstrated disproportionately lower outcomes for Latino students across the three KPIs examined. No more than five institutions reported lower outcomes for students who were recipients of Pell Grants.
- **We found strong evidence that outcomes were disproportionately lower for Black students, particularly at 2-year institutions**. Outcomes among Black students were lower than the overall rate at nearly all 2-year institutions: 11 of 12 (92%) institutions for retention rates, eight of nine (89%) for 15/30 CARs, and 11 of 13 (85%) for 3-year graduation rates. Although a smaller proportion of 4-year institutions reported lower outcomes for Black students, gaps in student outcomes persisted for seven of nine (78%) institutions for 15/30 CARs, seven of 14 (50%) for retention rates, and eight of 12 (67%) for 3-year graduation rates.

[4] See the KPI Technical Appendix for more information about this methodology.

Exhibit 2. Differences between KPI rates of student groups and the institution in the most recent cohort year, by institutional level, student group, and KPI



Notes. KPI rates are considered comparable to or higher than the overall rate if the difference between the student group rate and the overall rate was ≥ -3 percentage points (i.e., closer to zero or positive). KPI rates are considered lower than the overall rate if the difference between the student group rate and the overall rate was ≤ -3 percentage points. See the KPI Technical Appendix for more information about this methodology. Due to observed data quality concerns with data reported by some Frontier Set institutions and with the small sample size of the student group, student group data are not available for all KPIs. For this reason, the counts of institutions vary by KPI due to the data quality concerns or missingness of data elements required to calculate each KPI. To mitigate the confounding issue of large student groups that drive the overall KPI rate, we compared large student groups (i.e., those that represent 30% or more of the total cohort) with a subset of the cohort that does not include the student group in question (not with the total cohort). For example, at all HBCUs in the Frontier Set network, Black students comprised greater than 30% of the student population, thus outcomes for Black students were compared with the outcomes for all other non-Black students for these institutions. See Exhibit A-3 in the KPI Technical Appendix for a count of institutions for which this methodology was used across each metric and student group.

Source. Postsecondary Data Partnership Analysis-Ready files, spring 2021.

Looking Ahead

The Frontier Set initiative represents a substantial step toward exploring how and whether institutions can engage in broad and deep change—that is, transformation—in a student-centered way.

The Frontier Set initiative was distinct from other initiatives or studies, which often focus on one type of institution (e.g., regional groups of colleges or community college-focused initiatives like Completion by Design). Instead, Frontier Set institutions varied on almost every characteristic possible: geography (spanning 16 states), locale (rural, town, suburban, urban), level (2-year, 4-year, system offices), control (public and private), selectivity and research focus (ranging from open-access community colleges to R1 universities), and undergraduate enrollment size (ranging from fewer than 2,000 to more than 70,000 students, as well as state system offices engaging more than 20 institutions). They each had different missions, histories, previous experiences with national student success initiatives, and strategies. In particular, they had different historical missions related to race and equity, including HBCUs that had been founded due to racism and segregation, Hispanic-serving institutions that were beginning to consider what *servings* means for them, and other institutions that were recently grappling with the relationship between higher education and exclusion.

Frontier Set institutions did, however, have a common commitment to engage in this journey and share along the way their progress, challenges, reflections, and data. Each one charted a different path – the Frontier Set did not mandate a specific framework or approach --but AIR observed evidence of progress toward transformation at all of them. Despite their differences, we identified key findings related to what starts and motivates meaningful change, how institutions integrate individual efforts to advance student success, the role and conditions supporting effective senior- and mid-level leadership, common approaches to specific student-facing changes, and how institutional capacities support those changes. Although we do not yet know whether the institutions' metrics will steadily improve long term, we see some early indications that institutions implementing early changes intended to improve student success and equity are moving in the right direction.

During the course of the Frontier Set initiative, our operating definitions of both *equity* and *transformation* shifted. In fact, those words largely do not appear in early descriptions of the Frontier Set initiative, which instead use such phrases as "removing race and income as predictors of student success" and "integrated implementation of student-centered approaches." Initially, the implied theory of change for "removing race and income as predictors of student success" involved addressing issues that disproportionately affected students of color and students from low-income backgrounds – for example, prioritizing developmental education reform. The approach to addressing those problems was generally structural and universal – a "rising tide lifting all boats" approach. By the end of the Frontier Set, the group had a greater understanding of the ways that equity as an institutional capacity and practice would be necessary to address those problems in more equitable ways. In terms of transformation, we deepened our understanding from coordinated and integrated implementation of individual approaches (developmental education, advising, and digital learning reforms) to the much deeper realignment of structure, culture, and business model in ways that help to create a student experience that results in equitable improvements in

outcomes. The emphasis on deeper realignments and the focus on a full student experience represented a shift from focusing first on interventions to one of thinking about whole institutions and the roles that most units on campus play in student success.

Moving Forward

The key findings from AIR's observations of Frontier Set institutions suggest two implications for higher education in America:

- The responsibility for change is on institutions, not on students and
- Steps aligned to the Frontier Set network's definition of transformation can happen across institution types, locations, and sizes.

That said, the design and purpose of the initiative was primarily exploratory—to observe and learn from the experiences of institutions that are committed to improving student outcomes. During the initiative, early themes and insights led to more nuanced or entirely new questions about the process and approaches that Frontier Set institutions were taking toward change, especially during the COVID-19 disruptions that occurred during in the latter half of this initiative. Along with the rest of the nation and higher education community, our attention turned even more closely to reform efforts and transformation approaches that were not just attuned to closing gaps in student outcomes but were also *equity-minded* in vision and implementation. The value of what was learned from the Frontier Set is not just in the findings presented in this report, but the value also results from the important questions and areas for deeper exploration and examination that emerged about transformation as a result of the findings.

Going forward, practitioners and researchers might use this work to launch efforts to build on this initial ground. We consider priorities in three areas:

- ***Advancing the definition and exploring new approaches to transformation and equity.*** Future research and practices could explore new definitions or approaches to transformation, including approaches that *start* with a focus on equity for students and the concepts of servingness or with approaches that look beyond only the institution as the unit of change and degree attainment as the outcome, to instead situate institutions in their broader communities and labor markets. Questions could also explore transformation through the specific lens of the student experience—building on situations where COVID-19 disruptions served as a catalyzing event, whereby institutions came to understand their students' lives, needs, and experiences, and examining what it would take to rethink their processes and structures in a responsive way.
- ***Role and organization of people.*** The intermediaries and members of the Frontier Set consistently encountered questions about the roles that individuals and groups played (e.g., faculty) *and* the structures and processes that made it possible for them to participate and engage in problem identification, efforts to implement changes, and continuous improvement practices. Future research could focus on exploring various approaches to faculty and staff *engagement* in change, including their roles in identifying barriers throughout students' experiences and developing ideas for solving or addressing those barriers. In particular, we encourage researchers to explore the

specific communication and decision-making structures and processes—and enabling cultures—that support and create meaningful and productive faculty and staff engagement.

- ***Long-term changes.*** As described in the section about institutions' KPIs, the Frontier Set's long-term outcomes are unknown. Future research could explore the long-term effectiveness of whole-institution transformation efforts on student outcomes. Qualitative work could also examine factors that contribute to sustainability—particularly during senior- or mid-level leadership changes—and to institutions building momentum and pressing for ongoing improvement.

KPI Technical Appendix

Key Performance Indicators and Quantitative Analysis Methodology

Data Source

The quantitative analyses conducted for this report draw on student-level data files provided from the National Student Clearinghouse (the Clearinghouse) as part of its Postsecondary Data Partnership (PDP) initiative.[5] The Clearinghouse provided a separate data file for each postsecondary institution participating in the Frontier Set initiative. The data files reflect cohort years 2011–12 through 2019–20.[6] The American Institutes for Research® (AIR®) aggregated these individual institutional data files into a panel analytic data file that encompasses the universe of institutions in the Frontier Set network.

AIR also conducted an independent assessment of the quality of the data to identify data elements and key performance indicators (KPIs) that raised reliability and/or validity concerns. These assessments considered several factors, including missing data, year-to-year volatility, and differences in how institutions defined various data elements.

KPI Calculations

All KPIs were derived by AIR using the standardized methodology advanced by the Clearinghouse's PDP (Exhibit A-1).

Exhibit A-1. Definitions of KPIs

KPI	Definition
15/30 credit accumulation rate (CAR)	The 15/30 CAR measures the share of entering credential-seeking students who successfully completed enough credits to satisfy yearly credit thresholds in their first year. Thresholds are defined as 30 credential-bearing credit hours for full-time students and 15 credit hours for part-time students. The number of earned credits is summed across the enrollment year, including summer and intersession terms.

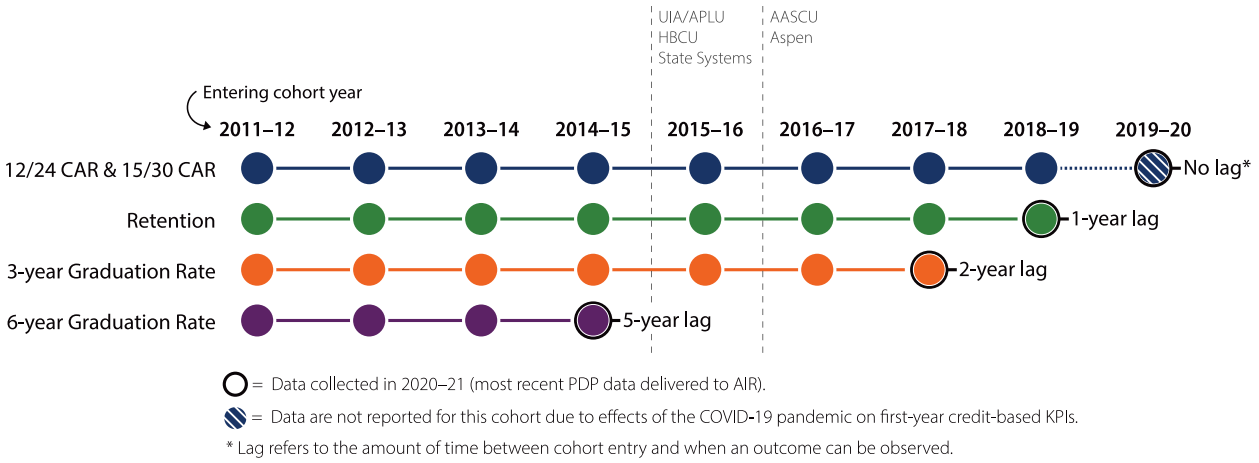
[5] Through the PDP contract process, Frontier Set institutions authorized AIR access to their PDP data. As part of these data sharing agreements, AIR agreed to use de-identified data elements for the purpose of producing reports of aggregated data and to maintain a comprehensive program of risk mitigation and information security.

[6] Cohort year refers to the year in which students first enrolled at the institution, inclusive of all terms (fall, spring, summer). A cohort includes all credential-seeking undergraduate students who attempted at least one course for the first time at an institution in a given cohort year. Students in the cohort may be first-time undergraduate students or new transfer students. They may be enrolled at any program level and must be credential-seeking. Cohorts exclude current dual-enrollment students (i.e., students who take a course or courses at the institution while simultaneously attending high school). However, cohorts include past dual-enrollment students who meet other inclusion criteria. Cohorts include fall-entry students who enrolled in summer work (e.g., summer bridge programs or developmental/remedial coursework) before their first term of enrollment with credential-seeking status.

KPI	Definition
Retention rate	The first-to-second-year retention rate reflects the share of entering credential-seeking students who enrolled in their second year or had completed a credential before the end of their second year at their original institution.
150% graduation rate	The 150% graduation rate measures the share of credential-seeking students who earned a certificate or degree from their original institution within 150% of normal time (i.e., within 3 years for those seeking a certificate or associate's degree or within 6 years for those seeking a bachelor's degree).

Note that measurement lags exist for KPIs that require more than 1 year to observe the outcome (i.e., retention rate and 150% graduation rate). In effect, this means that 6-year graduation rates observed in 2019–20 capture students who entered an institution in 2014–15. These students would not have experienced first-year interventions associated with the Frontier Set initiative (which began in 2015–16 for Wave 1 institutions and in 2016–17 for Wave 2 institutions).[7] Exhibit A-2 displays the available cohort years for each KPI, distinguishing between the timing of cohort entry and outcome observation.

Exhibit A-2. Timeframe for observing KPI outcomes, by entering cohort year and KPI



Note. Each dot indicates that data are available for that entering cohort year and KPI.

Approach to Conducting Analyses of Overall Trends in Student Success KPIs

The report uses descriptive trend analyses to understand how the distribution of KPI values changed among Frontier Set institutions between 2011–12 (the earliest cohort data available to AIR) and the most recent

[7] Wave 1 refers to the first group of institutions—supported by intermediaries from the University Innovation Alliance–Association of Public and Land-Grant Universities (UIA–APLU), Historically Black Colleges and Universities (HBCUs), and the state system—that joined the Frontier Set initiative in 2015–16. Wave 2 refers to the subsequent group of institutions – supported by intermediaries from the American Association of State Colleges and Universities (AASCU) and The Aspen Institute—that joined the Frontier Set in 2016–17.

cohort data available.[8] We calculated changes between the median KPI rates between the base cohort year and most recent cohort year, as median values are less influenced by outliers than they are by mean values.

Approach to Conducting Analyses of Equity in Student Success KPIs

To examine equity in student success KPIs among Frontier Set institutions, this study used the percentage point gap index approach, which measures the difference in percentage points between the educational outcomes of a particular group of students and the overall average for those outcomes across all demographic subgroups (Sosa, 2017). The index is calculated as follows:

> *Percentage point gap = Percentage of outcome for all students – Percentage of outcome for student subgroup*

Despite no agreed-on benchmark, point gap values of 3 points may be evidence of disproportionate effects.[4] Note that disproportionate effects may be inadvertently obscured for student groups with large proportions because outcomes will be close to the overall average. To mitigate this issue, larger groups (i.e., groups representing at least 30% of the student cohort) were compared with an aggregate value that did not include the group in question (e.g., Latino versus non-Latino students). For example, at all Historically Black Colleges and Universities in the Frontier Set, Black students comprised greater than 30% of the student population. Thus, outcomes for Black students were compared with the outcomes for all other non-Black students for these institutions. See Exhibit A-3 for a count of institutions for which this methodology was used.

Exhibit A-3. Number of institutions for which student groups represented at least 30% of the total cohort, by student group, KPI, and cohort type

Student group	KPI	Number of institutions with bachelor's degree-seeking cohorts	Number of institutions with certificate or associate's degree-seeking cohorts
Black students	15/30 CAR	3	2
	Retention rate	7	2
	150% graduation rate	6	2
Latino students	15/30 CAR	3	3
	Retention rate	4	4
	150% graduation rate	3	4

Note. Counts reflect institutions for which student group outcomes were compared with an aggregate value that did not include the group in question.

[8] Medium- and long-term KPIs beyond the first-year credit-based metrics have a time lag before the outcomes can be observed. Due to this measurement lag and the availability of PDP data to AIR, the most recent cohort year is 2014–15 for 6-year graduation rates, 2017–18 for 3-year graduation rates, and 2018–19 for retention rates. Although data are available for 15/30 CARs for 2019–20, we use 2018–19 to reflect more typical institutional performance before the negative impacts of the COVID-19 pandemic in spring 2020.

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